



48th Annual Congress of Indian Society for Veterinary Surgery & National Symposium

Integrated Horizons in Veterinary
Surgery and Imaging: from
Scalpel to Screen

26th to 28th February, 2026

Compendium



Organized by
Department of Veterinary Surgery & Radiology
College of Veterinary Science & Animal Husbandry
Nanaji Deshmukh Veterinary Science University
Jabalpur - 482001, Madhya Pradesh

Departmental Activities at a Glance...





48th Annual Congress
of
Indian Society for Veterinary Surgery (ISVS)
&
National Symposium on

**“INTEGRATED HORIZONS IN VETERINARY SURGERY AND IMAGING:
FROM SCALPEL TO SCREEN”**

Feb 26-28, 2026

ISVS-2025

COMPENDIUM

Editors

Apra Shahi
Shobha Jawre
Randhir Singh
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Apoorva Mishra

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Department of Veterinary Surgery & Radiology
College of Veterinary Science & Animal Husbandry
Nanaji Deshmukh Veterinary Science University
Jabalpur - 482001, Madhya Pradesh



Department of Veterinary Surgery & Radiology
College of Veterinary Science & Animal Husbandry
Nanaji Deshmukh Veterinary Science University
Jabalpur (M.P.)



ISVS-2025

48th Annual Congress of Indian Society for Veterinary Surgery (ISVS) & National Symposium on
“INTEGRATED HORIZONS IN VETERINARY SURGERY AND IMAGING: FROM SCALPEL TO SCREEN”

Feb 26–28, 2026

TECHNICAL PROGRAMME

February 26, 2026 (Thursday)

S.No.	Time	Events	Venue
1.	08:00 AM to 10:00 AM	Breakfast and Registration	Food Court
2.	10:00 AM to 12:00 PM	Inauguration	Auditorium
3.	12:00 PM to 12:30 PM	High Tea	Food Court
4.	12:30 PM to 01:00 PM	O. Ramakrishna Oration Award	Auditorium
5.	01:00 PM to 01:30 PM	Theme Session	Auditorium
6.	01:30 PM to 02:30 PM	Lunch	Food Court
7.	02:30 PM to 06:00 PM	Anesthesiology Session	Auditorium
8.	02:30 PM to 06:00 PM	Radiology and Imaging Session	Dean Conference Hall
9.	02:30 PM to 06:00 PM	Wild and Zoo Animal Session	Wildlife Conference Hall
10.	04:00 PM to 04:15 PM	Tea Break	Food Court
11.	07:00 PM to 09:00 PM	Cultural Program	Auditorium
12.	09:00 PM onward	Dinner	Food Court

February 27, 2026 (Friday)

S.No.	Time	Events	Venue
1.	08:00 AM to 10:00 AM	Breakfast	Food Court
2.	10:00 AM to 01:30 PM	Small Animal Surgery Session	Auditorium
3.	10:00 AM to 01:30 PM	Orthopedic Surgery Session	Dean Conference Hall
4.	10:00 AM to 01:30 PM	Ruminant Surgery	Wildlife Conference Hall
5.	12:00 PM to 12:15 PM	Tea Break	Food Court
6.	01:30 PM to 02:30 PM	Lunch	Food Court
7.	02:30 PM to 06:00 PM	Avian Surgery Session	Auditorium
8.	02:30 PM to 06:00 PM	Equine Surgery Session	Dean Conference Hall
9.	02:30 PM to 06:00 PM	Ophthalmology Session	Wildlife Conference Hall
10.	04:00 PM to 04:15 PM	Tea Break	Food Court
11.	10:00 AM to 06:00 PM	Small Animal Poster	Wildlife Gallery
12.	10:00 AM to 06:00 PM	Large Animal Poster	Pharmacology Gallery
13.	08:00 PM onward	Gala Dinner	Hotel Pasricha

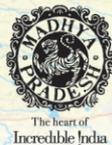
February 28, 2026 (Saturday)

S.No.	Time	Events	Venue
1.	08:00 AM to 10:00 AM	Breakfast	Food Court
2.	09:00 AM to 10:30 AM	Award Session	Auditorium
3.	10:30 AM to 10:45 AM	Tea Break	Food Court
4.	10:45 AM to 12:45 PM	Plenary Session and GB Meeting	Auditorium
5.	12:45 PM onward	Lunch	Food Court
6.	After Lunch	Excursion	Near Dean Office

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सत्यमेव जयते

राज्यपाल, मध्यप्रदेश
GOVERNOR OF MADHYA PRADESH

लोक भवन
भोपाल - 462003
Lok Bhavan
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क्रमांक:954/लोकभवन/2025
भोपाल, दिनांक 15 दिसम्बर, 2025

संदेश

हर्ष का विषय है कि नानाजी देशमुख पशु चिकित्सा विज्ञान विश्वविद्यालय, जबलपुर के अंतर्गत पशु चिकित्सा एवं पशुपालन महाविद्यालय द्वारा भारतीय पशु शल्य चिकित्सा समाज का 48 वां वार्षिक अधिवेशन पर चर्चा और राष्ट्रीय संगोष्ठी का आयोजन किया जा रहा है। "पशु शल्यचिकित्सा एवं इमेजिंग में एकीकृत क्षितिज: स्कैल्पल से स्क्रीन तक" विषय पर स्मारिका का प्रकाशन सराहनीय है।



भारत कृषि प्रधान देश है। ग्रामीण और कृषि अर्थव्यवस्था में पशुधन का अत्यंत महत्वपूर्ण योगदान है। पशु चिकित्सा, उन्नत कृषि, पशु संरक्षण और संवर्धन की दृष्टि से विज्ञान की अत्यंत महत्वपूर्ण शाखा बन गई है। तकनीकी नवाचारों जैसे- इमेजिंग तकनीक, कंप्यूटर-एडेड डिजाइन, तथा थ्री-डी प्रिंटिंग ने पशु स्वास्थ्य की बेहतरी, नस्ल सुधार और शल्य चिकित्सा को अधिक सटीक, सुरक्षित और प्रभावी बनाया है। संगोष्ठे का आयोजन युवा पशु चिकित्सकों और वैज्ञानिकों के लिए नई तकनीक एवं शोध एवं अनुभवों को साझा करने का सार्थक मंच होता है।

आशा है, स्मारिका पशुधन स्वास्थ्य, उत्पादकता तथा ग्रामीण अर्थव्यवस्था के सुदृढीकरण प्रयासों में महत्वपूर्ण योगदान देगी। संगोष्ठी, पशु शल्य चिकित्सा की नवीन दिशा दर्शन में सहयोगी होगी।

शुभकामनाएं

मंगुभाई पटेल
(मंगुभाई पटेल)

डॉ. मोहन यादव
Dr. Mohan Yadav



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मुख्यमंत्री, मध्यप्रदेश
Chief Minister, Madhya Pradesh

क्रमांक:27/मु.मं.प्रे.प्र./26
भोपाल, दिनांक 18/01/2026

संदेश

प्रसन्नता का विषय है कि नानाजी देशमुख पशुचिकित्सा विज्ञान विश्वविद्यालय, जबलपुर "पशु शल्य चिकित्सा एवं इमेजिंग में एकीकृत क्षितिज: स्कैल्पल से स्क्रीन तक" विषय पर 48वां वार्षिक अधिवेशन और स्मारिका का प्रकाशन कर रहा है।



पशु चिकित्सा विज्ञान के क्षेत्र में तीव्र प्रगति हुई है। शल्य चिकित्सा सहित इमेजिंग तकनीकों का एकीकरण पशुओं की जटिल बीमारियों के निदान, उपचार और पुनर्वास में यह क्षेत्र नए आयाम सीपित कर रहा है। पारंपरिक शल्य पद्धति के साथ-साथ कम्प्यूटर आधारित डिजाइन, थ्री-डी प्रिंटिंग और डिजिटल इमेजिंग जैसे तकनीकी नवाचारों ने पशु शल्य चिकित्सा को अधिक सुरक्षित और परिणामोन्मुखी बनाया है। राज्य सरकार पशु स्वास्थ्य, पशुपालन एवं डेयरी विकास के लिए प्रतिबद्ध है।

मुझे विश्वास है कि अधिवेशन में प्रस्तुत विचार, अनुसंधान और शोध पत्रों की प्रस्तुति से राज्य के पशुधन को बढ़ाने और पशुओं की स्वास्थ्य सुरक्षा को सुदृढ़ करने में मदद मिलेगी।

हार्दिक शुभकामनाएं।

(डॉ. मोहन यादव)

(मोहन यादव)

लखन पटेल
Lakhan Patel



राज्यमंत्री (स्वतंत्र प्रभार)
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संदेश

मुझे यह जानकर प्रसन्नता हो रही है कि नानाजी देशमुख पशु चिकित्सा विज्ञान विश्वविद्यालय, जबलपुर के अन्तर्गत पशु चिकित्सा एवं पशुपालन महाविद्यालय जबलपुर द्वारा ISV का "पशु शल्य चिकित्सा एवं इमेजिंग में एकीकृत क्षितिज: स्कैल पेलसेस्क्रीन तक" विषय पर राष्ट्रीय संगोष्ठी का आयोजन किया जा रहा है। इस अवसर पर मैं सभी वैज्ञानिकों, विशेषज्ञों, शिक्षकों, विद्यार्थियों और आयोजकों को हार्दिक शुभकामनाएँ देता हूँ।



पशु चिकित्सा विज्ञान में हो रहे निरंतर शोध और तकनीकी नवाचार आज हमारे पशुधन क्षेत्र के लिए नई संभावनाओं के द्वार खोल रहे हैं। आधुनिक इमेजिंग, न्यूनतम आक्रामक शल्य तकनीकी और डिजिटल उपकरणों का प्रयोग न केवल निदान और उपचार की सटीकता बढ़ रहा है, बल्कि पशुओं की पीड़ा को भी कम कर रहा है। "स्कैल पेलसेस्क्रीन तक" का यह विषय इस बात का प्रतीक है कि कैसे पशु शल्य चिकित्सा पारंपरिक विधियों से आगे बढ़कर आधुनिक वैज्ञानिक दृष्टिकोण को अपनाते हुए एक नई दिशा में अग्रसर है।

ऐसे आयोजन न केवल ज्ञान-विज्ञान के आदान-प्रदान का मंच प्रदान करते हैं, बल्कि युवा शोधकर्ताओं और चिकित्सकों को नवाचार और व्यावहारिक अनुप्रयोग की प्रेरणा भी देते हैं। यह सम्मेलन पशु स्वास्थ्य, उत्पादकता और किसानों की आय में वृद्धि के हमारे साझा उद्देश्य को और सशक्त बनाएगा।

मध्यप्रदेश सरकार पशु पालन एवं डेयरी क्षेत्र के सर्वांगीण विकास के लिए प्रतिबद्ध है। मुझे विश्वास है कि इस संगोष्ठी में प्रस्तुत विचार और अनुसंधान भविष्य की वैज्ञानिक प्रगति की दिशा में महत्वपूर्ण योगदान देंगे।


(लखन पटेल)

डॉ. राघवेंद्र भट्ट

उप महानिदेशक (पशु विज्ञान)

Dr. Raghavendra Bhatta

Deputy Director General (Animal Science)

M.V.Sc. Ph.D., Postdoctorate (Japan, USA)



भारतीय कृषि अनुसंधान परिषद्

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Indian Council of Agricultural Research

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No. AS/PS/DDG(AS)/Message/2026/1
Dated 12th January, 2026

Message

It is a matter of great pride and pleasure to convey my warm greetings to all the delegates and organizers of the 48th Annual Congress of the Indian Society for Veterinary Surgery and the National Symposium on "Integrated Horizons in Veterinary Surgery and Imaging: From Scalpel to Screen".

The chosen theme beautifully captures the evolving spirit of veterinary surgery where traditional craftsmanship meets the precision of modern imaging and digital technology to elevate standards of animal care.

Veterinary surgery today is witnessing an exciting transformation. The integration of advanced imaging, endoscopic procedures and digital diagnostic tools is redefining the limits of what can be achieved in the operating room. The evolution from scalpel to screen represents more than a technological shift; it is a testament to our profession's adaptability, innovation and enduring commitment to animal welfare and scientific excellence.

ICAR has always encouraged research and capacity building in advanced surgical and imaging techniques to strengthen veterinary education, clinical practice and livestock health services. The convergence of modern imaging and surgical precision offers vast opportunities to improve diagnosis, treatment outcomes and overall animal productivity, key priorities in our national livestock development strategy.

I commend the Indian Society for Veterinary Surgery and the host institution for organizing this important event that brings together surgeons, scientists and educators from across the country. Such gatherings are vital for inspiring innovation, fostering collaboration and translating scientific advances into field-level applications that benefit farmers and animal owners alike.

I wish the congress grand success and hope that the deliberations will lead to new insights and partnerships that strengthen the future of veterinary surgery and imaging in India.




(Raghavendra Bhatta)

डॉ. उमेश चन्द्र शर्मा
अध्यक्ष, वी.सी.आई.
Dr. Umesh Chandra Sharma
President, VCI



भारतीय पशु चिकित्सा परिषद्
Veterinary Council of India
(भारत सरकार का वैधानिक निकाय)
(Statutory body of the Government of India)
'ए' विंग, दूसरी मंजिल, अगस्त क्रान्ति भवन,
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Message

It gives me immense pleasure to extend my heartfelt greetings and best wishes to the organizers, delegates and participants of the 48th Annual Congress of the Indian Society for Veterinary Surgery and the National Symposium on "Integrated Horizons in Veterinary Surgery and Imaging: From Scalpel to Screen."



This year's theme is both timely and forward-looking, reflecting the remarkable transformation that veterinary surgery is undergoing in the digital era. The integration of advanced imaging, minimally invasive techniques, robotics and digital diagnostics has revolutionized surgical precision and patient care. These innovations not only enhance clinical outcomes but also embody our collective commitment to animal welfare and evidence-based veterinary practice.

The Veterinary Council of India strongly supports such academic forums that encourage collaboration between clinicians, researchers, educators and industry partners. It is through these interactions that we strengthen the bridge between traditional surgical expertise and modern technological advancements, ensuring our profession remains dynamic and globally relevant.

I am confident that the deliberations and scientific exchanges during this congress will inspire new ideas, foster research collaborations and pave the way for continued excellence in veterinary surgery and imaging in India. I commend the Indian Society for Veterinary Surgery and the host institution for their dedication and effort in organizing this prestigious event.

I extend my best wishes for the grand success of the conference and for fruitful deliberations that will benefit the entire veterinary fraternity.

(Umesh Chandra Sharma)



प्रो. (डॉ.) मनदीप शर्मा
कुलगुरु
Prof. (Dr.) Mandeep Sharma
Vice-Chancellor

नानाजी देशमुख पशुचिकित्सा विज्ञान विश्वविद्यालय
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Message

It is a matter of immense pride and privilege to extend my heartfelt greetings to all delegates, organizers and participants of the 48th Annual Congress of the Indian Society for Veterinary Surgery and the National Symposium on "Integrated Horizons in Veterinary Surgery and Imaging: From Scalpel to Screen".

This conference stands as a beacon of progress in the field of veterinary science, reflecting the remarkable journey of our profession from conventional surgical practice to a new era of technological precision. The theme "From Scalpel to Screen" beautifully encapsulates this transformation a shift that celebrates the harmony between human skill and digital innovation, between experience and evidence and between compassion and cutting-edge science.

The integration of advanced imaging, minimally invasive procedures and digital diagnostic tools has redefined the scope and impact of veterinary surgery. Today, the modern surgeon is not only a clinician, but, also a scientist, innovator and lifelong learner. By fostering the evolving spirit of willingness to adapt, and exploring and redefining the boundaries will lead towards excellence and global relevance.

At Nanaji Deshmukh Veterinary Science University, we take immense pride in fostering a culture that values both tradition and transformation. Through our academic programs, research initiatives and clinical training, we aim to prepare veterinarians who are not only skilled practitioners, but, also visionary thinkers capable of leading India's veterinary sector into a future shaped by innovation, technology and empathy for all living beings.

I sincerely appreciate the Indian Society for Veterinary Surgery and the organizing committee for curating this prestigious event that brings together distinguished experts, researchers and young professionals. May this congress serve as a platform for intellectual exchange, scientific discovery and renewed inspiration to elevate the standards of veterinary surgery and animal welfare in our country.

I extend my best wishes for the grand success of this event and for thoughtful deliberations that will illuminate new pathways in veterinary surgical science and education.



(Mandeep Sharma)



नानाजी देशमुख पशुचिकित्सा विज्ञान विश्वविद्यालय
प्रशासनिक भवन, अधास्ताल, जबलपुर (म.प्र.) - 482004 भारत

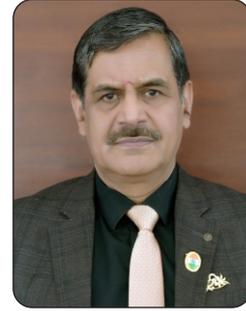
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Message

It fills me with immense joy and pride to extend my warm greetings to all delegates, participants and organizers of the 48th Annual Congress of the Indian Society for Veterinary Surgery and the National Symposium on "Integrated Horizons in Veterinary Surgery and Imaging: From Scalpel to Screen." This event stands as a celebration of collective wisdom, innovation and the spirit of collaboration that drives our veterinary fraternity forward. Bringing together surgeons, researchers and educators from across the country, it provides an inspiring platform to share experiences and envision the future of veterinary surgical science.



This year's theme beautifully captures the ongoing transformation in our field. Veterinary surgery today is not confined to the operating table, it is a discipline enriched by advanced imaging, minimally invasive procedures and digital diagnostics that redefine accuracy and care. The progression from scalpel to screen symbolizes not just technological advancement but also a deeper integration of science, compassion and professional excellence.

At Nanaji Deshmukh Veterinary Science University, we take immense pride in nurturing a culture of learning and discovery that empowers veterinarians to adapt to these advancements. Conferences such as this play a vital role in bridging academia, research and clinical practice, ensuring that innovations ultimately benefit both animals and the farmers who depend on them.

I congratulate the Indian Society for Veterinary Surgery and the organizing team for their commitment and hard work in hosting this prestigious event. I am confident that the deliberations and interactions during the congress will inspire new ideas, strengthen collaborations and pave the way for greater achievements in veterinary surgery and imaging.

I wish the conference grand success and hope that it leaves every participant enriched, motivated and proud to be part of this noble profession.

(S.S. Tomar)

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DIRECTOR



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अर्द्धशासकीय पत्र क्रमांक: 27/मु.मं.प्रे.प्र./26
भोपाल, दिनांक 15/01/2026

Message

It is my honour to extend my warm greetings to all participants, organisers and distinguished guests at the 48th Annual Congress of the Indian Society for Veterinary Surgery and the accompanying National Symposium on "Integrated Horizons in Veterinary Surgery and Imaging: From Scalpel to Screen."



In an era where veterinary practice is rapidly evolving, this theme encapsulates a vital journey from the familiar terrain of the scalpel to the dynamic frontier of imaging and digital diagnostics. It reflects not only the technological advancement of our profession but also our deepening commitment to improved animal welfare, precision treatment and sustainable livestock development.

In Madhya Pradesh, our veterinary services strive to integrate modern surgical techniques and imaging tools into field practice, ensuring that innovations reach both large-scale livestock systems and smaller backyard enterprises. By doing so, we aim to elevate clinical outcomes, reduce recovery time for animal patients and support the livelihoods of our farmers and livestock keepers.

I congratulate the Indian Society for Veterinary Surgery and the host institution for bringing together such a rich forum of experts, practitioners, researchers and students. May this congress and symposium serve as a catalyst for collaboration, knowledge exchange and practical innovation.

I extend my best wishes for a productive and successful event and I look forward to the breakthroughs and partnerships that will emerge from this gathering for the benefit of our veterinary fraternity and the animals we serve.

(P.S. Patel)



INDIAN SOCIETY FOR VETERINARY SURGERY

Dr. B. Ramesh Kumar, M.V.Sc; PhD
F. ISVS; F.AO (Swiss)

Message

It gives me immense pride and pleasure to greet the distinguished members of the veterinary fraternity, eminent scientists, and budding scholars on the 48th Annual Congress of the Indian Society for Veterinary Surgery (ISVS) and the National Symposium on "Integrated Horizons in Veterinary, Surgery and Imaging: From Scalpel to Screen."



Our field is currently navigating a pivotal era of transformation. The transition from traditional surgical methods to advanced digital interventions—symbolized by our theme "From Scalpel to Screen"—is not merely a change in technique, but a leap toward precision, minimally invasive care, and enhanced diagnostic accuracy. By integrating sophisticated imaging modalities with surgical expertise, we are redefining the boundaries of animal healthcare and welfare.

Hosting this prestigious event in the historic city of Jabalpur from February 26th to 28th, 2026, provides an ideal platform for intellectual exchange. It is my hope that this Compendium serves as a valuable repository of cutting-edge research, innovative ideas, and shared experiences that will inspire the veterinary academicians and practitioners across the nation.

I extend my heartfelt congratulations to the Organizing Committee for their meticulous planning and dedication in bringing this symposium to fruition. I am confident that the deliberations over these three days will pave the way for a more technologically advanced and compassionate future in veterinary surgery.

I wish the Congress and the Symposium a resounding success.

B. Ramesh Kumar

President, Indian Society for Veterinary Surgery (ISVS)

FROM THE EXECUTIVE SECRETARY'S PEN

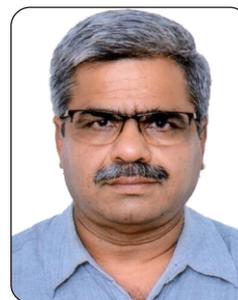
Dr. D.B. Patil
Executive Secretary
Indian Society for Veterinary Surgery (ISVS)



M. No. : 9825427650
Email:esisvs1977@gmail.com

Message

It is a matter of immense pride and joy that the Indian Society for Veterinary Surgery (ISVS) is hosting its 48th Annual Congress and National Symposium on "Integrated Horizons in Veterinary Surgery and Imaging: From Scalpel to Screen" from February 26-28, 2026, at the Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Nanaji Deshmukh Veterinary Science University (NDVSU), Jabalpur, Madhya Pradesh.



ISVS places on record its deep appreciation for Team Jabalpur, whose tireless efforts and dedication have made this mega scientific event possible in the historic cultural city of Jabalpur. It is indeed remarkable that the organizing team is led by an inspiring group of women academicians-Dr. Apra Shahi, Professor & Head; Dr. Shobha Jawre, Professor, Dr. Babita Das, Professor and Dr. Apoorva Mishra, Assistant Professor-whose leadership and commitment exemplify excellence and inclusivity in veterinary science.

I eagerly look forward to welcoming distinguished delegates, researchers, and practitioners from across the country to this scientific extravaganza, which promises to be a crucible where knowledge is refined, innovations are born, and friendships are forged.

I sincerely hope this conference will have a lasting impact on all participants through meaningful knowledge-sharing and advance the frontiers of veterinary surgery and imaging.

On behalf of ISVS, I extend my best wishes for the grand success of the conference

"Each of us is an important part of our common mission-Viksit Bharat 2047."

Long live ISVS! Jai Hind!


(D.B. Patil)

**COLLEGE OF VETERINARY SCIENCE & ANIMAL HUSBANDRY
NANAJI DESHMUKH VETERINARY SCIENCE UNIVERSITY, JABALPUR (M.P.)**

Dr. Rajesh Kumar Sharma
Dean
Chairman, VIPMCON-2025



Fax /Ph. No. 0761-2621330
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Email Id- deancovsjbp55@gmail.com

Message

I take this opportunity to express my profound appreciation and extend my warmest wishes to all the delegates, distinguished speakers and participants attending the 48th Annual Congress of the Indian Society for Veterinary Surgery and the National Symposium on “Integrated Horizons in Veterinary Surgery and Imaging: From Scalpel to Screen.”



The theme of this year's congress beautifully encapsulates the dynamic transformation

that veterinary surgery is undergoing in the modern era. The journey from scalpel to screen represents far more than a technological shift, it signifies the seamless integration of surgical expertise with cutting-edge imaging, diagnostics and minimally invasive techniques. This evolution has profoundly enhanced precision, reduced recovery time and elevated the standard of animal care, reaffirming our profession's enduring commitment to compassion, innovation and scientific excellence.

As one of the premier veterinary institutions in the country, the College of Veterinary Science and Animal Husbandry, Jabalpur, under the aegis of Nanaji Deshmukh Veterinary Science University, takes immense pride in contributing to this forwardlooking discourse. The college remains dedicated to advancing veterinary education and fostering an environment where research, skill development and technology converge to produce globally competent professionals. Hosting this prestigious event provides us an invaluable opportunity to facilitate meaningful dialogue and exchange of ideas among academicians, clinicians and researchers from across the nation.

I sincerely appreciate the Indian Society for Veterinary Surgeons and the organizing committee for their meticulous planning, scholarly vision and tireless efforts in bringing together a distinguished array of experts and participants. I am confident that the deliberations during this congress will open new avenues for collaboration, inspire young minds and contribute significantly to the growth of veterinary surgical science in India.

I extend my warmest wishes for the grand success of this congress and hope it becomes a memorable milestone in the collective journey of veterinary innovation and excellence.

(R.K. Sharma)

**DEPARTMENT OF VETERINARY SURGERY
COLLEGE OF VETERINARY SCIENCE & ANIMAL HUSBANDRY
NANAJI DESHMUKH VETERINARY SCIENCE UNIVERSITY, JABALPUR (M.P.)**

Dr. Apra Shahi

Director Clinics & Professor and Head



Mob. No.9770254495

Email Id- aprashahi12@rediffmail.com

Message

Greetings from Jabalpur – the Heart of Incredible India!

It is both an honour and a privilege to welcome you all to the historic city of Jabalpur and to the 48th Annual Congress of Indian Society for Veterinary Surgery and the National Symposium on “Integrated Horizons in Veterinary Surgery and Imaging: From Scalpel to Screen.”



Nestled along the banks of the sacred Narmada River, Jabalpur is a land where nature, culture and history harmoniously intertwine. Often called the Sanskaar Dhaani of Madhya Pradesh, this vibrant city is adorned with the breathtaking marble rocks of Bhedaghat, where the Narmada flows gracefully through shimmering white cliffs and the thunderous Dhuandhar Falls echo nature's power and beauty. This land, steeped in spiritual energy and natural wonder, welcomes you with open arms and warm hearts.

College of Veterinary Science and Animal Husbandry, Jabalpur established in 1948, stands among India's pioneering institutions in veterinary education. Over seven decades, it has evolved into a centre of excellence in animal health, research and surgical innovation. The Department of Surgery and Radiology has played a defining role in advancing veterinary surgery and imaging, embodying the theme “From Scalpel to Screen.” This theme reflects the transformation of surgery from skilled hands to technological precision, as imaging, endoscopy and minimally invasive techniques revolutionize diagnosis and treatment. The congress thus celebrates this integration and marks a collective stride toward the future of veterinary surgical excellence.

Hosting this prestigious event is a matter of immense pride for us. It has been made possible by the guidance of our seniors, the support of the ISVS Executive Committee and the relentless dedication of our organizing team. We have strived to blend scientific rigour with the warmth of Jabalpur's hospitality, ensuring that your time here is both intellectually enriching and personally memorable.

On behalf of the organizing committee, I extend my heartfelt gratitude to the President, Executive Members and all delegates of ISVS for reposing their faith in us. May your stay in Jabalpur be filled with learning, friendship and fond memories that you will cherish long after the congress concludes.

Welcome once again to Jabalpur — where tradition meets technology and compassion meets precision.


Organizing Secretary, ISVS-2025



ISVS 2025

INDIAN SOCIETY FOR VETERINARY SURGERY

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ISVS 2025

48TH ANNUAL CONGRESS OF INDIAN SOCIETY FOR VETERINARY SURGERY

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Committee	Name of the Faculty	Responsibility
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Press, Publicity and Photography		
Chairperson Co- Chair person Members	Dr. Sona Dubey Dr. Amita Tiwari Dr. Suman Kumar Dr. S.M Tripathi Dr. Pushkar Sharma Dr. Praveen Singh Dr. Neha Sharma Dr. Eshan Nema Mr. Anil Bichhele Mr. Twinkle Raikwar Mr. D.K. Sahu	<ul style="list-style-type: none"> To ensure pre and post conference publicity and local media coverage of the event To make arrangements for sound system, photography and videography

Purchase Committee

Chairperson Co- Chair person Members	Dr. Apra Shahi Dr. Shobha Jawre Dr. Randhir Singh Dr. Biswajeet Roy Dr. Babita Das Dr. Rahul Sharma Mr. Amit Vishwakarma	<ul style="list-style-type: none">• To maintain the account of income and expenditure• Closure of the symposium account after the event
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Registration, Certificate Preparation & Distribution Committee

Chairperson Co- Chair person Members	Dr Yamini Verma Dr Anand Jain Dr Vidhi Gautam Dr Reshma Jain Dr Bhavna Gupta Dr Arpana Raikwar Dr Pramod Sharma Dr Anshul Khare Dr Shilpa Gajbhiye Dr Priya Singh Dr Mayank Meena Dr Shivangi Thakur Dr. Disha Ubharey	<ul style="list-style-type: none">• To register the delegates & distribute the kits & certificates• To coordinate with accommodation & transport committee for hassle free arrangements
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Chairperson Co- Chair person Members	Dr Vaishali Khare Dr Nidhi Gupta Dr. Rakesh Barhaiya Dr Surbhi Yadav Dr Neelam Tandiya Dr Anuradha Nema Dr Shahshi Tekam Dr Bhavna Ahirwar Dr Nirmala Muwel Dr. Anil Shinde Dr. Tamanna	<ul style="list-style-type: none">• To receive the dignitaries and delegates during inaugural function• To oversee seating arrangement for guests
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Technical / Scientific Session Committee (Oral Presentation)

Chairperson Co- Chair person Members	Dr. D.K. Gupta Dr Anil Gattani Dr. Babita Das Dr. Payal Jain Dr. Nidhi Rajput Dr. Shilpa Gajbhiye Dr. Arpana Raikwar Dr. Shivangi Sharma Dr. Neha Sharma Dr. Rajat Garg Dr. Pradyumn Devaiah Dr. Krishna YK	<ul style="list-style-type: none">• To make all the required arrangements for presentation of the papers in different sessions in consultation with organising secretary• To felicitate lead speakers, chairpersons, co-chairpersons and rapporteurs
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Chairperson Co- Chair person Members	Dr. Sudipta Ghosh Dr. Mohan Singh Dr. P.K. Singh Dr. K.P Singh Dr. Dharmendra Kumar Dr. KshemkarShraman Dr. Brijesh Singh Dr. Sanju Mandal Dr. Rakesh Baraiya Dr. Rashmi Kulesh Dr. Anshul Khare Dr. Om Rajak Dr. Ankur P. Tirkey Dr. Ramesh Kumar	<ul style="list-style-type: none"> To supervise the arrangements for catering to delegates in the auditorium, pandal and during sessions To keep a record of the number of people taking meals
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Chairperson Co- Chair person Members	Dr. G. Das Dr. R. V. Singh Dr. S Nath Dr. Hari R Dr. Devendra Podhare Dr. Sachin Jain Dr. Manish Jatav Mr. Diwakar Mitra Dr. Mayank Deep Rajput Dr. Ravi Kumar H	<ul style="list-style-type: none"> To make arrangements for Audio-visual aids for oral presentation and co-ordinate with technical/ scientific session committee
Felicitation Arrangement Committee		
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Stage Decoration & Auditorium Management Committee		
Chairperson Co- Chair person Members	Dr. Rakhi Vaish Dr. S. Nath Dr. Amol Rokde Dr. Payal Jain Dr. Akansha Singh	<ul style="list-style-type: none"> To arrange and decorate the stage. To conduct the inaugural and valedictory function in co-ordination with cultural and

	Dr. Shashi Tekam Mr. Praveen Singh Dr. Muskan Yadav Dr. Swapna G.	announcement committee.
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Chairperson Co- Chair person Members	Dr. Aditya Mishra Dr. Apoorva Mishra Dr. Amita Tiwari Dr. Nidhi Rajput Dr. Payal Jain	<ul style="list-style-type: none"> Compereing on stage during inaugural
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Chairperson Co- Chair person Members	Dr. Girish Mishra Dr. Brijesh Singh Dr. Ankur Khare Dr. Amol Rokde Dr. Nidhi Gupta Dr. Ruchi Singh Dr. Ranbir Jatav Dr. R.P Singh Dr. Apoorva Mishra Dr. Abishek Bisen Dr. Shivangi Sharma Dr. Sachin Chandrakar Dr. Vinayak Mishra Dr. Manish Garje Dr. Krishna YK Dr. Ravi Kumar H Dr. Uttkarsh Chhillar Dr. Rajat Garg Dr. Nilesh Mandloi Dr. Vedant Dr. Vikas	<ul style="list-style-type: none"> To arrange accommodation for delegates in hotels, hostels and guesthouse To arrange the vehicles for pickup and drop of the delegates. To plan common excursion and help the delegates for any individual tour on demand
Publication Committee		
Chairperson Co- Chair person Members	Dr. Babita Das Dr. Randhir Singh Dr. Akshay Garg Dr. Payal Jain Dr. Manoj Ahirwar Dr. Apoorva Mishra Dr. Pradyumn Devaiah Dr. Eshan Nema Dr. Uttkarsh Chhillar Dr. Rajat Garg	<ul style="list-style-type: none"> To prepare the compendium, banners, certificates, I-cards, conference pads and arrange stationary etc

We are thankful for...

1.	Varun Beverages
2.	Kuno National Park
3.	Phoenix
4.	M P Tourism
5.	Fredna/ Freossi
6.	Allengers
7.	Virbac India
8.	Meril Sutures
9.	Mars Ortho
10.	CSIR
11.	Sanrad
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13.	Vetani
14.	E Saote
15.	Acumen
16.	Anavet
17.	Savavet
18.	Satpura Tiger Reserve
19.	Bandhavgarh National Park
20.	Hatvet
21.	ABS Petcare
22.	24K Milk
23.	Saanvi Pharma
24.	Virbac
25.	Jan Sampark Vibhag, Govt. of M.P.
26.	Shoy Ortho
27.	FSSAI-ALmarF
28.	Anand Medico Surgicals
29.	Vetoquinol
30.	Amul

ABOUT THE DEPARTMENT

The Department established in 1952, has grown into one of the most distinguished units of the College, recognized for its excellence in teaching, research, and extension activities, as well as for its outstanding clinical services throughout the state, including essential services to wildlife in National Parks whenever required.

The Department has organized total 32 trainings for field veterinarians on Large Animal Surgery, Small Animal Surgery and Radio-imaging in Veterinary Practice funded by ASCAD, RKVY, M.P. Government and DugdhSangh. This department has made landmark achievements in the subject and is considered one of the best in the country. Department has also hosted one National Conference cum Symposia of ISVS in the year 2004 and One day Workshop of Local Chapter of ISVS in the year 2021. Department is bestowed with Superspecialty Center for Large Animal Orthopedic and Prosthetic Limb Fitting Center which is the only unit of its kind in India. The department is well equipped with infrastructure like General Operation Theatre, and specialized Orthopedic, Ophthalmic, Laparoscopic, and Dental. It has Multipurpose Gastroscope, Mobile C-Arm Unit, 1000 mA X-Ray machine, Ultrasound unit, Colour Doppler, CR system and CT scan unit, Physiotherapy unit and 3-D printer.

Faculty of the department have been conferred with the National awards including Life Time Achievement Award from ISVS (01), Ratan Singh Memorial Award (01), National Fellow (03), Best Paper Award (30), Young Scientist Awards (04), INSPIRE Fellowship (01), Young Scientist Fellowship (06) and State Award & Appreciation (06). Total 10 students completed PhD and 135 students completed MVSc while 23 students are pursuing their PG programme.

Significant Achievements

- Department has developed a new technique for correction of hard milker condition in cow and buffaloes
- Established the technique of Vaginal Vestibulotomy in elephants for the surgical delivery of fetus for the first time in India
- Ultrasonography colour Doppler, spectral Doppler and echocardiography was started of domestic animals for the first time in M.P.
- Diagnosis and treatment of disorders of the naso-lacrimal duct was established for use in clinical practice (Conjunctivostomy)
- Augmentation of fracture healing using Bone Marrow Derived Mesenchymal Stem Cells along with β -TCP in goats
- Decellularized bubaline diaphragmatic scaffold for hernia repair and decellularized cancellous bone graft for fracture healing in canine
- Advanced orthopaedic procedures such as Interlocking nailing, LC-LCP, SOP, Plate pin construction and External fixation for small and large animals
- Use of autologous L-PRF and A-PRF for corneal ulcers healing and wound healing in dogs
- Phacoemulsification and intraocular lens implantation for cataract in dogs
- 3-D printed Prosthetic eye implantation in dogs
- Artificial molded limb with different types of socket prosthesis for cattle
- CT Scan, Contrast CT and spectral CT for dogs, cats, wild animals and exotic pets.

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O. Ramakrishna Oration Award



Redefining Veterinary Neurosurgery through Human Neurosurgical Innovations

Prof. Vijay Singh Parihar

MBBS, MS (Surg.), MCh, DNB (Neurosurg.)

Department of Neurosurgery, School of Excellence in Neurosurgery, Super Speciality Hospital, NSCB Govt. Medical College Jabalpur, Madhya Pradesh, India

Introduction

Veterinary neurosurgery is entering a new era defined by the adoption of cutting-edge technology borrowed from human medicine. One example is the development of the 3D-4K exoscope, a high-definition digital video microscope system that provides magnified 3D visualisation. Studies have shown that modern exoscopes are a safe and effective alternative to the traditional operating microscope, achieving surgical outcomes comparable to microscope-assisted surgery. Advances in neuroimaging—such as high-field MRI and CT with specialised techniques like Diffusion Tensor Imaging (DTI), functional MRI, and perfusion CT—combined with neuronavigation tools now allow neurosurgeons to plan brain and spine surgeries with unprecedented precision. These innovations have significantly improved surgical safety and outcomes in humans and are increasingly being applied to animal patients as well.

In one recent milestone, an augmented reality (AR)-based neuronavigation system (originally developed for human neurosurgery) was used to guide a canine brain tumour resection. This groundbreaking case employed a wearable AR display to superimpose the dog's MRI data as a hologram during surgery, a technology transfer directly from human neurosurgical practice. Likewise, high-powered operating microscopes and minimally invasive approaches (such as neuroendoscopy) have made inroads into veterinary neurosurgery, enabling delicate interventions through smaller incisions, reducing tissue trauma and speeding recovery. Enhanced critical care and anaesthesia protocols—paralleling human ICU standards—further contribute to better postoperative care for veterinary neurological patients. Together, these human-to-veterinary innovations are redefining neurosurgical practice in veterinary medicine, opening new frontiers in surgical precision and patient care.

Bridging Disciplines: The Human–Veterinary Neurosurgery Interface

Veterinary neurosurgery has entered this new era by drawing on advances from human neurosurgery. Innovations developed for human patients – from surgical techniques to therapeutic technologies – are now being adapted to animal care. This cross-disciplinary synergy provides invaluable insights and accelerates the translation of cutting-edge treatments into veterinary practice. By embracing a “One Medicine” approach (also known as One Health), veterinarians and human neurosurgeons are collaboratively bridging the gap between disciplines to improve neurologic outcomes for animal patients. Knowledge flows both ways: veterinary cases can in turn inform human medicine, creating a two-way street of innovation that benefits all species.

Advanced Neuroimaging: Adapting Human Diagnostics for Veterinary Care

Modern neurosurgery relies on sophisticated imaging, and veterinary medicine has rapidly adopted these tools. Advanced neuroimaging modalities such as magnetic resonance imaging (MRI) and computed tomography (CT), once exclusive to human medicine, are now widely available for animals – dramatically improving diagnostic accuracy and surgical planning. High-resolution scans and specialized techniques from human neuroradiology (for example, functional MRI brain mapping or 3D CT myelography for spinal cord visualization) allow veterinarians to localize brain and spinal lesions with precision. This revolution in imaging guides safer neurosurgical interventions and also enhances our understanding of neurological diseases in animals. In effect, veterinary diagnostic capabilities are increasingly

aligning with human standards, leading to more accurate diagnoses and better-informed treatment plans for pets with neurological conditions.

Cranial Surgery Innovations: Applying Human Neurosurgical Techniques in Animals

Techniques pioneered in human brain surgery are now redefining intracranial procedures in veterinary patients. The adoption of the operating microscope and refined microsurgical instruments in veterinary neurosurgery has enabled surgeons to perform delicate brain operations with far greater accuracy than was previously possible. Similarly, neuronavigation systems (brain “GPS” platforms for surgery) are being used to guide tumour resections in dogs and cats, allowing precise targeting of brain lesions in real time – an approach directly borrowed from human neurosurgical theatres.

One striking example of human-to-veterinary transfer is the transsphenoidal removal of pituitary tumours, which is the gold-standard approach for pituitary adenomas in people. This technique is now performed successfully in dogs and cats as well, yielding comparable remission rates – approximately 80–90% of treated animals achieve disease control with surgery, a success rate on par with human patients. Other advances, such as endoscopic neurosurgery for intraventricular cysts or hydrocephalus and stereotactic brain biopsy techniques for precise tissue diagnosis, have transitioned from human operating rooms to veterinary clinics. These adaptations enable safer, minimally invasive cranial surgeries on animal patients. In short, human neurosurgical innovations – from image guidance to advanced surgical approaches – are elevating the standard of care in veterinary neurology and neurosurgery.

Spinal Surgery Advances: Translating Human Techniques to Veterinary Practice

Veterinary spinal surgery has been transformed by borrowing orthopaedic and neurosurgical innovations from human medicine. Spinal stabilisation and repair in animals now often mirror the implants and techniques used in people. For instance, pedicle screw-and-rod fixation systems that revolutionised human spine surgery are now adapted for canine (and even equine) patients. These specialised spinal implants provide rigid stabilisation of the vertebrae, vastly improving outcomes for dogs with conditions like unstable fractures or lumbosacral stenosis. In addition, custom 3D-printed implants have emerged as a cutting-edge option – patient-specific titanium screws, plates, and guides can be designed to fit an individual animal’s anatomy, allowing surgeons to repair spinal deformities or fusions with unprecedented accuracy. By leveraging such hardware (including 3D-printed surgical guides and implants), veterinarians can achieve fixation strength and precision approaching that of human spine surgeries.

Minimally invasive spine surgery techniques are also making their way into veterinary use, inspired by human practice. Procedures like percutaneous laser disc ablation (to treat intervertebral disc disease without open surgery) and endoscopic spinal decompression are being explored in pets, reducing tissue trauma and postoperative pain. Additionally, improvements in intraoperative imaging and neuro-monitoring – for example, real-time fluoroscopy or even spinal cord evoked potential monitoring borrowed from human spinal surgery – help protect neural structures during critical procedures. By adopting these human-derived approaches, veterinary surgeons can address disc herniations, spinal tumors, and traumatic injuries in pets with greater efficacy and safety than ever before.

Future Directions: Embracing Technology and Human–Veterinary Collaboration

Looking ahead, the next frontier of veterinary neurosurgery will be defined by continued cross-pollination of ideas and technologies between human and animal medicine. Several emerging trends are poised to shape the future:

- Surgical robotics: Robotic-assisted surgical systems, already used in human neurosurgery for their precision and steadiness, may soon be adapted for complex veterinary neurosurgical procedures, allowing finer manipulation in small animal patients.
- Augmented reality–guided surgery: Building on recent successes, AR and mixed-reality navigation tools are expected to become more common in veterinary operations. Notably, the *first* dog brain surgery using AR guidance was accomplished through a collaborative human–veterinary team – suggesting that more hybrid teams and technology sharing will occur in the future.
- Neuroengineering innovations: Advances such as brain–computer interfaces and implantable neurostimulators (e.g. for seizure control or pain modulation) are being developed in human medicine and could find applications in veterinary patients. For example, research into spinal cord stimulators or deep brain stimulators in animals may offer new therapeutic avenues for chronic neurologic conditions in pets.
- AI-assisted diagnostics: Artificial intelligence and machine learning tools promise to enhance diagnostic imaging and decision-making in neurology. In the coming years, AI algorithms trained on human and animal data might help veterinarians detect subtle abnormalities on MRI/CT scans, predict outcomes, or even guide surgical planning with augmented insights.
- Interdisciplinary collaboration: A strong emphasis on One Medicine/One Health collaboration will continue. Joint training programs, research collaborations, and knowledge exchange between human neurosurgeons and veterinary specialists will ensure that new technologies are adapted ethically and effectively to animal care. This collaborative model will also accelerate discovery, as clinical findings in pets (who naturally develop analogous neurologic diseases) can inform human clinical trials and vice versa.

In summary, by embracing advanced technology and sustained human–veterinary collaboration, the veterinary neurosurgical community can continue to redefine what’s possible – improving neurologic outcomes and quality of life for animal patients, while also contributing insights back to human medicine. The boundaries between the two disciplines will further blur as innovations benefit both people and pets, fulfilling the promise of One Medicine in the neurosurgical realm.

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Theme Session



READINESS, REALITY, AND THE RESPONSIBILITY TO WAIT Lessons from robotic exposure within a human surgical ecosystem and Their implications for veterinary practice

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Robotic surgery represents the most advanced convergence of surgical skill, imaging, and technology in modern medicine. While its benefits in human surgery, including precision, improved ergonomics, enhanced visualization, and extended surgeon longevity, are well recognized, its relevance to veterinary surgery must be viewed through the lens of professional preparedness rather than technological aspiration.

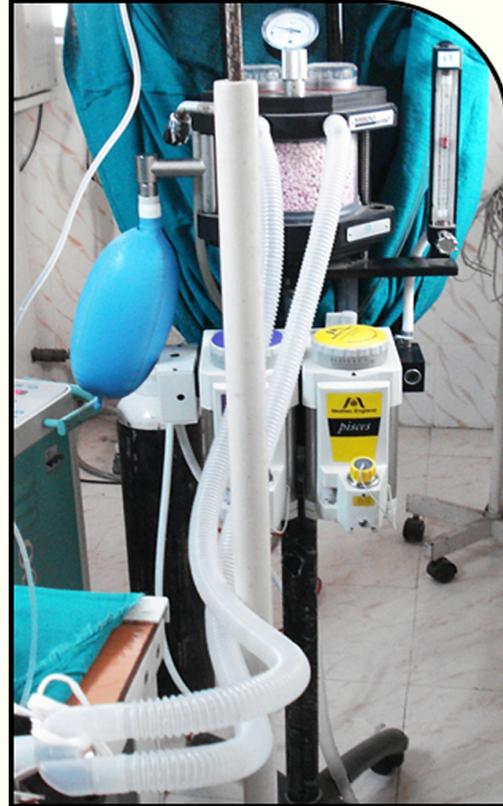
Readiness for robotics in veterinary surgery does not arise from the mere availability of robotic platforms, but from the widespread adoption and maturation of minimally invasive surgical (MIS) practices, particularly laparoscopy. Robotic surgery is not a substitute for open procedures, nor does it offer rational justification for replacing conventional surgeries where simpler and effective methods already exist. Performing routine open procedures using robotic systems neither aligns with surgical logic nor with the ethical and economic realities of veterinary practice. Instead, robotic surgery represents a natural progression of complex MIS cases. These are cases that already demand advanced laparoscopic skill, refined hand–eye coordination, image-guided precision, and structured team-based workflows.

Veterinary surgeons who consistently perform advanced MIS procedures form the true foundation upon which robotic surgery can eventually rest. Without this base, robotics risks becoming a misplaced symbol of advancement rather than a meaningful enhancement of surgical care. In the current landscape, where MIS adoption itself remains uneven, robotics must be viewed as a future extension of competence rather than an immediate goal.

Importantly, the true value of robotic systems in veterinary surgery may lie not in high-volume application, but in their selective use by experienced surgeons managing complex cases. For senior veterinarians with established MIS expertise, robotics offers the potential to extend surgical longevity by reducing physical strain, improving ergonomic efficiency, and preserving precision with advancing age. At the same time, it is important to recognize that senior surgeons with a strong foundation in open surgery often find the transition to robotic platforms intuitive, as the movements at the robotic console closely resemble those of open surgical hand motions rather than conventional laparoscopy. When this deep understanding of surgical principles, anatomy, and procedural judgment is combined with prior MIS experience, the transition to robotics becomes a natural extension rather than a technical leap. In doing so, robotics can help retain decades of surgical experience within active clinical practice, benefiting patients through better judgment and more informed decision-making.

The pathway to robotics in veterinary surgery is neither abrupt nor speculative. It is deliberate and sequential, rooted in strengthening minimally invasive techniques, integrating advanced imaging, embracing simulation-based training, and fostering procedural discipline. By adopting MIS and laparoscopy as standard practice today, veterinary surgery prepares itself organically for robotics tomorrow.

Waiting for robotics does not imply inertia. Rather, it reflects a conscious responsibility to mature surgically before progressing technologically. When readiness precedes adoption, robotics will not need advocacy. It will find its place naturally within veterinary surgery.



Anaesthesiology Session



RECENT ADVANCES IN VETERINARY ANAESTHETIC PRACTICE

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Introduction

Veterinary anaesthesia is fundamental to modern veterinary medicine, enabling surgical procedures, diagnostic imaging and therapeutic interventions to be performed humanely while maintaining patient safety. Safe anaesthetic practices directly impact patient outcomes, with anaesthesia-related mortality rates of approximately 0.69% in dogs and 0.63% in cats globally, though these rates can be significantly reduced through proper patient assessment, monitoring, and management. The provision of high-quality anaesthesia encompasses far more than simply inducing unconsciousness. It requires comprehensive understanding of pharmacology, physiology, pain management and species-specific considerations. Recent advances in monitoring technology, anaesthetic protocols and evidence-based guidelines have dramatically improved patient safety and outcomes across all species.

Fundamentals of Veterinary Anaesthesia

Patient Assessment and Preparation

Comprehensive pre-anaesthetic assessment is critical for optimizing patient safety and can greatly help in perioperative decision-making in small animal practice.

Physical Examination:

A thorough physical examination must encompass complete cardiovascular auscultation to detect murmurs and arrhythmias, respiratory system evaluation for airway disease or pulmonary pathology, neurological assessment, body temperature measurement, assessment of body condition and hydration status and mucous membrane color with capillary refill time evaluation to determine perfusion status.

Diagnostic Testing

Extensive laboratory screening may not always be required in healthy patients; however, complementary diagnostic evaluations including haematology, serum biochemistry, thoracic radiography and electrocardiography are recommended particularly for geriatric patients, patients with known or suspected systemic disease, patients exhibiting abnormal physical examination findings and patients undergoing major surgical procedures.

Induction and maintenance of Anaesthesia

Safe induction requires careful drug selection, appropriate dosing and preparedness for complications.

An evidence-based equipment checklist is recommended, as implementation of standardized checklists has been shown to reduce equipment setup errors by up to 88%. Essential items include a functional anaesthetic machine with an adequate oxygen supply, an appropriately selected breathing circuit based on patient size, properly sized endotracheal tubes with tested cuffs, a laryngoscope with adequate illumination, emergency drugs pre-calculated and readily available, a functional suction apparatus, operational monitoring equipment, and available warming devices. Placement of an intravenous catheter is considered essential to facilitate drug administration and provide fluid therapy support during anaesthesia.

Induction of anaesthesia is commonly achieved in dogs and cats using agents such as propofol or ketamine in combination with benzodiazepines or alpha-2 agonists with selection based on patient risk and cardiovascular stability. In horses, field anaesthesia is typically induced using alpha-2 agonists combined with ketamine or by triple drip (guaifenesin with xylazine and ketamine). In cattle, general anaesthesia is usually induced with xylazine and ketamine or by double drip (guaifenesin and ketamine), although local or regional techniques are preferred, whenever feasible. During induction, adequate pre-oxygenation, smooth handling, immediate availability of trained personnel, prompt endotracheal intubation, cuff inflation and confirmation of tube placement are considered essential.

Anaesthetic maintenance is based on balanced multimodal techniques to reduce individual drug doses while maintaining adequate depth. Maintenance is commonly achieved using inhalant agents such as isoflurane or sevoflurane or by total intravenous anaesthesia using continuous rate infusions of propofol or ketamine-based combinations. Analgesia is enhanced through the use of opioids, NSAIDs, local and regional techniques and constant rate infusions of adjunct drugs. Anaesthetic depth is monitored using eye position, jaw tone, responses to surgical stimulation, and changes in cardiovascular and respiratory parameters.

Anaesthetic Monitoring: Recent Advances

Recent advances in anaesthetic monitoring have been formalized in the 2025 ACVAA Small Animal Anaesthesia and Sedation Monitoring Guidelines, representing a major update after 16 years and incorporating technological developments with tiered recommendations. Cardiovascular monitoring is emphasized, with minimum standards including continuous observation by a dedicated anaesthetist, palpation of the peripheral pulse to assess rate, rhythm, and quality, evaluation of mucous membrane colour and capillary refill time, and cardiac auscultation using a stethoscope or oesophageal stethoscope. Advanced cardiovascular monitoring includes continuous electrocardiography for arrhythmia detection, blood pressure measurement using non-invasive techniques such as Doppler ultrasound or oscillometric devices with appropriate cuff sizes (approximately 40% of limb circumference in dogs and 30% in cats), or invasive arterial catheterization in critically ill patients or during complex procedures, with a target mean arterial pressure maintained above 60–70 mmHg.

Assessment of fluid responsiveness using the plethysmographic variability index is also recommended and treatment of hypotension has been shown to significantly reduce the severity of post-anaesthetic myopathy in horses, although complete prevention may not be achieved.

Oxygenation monitoring using pulse oximetry is recommended for all anaesthetized patients and has been associated with reduced anaesthetic mortality, with target oxygen saturation values above 95% during oxygen supplementation; however, limitations include delayed detection of hypoxemia and interference from poor perfusion, pigmentation or movement, necessitating advanced assessment with arterial blood gas analysis or co-oximetry in critically ill patients.

Ventilation monitoring using capnography is considered one of the most significant advances in anaesthetic practice with evidence from human medicine indicating that combined use of capnography and pulse oximetry may prevent up to 93% of anaesthetic mishaps; capnography allows assessment of ventilation adequacy with target end-tidal carbon dioxide values of 35–45 mmHg, confirmation of endotracheal tube placement, early detection of equipment malfunction, monitoring during cardiopulmonary resuscitation where values above 15 mmHg indicate adequate compressions, detection of pulmonary perfusion changes and assessment of metabolic status, with waveform analysis aiding identification of abnormal patterns due to equipment faults, bronchospasm or inadequate ventilation. When capnography is unavailable, minimum alternatives include apnea monitors, observation of thoracic movements and reservoir bag excursions and airway pressure manometry during positive pressure ventilation.

Temperature monitoring is regarded as essential, as hypothermia is the most common peri-anaesthetic complication and is associated with prolonged recovery, respiratory depression, arrhythmias, impaired drug metabolism, and coagulopathy, while hyperthermia, though rare, may occur in conditions such as malignant hyperthermia or in cats receiving opioids; core temperature should be measured using oesophageal or rectal probes, continuous monitoring is recommended for procedures exceeding 30 minutes, and normothermia should be maintained within species-appropriate ranges of approximately 37.5–39°C through the use of active warming devices, warmed intravenous fluids, and minimization of body surface exposure. Intraoperative fluid therapy is recommended to follow a conservative and individualized approach, with basal rates of 3–5 mL/kg/hr in dogs and 3 mL/kg/hr in cats, additional boluses administered for blood loss replacement at a crystalloid-to-blood loss ratio of 4–5:1, and balanced crystalloid solutions preferred, with adjustments based on patient status, procedure type, and ongoing losses.

Advanced monitoring modalities include neuromuscular blockade monitoring when muscle relaxants are used, anaesthetic depth monitoring using electroencephalography primarily in research settings and point-of-care ultrasound for assessment of cardiac function, fluid responsiveness and pleural disease. The guidelines also emphasize the role of cognitive aids, including pre-anaesthetic equipment checklists, crisis management algorithms, standardized handoff communication tools and structured team briefings and debriefings, to enhance anaesthetic safety and patient outcomes.

Anaesthetic emergencies

Anaesthetic emergencies are best prevented through careful and continuous monitoring; however, preparedness for prompt management is essential. Hypoventilation and hypercapnia, indicated by an end-tidal carbon dioxide value above 45–55 mmHg, may be caused by excessive anaesthetic depth, opioid use, neuromuscular disease, equipment malfunction or improper patient positioning and are managed by reducing anaesthetic depth, providing manual or mechanical positive pressure ventilation at 8–12 breaths per minute with a tidal volume of 10–15 mL/kg, checking equipment function and considering opioid reversal when appropriate.

Hypotension, defined as a mean arterial pressure below 60 mmHg, may result from deep anaesthesia, hypovolemia, cardiac dysfunction or vasodilation and is managed by lowering inhalant concentration, administering intravenous fluid boluses of 5–20 mL/kg, using positive inotropes such as dobutamine or dopamine at 1–10 µg/kg/min and adding vasopressors such as ephedrine or phenylephrine when vasodilation is the primary cause.

Bradycardia is managed by administering anticholinergics such as atropine at 0.04 mg/kg or glycopyrrolate at 0.01 mg/kg, reducing anaesthetic depth and assessing for hypoxemia.

Hypothermia is addressed using active warming devices such as forced-air warmers, warmed intravenous fluids, reduction of anaesthetic depth to improve metabolism, and repeated temperature monitoring during recovery.

Hypoxemia, indicated by an oxygen saturation below 95%, may be caused by hypoventilation, equipment failure, airway obstruction, lung disease, or cardiovascular compromise and is managed by confirming correct endotracheal tube placement and patency, increasing inspired oxygen concentration to 100%, providing positive pressure ventilation, assessing cardiovascular function, and performing lung recruitment maneuvers when atelectasis is suspected.

In cases of cardiopulmonary arrest, the RECOVER guidelines recommend immediate initiation of basic life support with chest compressions at a rate of 100–120 per minute, applied over the widest part of the chest in dogs weighing more than 7 kg and directly over the heart in dogs under 7 kg and cats, with a compression depth of one-third to one-half of chest width, positive pressure ventilation at 10 breaths per minute and minimal interruptions of less than 10

seconds. Advanced life support includes establishment of vascular access, reversal of anaesthetic drugs when applicable, electrocardiographic monitoring, capnography to assess compression effectiveness with end-tidal carbon dioxide values above 15 mmHg, administration of epinephrine at 0.01 mg/kg intravenously every 3–5 minutes and atropine when vagal arrest is suspected. Post-resuscitation care requires continuous intensive monitoring, correction of the underlying cause, supportive therapy including fluids and oxygen supplementation, and transfer of the patient to an intensive care unit.

Recent Technological Advances

Recent technological advances have improved anaesthetic monitoring and safety in veterinary practice. Modern multi-parameter monitors are used to record several variables at the same time, including electrocardiography, blood pressure, pulse oximetry, capnography and temperature and they also provide automated data recording, trend analysis, alarm systems for abnormal values and integration with electronic medical records. Portable monitoring systems are increasingly used because of their flexibility across different clinical settings and currently account for about 38.51% of the veterinary anaesthesia equipment market. Ventilator–anaesthesia workstations are also being adopted rapidly in specialty clinics with a growth rate of approximately 12.25% per year and offer synchronized ventilation and monitoring, advanced ventilation modes and automated control of fresh gas flow.

Emerging technologies include monitoring of exhaled drugs, which allows real-time measurement of propofol concentrations in exhaled air to guide dose adjustment during total intravenous anaesthesia. Continuous glucose monitoring using implanted sensor systems, such as Freestyle Libre, is being explored for perioperative glucose monitoring in high-risk patients, although further validation is required in veterinary species. Artificial intelligence–based applications are also under development and may allow prediction of anaesthetic complications in the future, but their use in veterinary anaesthesia is still in the early stages.

Conclusion

In conclusion, safe veterinary anaesthesia depends on careful planning, modern monitoring and coordinated teamwork. Comprehensive pre-anaesthetic assessment remains essential, as recent evidence shows that it leads to changes in ASA classification and modification of planned procedures in a significant number of patients. The use of standardized equipment checklists represents a major advancement with an 88% reduction in setup errors, highlighting the value of cognitive aids in both routine practice and emergency situations. Anaesthetic monitoring continues to be the cornerstone of patient safety and the 2025 ACVAA guidelines provide the latest evidence-based recommendations, emphasizing that combined use of capnography and pulse oximetry can prevent most anaesthetic mishaps when supported by dedicated, trained personnel. The recovery period has been identified as the highest-risk phase, particularly in small animals and horses, underscoring the need for continuous monitoring beyond the end of anaesthesia. Balanced multimodal anaesthesia, including the use of analgesic combinations and local or regional techniques, has emerged as a key strategy to improve cardiovascular stability and reduce complications. Current practice also stresses the importance of species-specific protocols, strict control of hypotension in horses and conservative fluid therapy based on recent evidence. Ongoing education, adoption of new technologies and clear team communication before and during procedures are critical recent advances that together improve anaesthetic safety and patient outcomes.

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ANS-01**EVALUATION OF PHYSIOLOGICAL PARAMETERS USING KETAMINE, PROPOFOL AND KETOFOL FOR ELECTIVE SPAYING IN DOGS****Vinita Wasnik, M.O.Kalim and S.K.Tiwari***Department of Veterinary Surgery and Radiology, College of Veterinary Science and A.H
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The study evaluated the physiological effects of ketamine, propofol and ketofol in eighteen clinically healthy female dogs, divided into three groups of six. All animals were premedicated with Glycopyrrolate@0.01mg/kg BW and Xylazine@1mg/kg BW intramuscularly 10 minutes prior to induction. Anaesthesia was induced intravenously via the cephalic vein using Ketamine @5mg/kg BW in Group I, Propofol@4 mg/kg BW in Group II and Ketofol@5mg/kg BW in Group III. Key physiological parameters-including rectal temperature, heart rate, respiratory rate and systolic and diastolic blood pressures-were recorded at baseline, 10 minutes(post-premedication), 15, 30 and 60 minutes post-anaesthesia and at complete recovery. Heart rate significantly ($P<0.05$) differed between Group III and II from 15–60 minutes, while no significant difference was noted between Groups I and III. Respiration decreased significantly ($P<0.05$) at 30 minutes only in Group II, with non-significant declines in other groups. Rectal temperature dropped significantly ($P<0.05$) after induction across all groups, returning to normal on recovery. Significant differences in temperature were noted between Groups II and III, but not between Groups I and III. Systolic blood pressure rose significantly ($P<0.05$) after premedication in all groups. Subsequently, Groups I and III maintained significant increases, while Group II showed a non-significant decline. Intergroup differences were significant from 30 minutes to recovery. Diastolic pressure rose significantly ($P<0.05$) after premedication in all groups, continuing non-significantly in Groups I and III, but declined non-significantly in Group II. Here, Group III anaesthesia was found superior, showing minimal cardio-pulmonary depression and excellent cardio-pulmonary stability compared to Groups I and II.

ANS-02**EVALUATION AND COMPARISON OF SEDATIVE AND CLINICAL PARAMETERS USING KETAMINE, PROPOFOL AND KETOFOL INTRAVENOUSLY WITH XYLAZINE AS PREANAESTHETICS FOR PERFORMING ELECTIVE SPAYING IN DOGS****Vinita Wasnik, M.O.Kalim and S.K.Tiwari***Department of Veterinary Surgery and Radiology, College of Veterinary Science and A.H.
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The study evaluated the sedative and clinical effects of Ketamine, Propofol and Ketofol in eighteen clinically healthy female dogs, divided into three groups of six animal in each group. All animals were premedicated with Glycopyrrolate@0.01mg/kg BW and Xylazine@1mg/kg BW intramuscularly 10 minutes prior to induction. Anaesthesia was induced intravenously via the cephalic vein using Ketamine @5mg/kg BW in Group I, Propofol@4 mg/kg BW in Group II and Ketofol@5mg/kg BW in Group III. For assessment of efficacy of anaesthesia following parameters were recorded involving onset of sedation, degree of sedation, duration of anaesthesia, quality of anaesthesia, complete recovery time were recorded. The clinical evaluation of anaesthesia revealed that the depth of induction was excellent after administration of Xylazine followed by administration of Ketofol which is more pronounced than Xylazine-Ketamine and Xylazine-Propofol. The mean duration of anaesthesia was longer in group III (Ketofol), followed by group I (Ketamine alone) and Group II (Propofol alone). There is no

significant difference in degree of sedation between the groups as the same premedication was used in all the three groups. In Ketofol group, there was a reduction in the induction dose with optimal degree of analgesia and muscle relaxation as compared to Propofol and Ketamine group. The mean values of quality of anesthesia in animals of group I was good, in group II it was ranged from good to excellent and group III had excellent quality of anaesthesia. Anaesthetic combination of Xylazine and Ketofol in group III, produced excellent anaesthesia with good muscle relaxation in all the six animals. The recovery from anaesthesia was also very smooth, uncomplicated and without struggling. Since, the duration of anaesthesia was also longer with Ketofol, therefore this combination can be safely used for spaying as well as other surgical procedures requiring anaesthesia of longer duration.

ANS-03

COMPARATIVE EVALUATION OF BALANCED ANESTHETIC PROTOCOLS THROUGH SINGLE INTRAMUSCULAR ADMINISTRATION IN CATS

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A comparative evaluation of three injectable anesthetic protocols was undertaken in cats to assess anesthetic efficacy, quality and associated clinico-physiological and haemato-biochemical changes. Twenty-seven cats of various breeds and both sexes (14 females and 13 males) presented for major surgical procedures were randomly allocated into three groups (n = 9). Group BTZ received atropine sulphate (0.04 mg/kg), butorphanol (0.2 mg/kg) and tiletamine-zolazepam (10 mg/kg); Group DKB received dexmedetomidine (25 µg/kg), ketamine (5 mg/kg) and butorphanol (0.5 mg/kg); and Group AKB received acepromazine (0.2 mg/kg), ketamine (20 mg/kg) and butorphanol (0.2 mg/kg) intramuscularly. The onset of anesthesia was significantly faster in BTZ and DKB groups compared to AKB, while the longest duration of anesthesia was observed in DKB, followed by BTZ and AKB. Recovery time and anesthetic hangover were significantly shorter in AKB. Reflex evaluation indicated significant differences within and between groups, with superior anesthetic depth observed in DKB and AKB. However, recovery was smoother with minimal ataxia in BTZ. Physiological parameters showed a significant transient decrease in heart rate, respiratory rate, rectal temperature and oxygen saturation during anesthesia, followed by gradual recovery toward baseline values. Haematological and biochemical parameters remained within normal physiological limits, with only non-significant transient variations. The study concludes that all three anesthetic combinations are safe and clinically effective, making them suitable for use in feline surgical procedures under field conditions.

ANS-04

COMPARATIVE EVALUATION OF TWO STANDING SEDATION PROTOCOLS IN BUFFALOES

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12 buffaloes undergoing horn amputation, randomly divided into two groups of six each were premedicated with acepromazine-butorphanol-ketamine (0.03, 0.01 and 0.04 mg/kg BW IV) and xylazine-butorphanol-ketamine (0.02, 0.01 and 0.04 mg/kg BW IV) protocols respectively along with local anaesthesia using lignocaine. The group I animals showed very mild sedation, mild tail wagging, no ataxia, lowering of head, drooping of eyelids. Group II animals showed mild sedation, no tail wagging and mild to moderate ataxia, typical lowering of

head and drooping of eyelids. Group I animals showed slower sedation, longer sedation times, prolonged recovery times and good and hustle free recovery. Group II animals got sedated rapidly, recovered early, but few showed little ataxia during recovery.

ANS-05

EFFECT ON HAEMATO-BIOCHEMICAL PARAMETERS IN RESPONSE TO KETAMINE ANAESTHESIA ALONGWITH DIAZEPAM, BUTORPHANOL AND XYLAZINE IN BUFFALO CALVES

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This study was designed to evaluate the effect on various haematological and biochemical parameters following administration of ketamine anaesthesia along with glycopyrrolate and diazepam or butorphanol or xylazine as preanaesthetics in 18 non-descript buffalo calves and were divided into three groups with six animals in each. All the calves were administered glycopyrrolate @ 0.01 mg/kg body weight through intramuscular route prior to anaesthetic administration. Then the calves in all group A, B and C were administered diazepam @ 0.5 mg/kg body weight, butorphanol @ 0.075 mg/kg body weight and xylazine @ 0.16 mg/kg body weight respectively through intravenous route. Further, general anaesthesia was induced with ketamine @ 4 mg/kg body weight intravenously. Haematological parameters such as Hb, PCV, TEC, TLC, DLC and biochemical parameters such as serum glucose, serum total protein, serum urea nitrogen and serum creatinine were estimated before sedation (0) and at 30, 60, 120 min. and 6 hrs post ketamine anaesthesia. Haematological studies revealed a non-significant ($P>0.05$) decrease in Hb, PCV, TEC, TLC and DLC following ketamine anaesthesia in all the groups. Hyperglycemia was noted in animals of all the groups after ketamine anaesthesia. Other biochemical parameters like serum total protein, serum urea nitrogen, and serum creatinine values showed non-significant ($P>0.05$) changes at various time intervals but remained within normal physiological range. Therefore, it can be concluded that glycopyrrolate-diazepam-ketamine, glycopyrrolate-butorphanol-ketamine and glycopyrrolate-xylazine-ketamine combinations does not produce any deleterious effect on vital organs and changes remained within physiological limits. Thus, ketamine can be safely and effectively used as induction agent in buffalo calves for general anaesthesia.

ANS-06

CLINICO-PHYSIOLOGICAL EFFECT OF KETAMINE ANAESTHESIA PREMEDICATED WITH GLYCOPYRROLATE AND DIAZEPAM OR BUTORPHANOL OR XYLAZINE IN MALE BUFFALO CALVES (BUBALUS BUBALIS)

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The present study was planned to evaluate the alternations on clinical and physiological parameters following ketamine anaesthesia in buffalo calves premedicated with either diazepam, butorphanol or xylazine in eighteen non-descript male buffalo calves that were divided into three groups (A, B and C) with six animals in each. All the buffalo calves were administered with glycopyrrolate @ 0.01 mg/kg b.wt. intramuscularly 10 minutes prior to the anaesthetic administration. The animals of group A, B and C were premedicated intravenously

with diazepam@ 0.5 mg kg b.wt., butorphanol@0.075 mg kg b.wt. and xylazine@0.16 mg kg b.wt. respectively. Further general anaesthesia was induced with ketamine@4 mg kg b.wt. intravenously and clinical parameters were recorded viz., onset of sedation, induction, duration and recovery of anaesthesia. Physiological parameters were also recorded before (0), 5 min after sedation, induction and at 10, 20, 40, 60 and 120 min following ketamine anaesthesia. The onset of sedation and anaesthesia was quicker in animals of group A followed by group C and B respectively. The physiological parameters showed transient changes in all the three groups which were compensated and remained within normal physiological range throughout the study period. Ketamine in conjunction with various preanaesthetic combinations did not exhibit any adverse effect on cardiopulmonary system. Thus, ketamine could be safely and effectively used as general anaesthetic in buffalo calves along with premedicants viz., diazepam, butorphanol or xylazine. However, xylazine-ketamine combination produced longer duration of surgical anaesthesia in buffalo calves as compared to other anaesthetic combinations.

ANS-07

EVALUATION OF CLINICO-PHYSIOLOGICAL AND HAEMODYNAMIC PARAMETERS FOLLOWING PROPOFOL-ISOFURANE ANAESTHESIA ALONG WITH VARIOUS PREMEDICANTS FOR BALANCED ANAESTHESIA IN DOGS

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The present study was conducted at Department of Veterinary Surgery and Radiology, TVCC, Durg (C.G.) to evaluate the alternations on clinico-physiological and haemodynamic parameters following propofol-isoflurane in dogs premedicated with dexmedetomidine, midazolam, butorphanol or buprenorphine or tramadol. Eighteen adult dogs of either sex were randomly divided into three groups with six animals in each. Initially, glycopyrrolate is administered @ 0.01 mg/kg I/M. Then 15 minutes prior to the anaesthetic administration, all the dogs of group A, B and C were premedicated intramuscularly with dexmedetomidine @ 10 µg/kg b.wt., midazolam @ 0.2 mg/kg b.wt. In group A butorphanol @ 0.2 mg kg b.wt., group B buprenorphine @ 10 µg/kg b.wt. and group C tramadol @ 2 mg/kg b.wt. was administered intramuscularly. General anaesthesia was induced with propofol @ 4 mg/ kg b.wt. intravenously and maintenance was done with 1-2% isoflurane. Clinical parameters were recorded following propofol-isoflurane anaesthesia. Physiological and haemodynamic parameters were recorded at different time interval. Duration of anaesthesia and complete recovery were significantly ($p < 0.05$) longer in group B as compared to group A and C. The physiological and haemodynamic parameters showed transient changes which remained within normal range during the study. Thus, propofol-isoflurane can be safely and effectively used as balanced anaesthesia in dogs premedicated with either dexmedetomidine or midazolam or butorphanol or buprenorphine or tramadol does not produce any adverse effect on cardiopulmonary system. However, dexmedetomidine-midazolam-buprenorphine-propofol-isoflurane combination provided superior balanced anaesthesia in dogs as compared to other groups.

ANS-08**COMPARATIVE EVALUATION OF KETAMINE, PROPOFOL AND KETOFOL ANAESTHETIC IN DOGS**

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The present study was undertaken to compare the anaesthetic efficacy of ketamine, propofol and ketofol for induction and maintenance of general anaesthesia in dogs. Eighteen clinically healthy dogs were randomly divided into three groups (n = 6). Physiological parameters including rectal temperature, heart rate and respiration rate along with reflex responses, time of induction time of recovery and haematobiochemical parameters, were recorded before anaesthesia, during induction, throughout maintenance and after recovery. Rectal temperature showed a gradual decline in all the groups during anaesthesia, decreasing from baseline values of 101.7–101.8°F to minimum values at 45 min, with no significant difference among the groups. Heart rate increased initially following induction and then decreased progressively at 60 min, dogs in Group III showed a significantly ($p < 0.05$) lower heart rate compared to Group I. Respiration rate decreased significantly after induction in all groups. However, Group II exhibited comparatively lower respiratory rate at several intervals, particularly between 40 and 55 min, whereas Group III maintained relatively higher and more stable respiration rates throughout the anaesthetic period. The time required to attain lateral recumbency differed significantly ($p < 0.05$) among the groups being shortest in Group II followed by Group III and longest in Group I. Abolition of jaw tone, pharyngeal reflex and pedal reflex occurred significantly ($p < 0.05$) faster in Group II, while Group III demonstrated intermediate time between Groups I and II. Reappearance of these reflexes followed a similar pattern. Recovery parameters such as head raising, attainment of sternal recumbency and standing were significantly ($p < 0.05$) shorter in Group II, with Group III showing intermediate recovery times compared to Group I. Haematological and biochemical parameters remained within normal limits in all the groups indicating the overall safety of all anaesthetic protocols.

ANS-09**OPTIMIZATION OF ANAESTHETIC PROTOCOL FOR CAESAREAN SECTION IN BITCHES**

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A clinical study titled “Optimization of Anaesthetic Protocol for Caesarean Section in Bitches” was conducted to compare propofol continuous rate infusion (CRI), isoflurane, and epidural lignocaine (2%) combined with butorphanol premedication and propofol induction in bitches undergoing caesarean section. Eighteen clinically healthy bitches were randomly divided into three groups (n=6 each). Fetal viability and presentation were confirmed by ultrasonography prior to surgery. All animals were premedicated with butorphanol and induced with propofol. Group I was maintained on propofol CRI, Group II on isoflurane, and Group III received epidural lignocaine (2%) followed by intermittent propofol as required. A significant reduction in rectal temperature, heart rate, and respiratory rate was observed in all groups. Transient apnea occurred in two animals per group and was successfully managed with assisted ventilation. Sedation quality was good to excellent, with no significant differences among groups in induction time, maintenance duration, or depth of anaesthesia. Jaw relaxation, reflexes, airway patency, muscle relaxation, and visceral analgesia were comparable across groups. Haematological evaluation showed non-significant decreases in haemoglobin and TEC, a

significant rise in TLC, and no significant changes in PCV or platelet count. Biochemical parameters (ALT, AST, creatinine, BUN) remained within normal limits, indicating protocol safety. Neonatal Apgar scores increased progressively in all groups, with Group III showing superior scores. It was concluded that epidural lignocaine (2%) with propofol CRI and butorphanol premedication provides better fetal viability and is more effective than isoflurane, making it the preferred protocol for canine caesarean section.

ANS-10

COMPARATIVE EVALUATION OF CLINICO-ANALGESIC EFFECTS OF HALOPERIDOL ALONE AND IN COMBINATION WITH FENTANYL AND KETAMINE AS SPINAL LUMBOSACRAL ANALGESIA IN GOATS

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The present study was undertaken to comparatively evaluate the clinico-analgesic effects of spinal haloperidol administered alone and in combination with ketamine and fentanyl citrate as lumbosacral spinal analgesia in goats. Fifteen clinically healthy goats of either sex, aged 1–3 years and weighing 11–15 kg, were randomly divided into three groups (n=5). Group I received haloperidol (1.5 mg/kg), Group II received haloperidol (1.5 mg/kg) with ketamine (1.5 mg/kg), and Group III received haloperidol (1.5 mg/kg) with fentanyl citrate (2 µg/kg), administered spinally at the lumbosacral space. Clinico-physiological variables, degree of sedation, motor incoordination, regional analgesia, onset and duration of analgesia, and recovery parameters were assessed at different time intervals. Group III exhibited significant decreases in rectal temperature, respiration rate, and heart rate, indicating greater cardiopulmonary depression but within physiological limits, compared to Groups I and II. Sedation and motor incoordination occurred earliest and were more prolonged in Group III, followed by Group II. The onset of analgesia was significantly faster and duration was longest in Group III, whereas Group I showed delayed onset and shorter duration. Regional analgesia of the tail, hind limbs, inguinal region, flank, scrotum, and digits was significantly higher and sustained longer in Groups II and III compared to Group I. Recovery time was longest in Group III. It was concluded that spinal administration of haloperidol in combination with fentanyl produces superior analgesia, with smoother recovery and least alterations in clinical parameters while haloperidol-ketamine offers effective analgesia with prolonged effect and quicker onset.

ANS-11

ANALGESIC AND ADJUVANT EFFICACY OF ORAL GABAPENTIN TO BALANCED ANAESTHESIA FOR ELECTIVE SURGERIES IN DOGS

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Oral gabapentin has been increasingly explored for its analgesic and anaesthetic sparing properties in veterinary anesthesia. This study aimed to evaluate the efficacy of oral gabapentin as an adjunct and analgesic in balanced anesthesia in dogs undergoing elective surgeries, with a focus on its reduction in anaesthetic requirements. A total of 20 dogs brought for elective surgeries were selected and the selected animals were divided into two groups of 10 animals each viz., group I and group II. Group II animals were received oral gabapentin (10 mg/kg) as premedicant twice a day for two days before the surgery and one dose, two hours before the surgery. Both groups were pre-medicated with dexmedetomidine and butorphanol, followed by induction with diazepam and ketamine and maintenance with isoflurane. Isoflurane

concentrations were measured continuously during the surgical procedure. The Gabapentin group showed a significant reduction in isoflurane requirements compared to the control group ($p < 0.05$) indicating a notable isoflurane-sparing effect (57.34%). The assessment of postoperative pain using the Glasgow Composite Measure Pain Scale reveals significant differences in pain scores between two groups of animals those receiving standard postoperative care and those premedicated with Gabapentin. This analysis underscores the effectiveness of Gabapentin in managing postoperative pain. Oral Gabapentin effectively reduces the requirement for isoflurane and provides superior analgesia in dogs undergoing elective surgeries. These findings support its use as an adjunctive agent in balanced anesthesia, offering both clinical and economic advantages.

ANS-12

GENOTOXICITY EVALUATION OF INTRAVENOUS VERSUS INHALANT ANAESTHETIC IN BUFFALOES

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COVS, LUVAS Hisar

The study was conducted on randomly selected thirty-six buffaloes, suffering with diaphragmatic hernia (DH) divided into six groups of six animals in each. After diagnosis of the condition, all animals were subjected to laparo-rumenotomy and then on the next day, diaphragmatic herniorrhaphy (DHY). For general anaesthesia during DHY, Pre anaesthetic drugs (atropine sulphate, xylazine and butorphanol) were administered in all animals. Thiopentone was used as induction agent in TT, TI and TS groups. Thiopentone (CRI) was used as maintenance agent in TT group while isoflurane and sevoflurane were used as maintenance agent in TI and TS groups respectively. However, Propofol was used as induction agent in PP, PI and PS groups while Propofol (CRI), Isoflurane and sevoflurane were used as maintenance in PP, PI and PS groups respectively. Besides different parameters for safety and efficacy of the protocol, for genotoxicity study the blood samples were aseptically collected from jugular vein before rumenotomy, at 15 min before premedication for herniorrhaphy, at 2 hours of the herniorrhaphy, at 24 hours of the herniorrhaphy for comet assay (Single cell gel electrophoresis assay). The comet parameters recorded were tail length (μm), tail DNA (%), tail moment, Olive tail moment (OTM, arbitrary units) and comet length (μm). Both TIVA groups were having comparatively less genotoxic effect as compared to all inhalant maintained groups. Also, isoflurane was more genotoxic than sevoflurane irrespective of induction agent.

ANS-13

EVALUATION OF CARDIO PULMONARY EFFECTS AND POSTOPERATIVE PAIN CONTROL USING FENTANYL CONSTANT RATE INFUSION IN DOGS UNDERGOING VARIOUS SURGICAL ORTHOPAEDIC PROCEDURES

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The Continuous Rate Infusion (CRI) technique maintains a constant therapeutic drug level, avoiding the over and underdosing of drugs associated with intermittent bolus dosing. The present study was conducted on 12 clients who owned dogs irrespective of age, sex, breed and bodyweight. The animals were divided into two groups (Group I and Group II) each consisting of six animals. Group I and Group II received Normal saline and Fentanyl CRI during the intraoperative period, respectively. Haematological and biochemical values were normal in all dogs. All the animals were premedicated with Tramadol @4mg/Kg BW IV and Diazepam @0.3 mg/Kg BW IV. Induction was performed with propofol @3 mg/Kg BW IV and titrated to achieve the effect. Maintenance of anaesthesia was carried out with inhalant agent isoflurane

delivered by using precision vaporizer under closed rebreathing circuit. Bolus dose of fentanyl @ 5 mcg/Kg BW IV was given 5 minutes prior to the start of surgical incision over the period of one minute followed by constant rate infusion @ 10 mcg/Kg/hour. Cardiopulmonary observations were recorded during perioperative periods. Time to extubate after the end of anaesthesia, time to head lift, time to sternal recumbency, time to standing was noted. Postoperative pain assessment was done with Glasgow Composite Measure PainScale Short Form(CMPS-SF) and there was no need of rescue analgesia in any of the cases. It was concluded that the fentanyl provided better intra and postoperative pain control with reduced requirement of isoflurane in dogs undergoing elective orthopaedic surgeries.

ANS-14

SACROCOCCYGEAL EPIDURAL LEVOBUPIVACAINE ALONE AND IN COMBINATION OF DEXAMETHASONE AND TRAMADOL IN BOVINE CALVES: CLINICAL AND HAEMATO-BIOCHEMICAL ALTERATIONS

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The study was conducted in 8 clinically healthy male bovine calves weighing between 50-100 Kg. All the animals were randomly allocated into four groups of five animals each with wash out period of 15 days. Levobupivacaine (0.5%) @ 0.5mg/kg bwt was epidurally administered in the sacrococcygeal space in group I whereas, the animals of group II, III were given dexamethasone @ 0.1 mg/kg bwt and tramadol @ 0.5 mg/kg bwt, respectively in combination with levobupivacaine hydrochloride (0.5mg/kgbwt). Animals of group IV received levobupivacaine @0.25 mg/kg bwt along with dexamethasone @0.1mg/kgbwt and tramadol @0.5 mg/kg bwt as epidural at sacrococcygeal space. RT, RR and HR exhibited progressive and non-significant decrease in all its intervals in all the groups except group where respiration rate and heart rate exhibited significant decrease as compared to base value but remained within normal physiological limits. HB, PCV, TLC and TEC, ALT, AST, total protein, BUN, Serum creatinine, Alkaline phosphatase and creatine phosphokinase exhibited transient and non-significant variation after epidural administration. A marked and significant increase in glucose was estimated in group II although the values remained within normal physiological limits. Levobupivacaine in combination with dexamethasone was found to be better combination in bovine calf in terms of least motor in-coordination, better analgesia and long duration analgesia with least changes in clinical and hematobiochemical alterations.

ANS-15

EVALUATION OF PANCURONIUM AND ITS REVERSAL BY NEOSTIGMINE AND GLYCOPYRROLATE COMBINATION IN PROPOFOL-ISOFLURANE ANESTHETIZED DOGS

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This clinical study aimed to evaluate the effects of Panuronium and its reversal with a Neostigmine-Glycopyrrolate (Myopyrrolate) combination in dogs anesthetized with Propofol and Isoflurane. The study involved 21 clinical cases, 15 of which were orthopedic surgeries, while 6 were ovariohysterectomies. Dogs were premedicated with Butorphanol @ 0.2 mg/kg b.wt., Diazepam @ 0.5 mg/kg b.wt. and induced with Propofol (till effect). Once the patient got stabilized with isoflurane-oxygen mixture, muscle relaxation was induced using Pancuronium @ 0.05 mg/kg body weight. Immediately following the cessation of

respiration, animal was subjected to IPPV in volume control mode. Neuromuscular blockade was reversed with a single syringe combination of Neostigmine (0.05 mg/kg body weight) and Glycopyrrolate (0.01 mg/kg body weight). Pancuronium led to the centralization of the ocular globe in 1.01 ± 0.09 with onset time in about 2.04 ± 0.14 minutes and a duration of action of 31.80 ± 1.16 minutes. The muscle relaxation produced by Pancuronium facilitated easier manipulation of bones and joint, minimal tissue trauma during orthopedic surgeries and provided optimal abdominal muscle relaxation during ovariohysterectomies, facilitating easier access to ovaries and uterus. Pancuronium under IPPV resulted in minimum physiological, respiratory, hemodynamic, electrocardiographic, or hematological parameters in dogs making it a safe anesthetic regimen for routine clinical cases

ANS-16

CLINICAL EVALUATION OF TUMESCENT ANAESTHESIA FOR SURGICAL MANAGEMENT OF TUMORS IN DOG

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The present study entitled “Clinical evaluation of tumescent anaesthesia for surgical management of tumors in dog” was conducted on 16 clinical cases of dogs with superficial and cutaneous tumor, presented for elective surgery at the VCC, COVAS, Parbhani. All dogs were premedicated with atropine sulfate @ 0.04 mg/kg/IM, followed by xylazine @ 1 mg/kg/IM as pre-anaesthesia. Induction was achieved using propofol @ 4 mg/kg/IV and anaesthesia was maintained with intermittent boluses of propofol in both groups. The dogs were divided into two groups (n=8), in group 1 tumescent anaesthesia was infiltrated using a multi-holed Klein cannula, @ 10 ml/kg body weight around the tumor. While group 2 received propofol alone without tumescent anaesthesia. The clinico-physiological and haemato-biochemical parameters were recorded before surgery, during surgery and after complete surgery. The heart rate increased significantly ($p < 0.05$) in group 1 whereas, significant decrease ($p < 0.05$) was observed in group 2. The respiration rate and rectal temperature decreased significantly ($p < 0.05$) in both the groups. Similarly, non-significant decrease ($p > 0.05$) in haemoglobin and packed cell volume was noticed. Biochemical estimation (ALT, AST, BUN and Creatinine) revealed a non-significant ($p > 0.05$) elevation in both groups. The total duration of surgery and total tumor excision time was significantly ($p < 0.05$) shorter in group 1 as compared to group 2. Assessment of anaesthesia showed smooth induction in both groups with no significant ($p > 0.05$) difference. However, the duration of anaesthesia and recovery from anaesthesia were significantly quicker ($p < 0.05$) in group 1 compared to group 2. Recovery was smooth and uneventful in both groups. Group 1 required significantly less ($p < 0.05$) propofol (mg/ kg) than group 2, demonstrating a propofol-sparing effect.

ANS-17**EVALUATION OF MULTIMODAL ANAESTHESIA PROTOCOLS USING MEDETOMIDINE–BUTORPHANOL–MIDAZOLAM–KETAMINE WITH ISOFLURANE AND LIGNOCAINE CRI IN BOVINES**

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A study was conducted on 12 bovines undergoing various surgeries at the Department of Veterinary Surgery and Radiology, Veterinary College, Bidar. The animals were randomly divided into two groups (n = 6 each). All bovines received intravenous meloxicam (0.20 mg/kg) as premedication, followed by sedation with medetomidine (05 µg/kg) and butorphanol (0.05 mg/kg). Anaesthesia was induced using midazolam (0.20 mg/kg) and ketamine (04 mg/kg) and maintained with isoflurane. Group II additionally received intravenous lignocaine (02 mg/kg bolus, 50 µg/kg/min infusion). Sedation, onset and induction times were rapid in both groups, with excellent induction quality and complete abolition of laryngeal and pedal reflexes. Anaesthesia duration was longer in Group II and recovery was completely smooth. Isoflurane requirement and consumption were significantly reduced in Group II compared to Group I. Physiological monitoring revealed post sedation bradycardia and decreased respiratory rate, with maintenance of normal sinus rhythm and stable ECG in both groups. Mean arterial pressure decreased significantly in both groups, while end tidal CO₂ increased during anaesthesia. Haemato-biochemical parameters showed appropriate non-significant variations within physiological limits, with full recovery by 48 hours. Minor complications included transient myoclonus and postoperative radial nerve paresis in Group I bovine and mild regurgitation in all animals. The nerve paresis resolved with treatment. The study demonstrates that the combination of medetomidine-butorphanol premedication with midazolam-ketamine induction and isoflurane maintenance provides effective, safe and smooth anaesthesia in bovines, while adjunctive lignocaine in Group II reduces isoflurane requirement and enhances anaesthetic duration without adverse effect

ANS-18**STUDIES ON EFFICACY OF DEXMEDETOMIDINE AND FENTANYL AS PREMEDICANTS TO ZOLAZEPAM- TILETAMINE -ISOFLURANE ANAESTHESIA IN CANINE**

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The present study was undertaken to evaluate and compare the sedative, dose-sparing, clinicophysiological, haemodynamic and haematobiochemical effects of dexmedetomidine and fentanyl citrate as premedicants to tiletamine–zolazepam–isoflurane anaesthesia in dogs. Eighteen healthy adult dogs were randomly divided into three groups (n = 6). Group I received atropine sulphate (0.04 mg/kg IM), Group II received atropine sulphate (0.04 mg/kg IM) and dexmedetomidine (10 µg/kg IV) and Group III received atropine sulphate (0.04 mg/kg IM) and fentanyl citrate (4 µg/kg IV). Anaesthesia was induced 10 minutes later using tiletamine–zolazepam (3 mg/kg IV) and maintained for 90 minutes with 1.5–2% isoflurane in 100% oxygen. Profound sedation with superior analgesia was observed in Group II, whereas Group III exhibited mild to moderate sedation and Group I showed no sedation. Induction of anaesthesia was significantly shorter in Group II compared to Groups I and III. The duration of anaesthesia and recovery parameters were significantly prolonged in Group II, while muscle relaxation and endotracheal intubation conditions were superior in Groups II and III compared to Group I. Isoflurane consumption was significantly reduced in Group II. Rectal temperature decreased

significantly after induction in all groups. Heart rate, respiratory rate and blood pressure showed transient but clinically acceptable variations throughout the anaesthetic period. Haematological and biochemical parameters remained within normal physiological limits, except for a significant increase in serum glucose levels observed post-anaesthesia. It was concluded that dexmedetomidine and fentanyl citrate are safe and effective premedicants for tiletamine–zolazepam–isoflurane anaesthesia in dogs, with dexmedetomidine providing superior sedation, analgesia and anaesthetic-sparing effects.

ANS-19

INTRICACIES OF LOW-FLOW INHALATION ANAESTHESIA IN CATTLE: PHYSICS PRINCIPLES AND CLINICAL APPLICATIONS

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Inhalation anaesthesia remains a cornerstone of veterinary practice. The successful application of inhalation anaesthesia requires a thorough understanding of both physiological and physical principles. This presentation explores the intricacies of low-flow inhalation anaesthesia in cattle. The advantages of low-flow techniques comprise reduced anaesthetic consumption, improved humidification and decreased environmental pollution. The limitations including delayed depth adjustments and heightened monitoring demands need to be understood. The study was conducted in thirty clinical cases of cattle randomly divided into three groups comprising of ten animals in each group and the induction of anaesthesia was carried out with three protocols incorporating acepromazine, acepromazine with butorphanol and acepromazine with buprenorphine premedication, respectively. The anaesthetic maintenance was carried out with low flow technique using isoflurane. The quantity of isoflurane utilized for maintenance of anaesthesia was calculated by Avogadro's principle. The mean (\pm SE) fresh gas flow rate in mL per kg per min employed during low flow isoflurane anaesthesia was 19.28 ± 2.60 , 12.52 ± 0.95 and 16.93 ± 2.84 in group I, II and III animals, respectively. The mean (\pm SE) equated isoflurane liquid utilized in mL for 300 kg and 1 h basis was 43.85 ± 6.20 , 26.00 ± 3.20 and 31.06 ± 5.44 in group I, II and III animals, respectively. The cardiopulmonary changes recorded during the low flow isoflurane anaesthesia did not show any undesirable effect on the quality of anaesthesia and anaesthetic recovery and was found acceptable.

ANS-20

DEXMEDETOMIDINE-MIDAZOLAM VS TILETAMINE-ZOLAZEPAM EFFICACY FOR PROPOFOL ANAESTHESIA IN CT SCAN FOR DOGS

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Sixteen clinical cases of dogs presented to the Department of Veterinary Surgery & Radiology, Mumbai Veterinary College, Parel and affiliated BSDPHA hospital were selected and divided into two equal groups: Group I received Dexmedetomidine (5 μ g/kg) and Midazolam (0.2 mg/kg), while Group II received Tiletamine-Zolazepam (5 mg/kg each), both intravenously, in both groups induction was done by Propofol (2–4 mg/kg). Each animal was assessed for a variety of parameters, including preanesthetic signs, induction quality, duration and depth of anaesthesia, recovery quality and vital physiological parameters. Haematological and biochemical markers were evaluated before induction, 30 minutes after induction and 24 hours post CT Scan procedure to ensure the safety and physiological impact of each protocol. Group-1 protocol demonstrated clear advantages, including a faster onset of anaesthesia, better induction quality, improved muscle relaxation, more stable cardiovascular parameters and a

smoother, more predictable recovery profile for CT scan procedures. While Tiletamine-Zolazepam provided longer anaesthetic duration, it was also associated with increased variability in physiological responses and recovery quality, including signs of struggling and transient excitement in a few dogs. No complications were observed in any of the animals during or after the recovery phase. Hence it is concluded that the Dexmedetomidine-Midazolam-Propofol protocol is the more appropriate anaesthetic choice for short diagnostic imaging procedures such as Computed Tomography (CT) procedure in canine patients.

ANS-21

COMPARATIVE EVALUATION OF ROPIVACAINE AND LIGNOCAINE HYDOCHLORIDE FOR CAUDAL EPIDURAL ANAESTHESIA IN BUFFALOES

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The study was conducted on 12 clinical cases of buffaloes, to compare and evaluate the haemato-biochemical, clinico-physiological and analgesic effect of epidural anaesthesia using 0.75% Ropivacaine HCl and 2% Lignocaine HCl. The buffaloes were divided into two groups consisting of six animals in each group. In group I, ropivacaine @ 0.15mg/kg BW. In group II, lignocaine @ 0.4mg/kg BW was administered epidurally through sacro-coccygeal space. Clinico-physiological and haemato-biochemical parameters were recorded at different interval of the study. Physiological parameters were decreased in both groups. However, fluctuation was within the normal physiological limits at all the intervals of the study. Haematological changes were within normal physiological limits. Based on the results of this study, it was concluded that both ropivacaine and lignocaine at the dose rate of 0.15 mg/kg and 0.4mg/kg respectively are safe and effective drug for caudal epidural anaesthesia in buffaloes and may be recommended for use in clinical case. The prolonged surgeries Ropivacaine HCl may be selected as the drug of choice.

ANS-22

COMPARATIVE ASSESSMENT OF ANESTHETIC EFFICACY AND SAFETY OF INTRAMUSCULAR VERSUS INTRAVENOUS TILETAMINE–ZOLAZEPAM AND PROPOFOL IN FELINES

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Because of their small body size, high metabolic rate and physiological sensitivity, induction and maintenance of general anesthesia for prolonged surgical procedures in cats present significant clinical challenges. A total of 36 cats presented to the Veterinary Clinical Complex (VCC), KNP College of Veterinary Sciences, Shirwal, for long-duration procedures such as endoscopic, abdominal and orthopedic surgeries were enrolled in the study. The animals were randomly allocated into four equal groups (n = 9 per group). Cats in Group I received tiletamine–zolazepam at 9 mg/kg intramuscularly, while Group II cats were administered propofol at 4 mg/kg intravenously, both without any premedication. In Groups III and IV, premedication was achieved using butorphanol at 0.1 mg/kg intravenously and xylazine at 1 mg/kg body weight intramuscularly. Ten minutes following premedication, cats in Group III were induced with tiletamine–zolazepam at 2.5 mg/kg, whereas cats in Group IV received propofol at 1 mg/kg intravenously. Various physiological and hematobiochemical parameters

were evaluated before induction, during anesthesia and throughout the recovery period. Additionally, key anesthetic parameters, including time to induction, quality of induction, degree of muscle relaxation, duration of anesthesia and depth of anesthesia, were systematically assessed and compared among all four groups.

ANS-23

COMPARATIVE STUDIES ON THE EFFICACY OF PROPOFOL, ETOMIDATE AND THEIR COMBINATION IN ATROPINE AND DEXMEDETOMIDINE PREMEDICATED GOATS FOR ORTHOPAEDIC INTERVENTIONS BASED ON CLINICO-PHYSIOLOGICAL PARAMETERS

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Current study was carried out to compare propofol, etomidate and their combination (etofol) for anaesthesia in atropine and dexmedetomidine premedicated goats undergoing orthopaedic interventions. Eighteen goats were divided into three groups receiving etomidate, propofol or etofol for induction. Maintenance of anaesthesia was performed using etomidate, propofol and etofol as required for groups A, B and C respectively with parameters like heart rate, respiratory rate, rectal temperature, mean arterial pressure and oxygen saturation were recorded at 0, 15, 30, 45, 60, 75 and 90 minutes. Heart rate, respiration rate, rectal temperature and mean arterial pressure varied across groups but remained within normal limits. Group C exhibited stable SpO₂ levels throughout study period. Etofol offers shorter induction and better haemodynamic control than either agent alone. No adverse effects were observed, making etofol the preferred agent when combined with atropine and dexmedetomidine for anaesthesia in goats. None of the above anaesthetics caused any undesirable effect as all the alterations in the clinico-physiological parameters were within normal physiological range.

ANS-24

COMPARATIVE STUDIES ON THE EFFICACY OF ZOLETIL, KETOFOLETOFOL AS CONSTANT RATE INFUSION IN GLYCOPYRROLATE AND DEXMEDETOMIDINE ON CLINICO-PHYSIOLOGICAL PARAMETERS IN PREMEDITATED DOGS

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This study evaluated the effects of Zoletil, Ketofol and Etofol as constant rate infusions (CRI) in dogs premedicated with glycopyrrolate and dexmedetomidine. Eighteen dogs were randomly divided into three groups (n=6), all receiving glycopyrrolate (0.01 mg/kg IM) and dexmedetomidine (15 µg/kg IV) prior to induction. Group A received Zoletil (6.5 mg/kg IV), Group B received Ketofol (1:1) and Group C received Etofol (1:1) for both induction and maintenance. All groups showed a significant decrease in heart rate at 15 minutes, with the lowest rates in Group C, followed by B and A. Respiratory rate was similar between Groups A and B up to 30 minutes, but overall, Group A had the lowest values. Rectal temperature remained consistent across groups, except at 45 minutes where Group B showed a significant difference. Mean arterial pressure was lowest in Group A throughout, followed by B and C. SpO₂ levels showed minimal variation, with the lowest readings in Group B, then Group C and highest in Group A.

ANS-25**CLINICO-PHYSIOLOGICAL ASSESSMENT OF DEXMEDETOMIDINE AND BUTORPHANOL AS PREANAESTHETICS TO TILETAMINE-ZOLAZEPAM ANAESTHESIA IN BUFFALO CALVES (*BUBALUS BUBALIS*)**

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The present study was undertaken to evaluate and compare the clinico-physiological effects of dexmedetomidine and butorphanol as preanaesthetic agents prior to intravenous tiletamine-zolazepam anaesthesia in buffalo calves. Eighteen healthy, non-descript male buffalo calves weighing 80-100 kg were randomly divided into three groups (A, B and C) with six animals in each group. All animals were dewormed with fenbendazole @ 5 mg/kg body weight orally prior to experimental procedures and were subjected to fasting for 24 hours and water withholding for 12 hours. Glycopyrrolate @ 0.01 mg/kg body weight I/M was administered 10 minutes before treatments in all groups. Animals in Groups B and C received dexmedetomidine @ 5 µg/kg body weight I/V and butorphanol @ 0.075 mg/kg body weight I/V, respectively, followed 10 minutes later by tiletamine-zolazepam @ 2.5 mg/kg body weight I/V in all groups. Clinical and physiological parameters were evaluated at predetermined intervals. Dexmedetomidine premedication produced superior sedation, profound muscle relaxation and smoother anaesthetic quality compared to butorphanol. Both agents altered physiological parameters, but changes remained within clinically acceptable limits. The study concluded that dexmedetomidine is a more effective preanaesthetic to tiletamine-zolazepam for buffalo calves.

ANS-26**CLINICAL EVALUATION OF LIGNOCAINE CRI ALONE AND ALONGWITH DEXMEDETOMIDINE IN DOGS UNDERGOING OVARIOHYSTERECTOMY UNDER PROPOFOL ANAESTHESIA**

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The present study was undertaken in eighteen healthy female dogs undergoing ovariohysterectomy divided in three groups (n=6) to compare the clinical effects of lignocaine alone and in combination with dexmedetomidine during propofol anaesthesia. Premedication was done with atropine sulphate @ 0.02 mg/kg b.wt I/M, Midazolam @ 0.3 mg/kg b.wt. I/V. After 5 min, in control group (Group O), normal saline flow rate was maintained; while a loading dose of 2% lignocaine (@2mg/kg IV) followed by CRI (@ 100 µg/kg/minutes) was given in group L and a loading dose of 2% lignocaine (@ 2mg/kg IV) plus Dexmedetomidine (2µg/kg IV bolus) followed by their CRI (Lignocaine @ 100 µg/kg/minutes; Dexmedetomidine @ 2 µg/kg/hr) was given throughout surgery in group LD. After 10 minutes of CRI, anaesthesia was induced with 1% Propofol IV to effect and maintained by a CRI of 1% Propofol. Clinical evaluation of anaesthesia was based on observing palpebral reflex, pedal reflex, jaw relaxation, induction time, recovery time and dose of propofol required for anaesthesia in each animal. Results of the study revealed that addition of dexmedetomidine to lignocaine (Group LD) caused a significantly early induction with significantly lower dose of anaesthetic for induction and maintenance of anaesthesia than addition of lignocaine alone (Group L) as compared to control group (Group O) but resulted in delayed recovery from anaesthesia than in control animals.

ANS-27**DOSE SPARING, CLINICO-PHYSIOLOGICAL AND HAEMATO-BIOCHEMICAL EFFECT OF BUTORPHANOL-ACEPROMAZINE-GLYCOPYRROLATE AS PRE-ANAESTHETIC, PROPOFOL/THIOPENTONE SODIUM AS INDUCTION AND ISOFLURANE AS MAINTENANCE ANAESTHETIC AGENTS IN DOGS**

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A clinical study was conducted at the Department of Veterinary Surgery and Radiology, Kamdhenu University, Himmatnagar, to evaluate the efficacy, safety and clinical performance of two balanced anaesthetic protocols in dogs. Twenty-four clinical canine cases of various breeds were randomly divided into two equal groups. All animals were premedicated with butorphanol (0.2 mg/kg) and glycopyrrolate (0.01 mg/kg) IM followed by intravenous acepromazine (0.02 mg/kg). Anaesthesia was induced using propofol (1%) in Group I and thiopentone sodium (2.5 %) in Group II and maintained with isoflurane in both groups. Sedation, induction, maintenance and recovery qualities were evaluated using standardized scoring systems alongside monitoring of clinico-physiological and haemato-biochemical parameters. Premedication produced good to excellent sedation in both groups and significantly reduced the induction doses of propofol (2.89 ± 0.21 mg/kg) and thiopentone sodium (8.16 ± 0.71 mg/kg) demonstrating a marked dose-sparing effect. Induction was smooth and rapid in both groups with propofol providing superior induction quality and ease of intubation. Isoflurane maintenance ensured stable surgical anaesthesia with excellent muscle relaxation and analgesia. Recovery was smooth in both groups with faster and more uneventful recovery observed in the propofol group. Clinico-physiological and haemato-biochemical parameters remained within normal limits and no major anaesthetic complications were recorded. Both protocols are safe and effective for canine surgery with propofol offering advantages in induction quality, ease of intubation and recovery.

ANS-28**EVALUATION OF DEXMEDETOMIDINE WITH BUPIVACAINE AS EPIDURAL ANAESTHESIA FOR RETRO-UMBILICAL SOFT TISSUE SURGERIES IN DOGS**

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Epidural administration of anesthetic agents has become a preferred approach in veterinary practice to mitigate the risks associated with general anaesthesia, such as respiratory distress, hypotension and mortality in rare cases. This study compared the effects of dexmedetomidine alone and in combination with bupivacaine as epidural anesthesia for retro-umbilical soft tissue surgeries in dogs. In this study twelve dogs were randomly assigned to two groups of six animals. Both groups received glycopyrrolate @0.01 mg/kg BW and midazolam @0.7 mg/kg BW IM as pre-anesthetic agents. Group 1 received epidural dexmedetomidine @7 µg/kg BW, while group 2 received a combination of dexmedetomidine @7 µg/kg BW and bupivacaine @2 mg/kg BW epidurally. The study revealed that group 2 experienced a significantly ($p \leq 0.05$) faster onset and longer duration of analgesia compared to group 1. The motor blockade was also prolonged in Group 2, which aligns with the extended analgesic effects and supports the need for sustained hindquarter immobility during surgery. Although group 2 showed deeper sedation levels, they required significantly ($p \leq 0.05$) higher intraoperative doses

of propofol for anesthesia maintenance. Additionally, group 2 had better anal sphincter relaxation and longer recovery times compared to group 1. Despite the extended recovery period, the anesthetic quality in group 2 was superior, with minimal side effects and stable physiological parameters. Thus, the dexmedetomidine-bupivacaine combination provided effective and prolonged analgesia and sedation, making it beneficial for retro-umbilical surgeries.

ANS-29

EVALUATION OF XYLAZINE AND DEXMEDETOMIDINE PREANAESTHETICS WITH PROPOFOL ANAESTHESIA IN DOG

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The present study was carried out on eighteen clinically healthy female canines to evaluate balanced anaesthetic techniques and the suitability of xylazine and dexmedetomidine along with atropine sulphate and butorphanol as pre-anaesthetic to propofol and isoflurane anaesthesia for elective surgery in canines. Animals were randomly divided into three groups. All animals were pre-medicated with atropine sulphate, after 10-minute butorphanol and just after xylazine @ 1 mg/kg b.wt IM in group A and dexmedetomidine @ 5 µg/kg b.wt and 10 µg/kg b.wt in B and C groups respectively. The induction of anaesthesia was achieved by propofol as per requirement. The maintenance of anaesthesia was achieved by isoflurane. Adequate sedation, depth of analgesia and muscle relaxation were observed in the animals of all the groups during surgery. Significantly lower doses of propofol were needed for induction in the groups of B and C as compared to group A. Incidence of apnea was more with xylazine as compared to dexmedetomidine. Recovery time of group B had non significantly lower recovery time in comparison to group A and C. On the basis of clinical, biochemical and cardiovascular stability 10 µg/kg dexmedetomidine is better in comparison of premedication with xylazine and 5 µg/kg dexmedetomidine along with butorphanol and atropine for induction with propofol and maintenance with isoflurane in elective surgery.

ANS-30

EVALUATION OF EMULSIFIED ISOFLURANE AS INTRAVENOUS ANAESTHESIA IN GOATS

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The present study evaluated the efficacy, safety and dose-dependent effects of emulsified isoflurane as an intravenous anaesthetic in goats. Twelve healthy male Sirohi goats aged between 6–12 months and weighing 15–30 kg were randomly divided into two groups with six animals in each group. After appropriate fasting, all animals were premedicated with intravenous midazolam @0.2 mg/kg and butorphanol @0.1 mg/kg body weight. Anaesthesia was induced and maintained for 30 minutes using 5% emulsified isoflurane prepared with liquid isoflurane and 20% intralipid. Group 1 (G1) received 0.5 ml/kg and Group 2 (G2) received 0.75 ml/kg body weight of intravenous emulsified isoflurane for induction. Anaesthetic variables including onset, duration, recovery time, reflex responses and quality of induction and recovery were recorded along with physiological, haematological, biochemical and arterial blood gas parameters. Goats in G2 showed significantly faster induction and longer duration of anaesthesia, whereas G1 exhibited smoother and quicker recovery. Abolition and return of reflexes occurred earlier and persisted longer in G2. Transient apnea was observed in G2 but resolved spontaneously. All physiological, haematological, biochemical and blood gas values remained within normal limits. It was concluded that emulsified isoflurane is a safe and

effective intravenous anaesthetic in goats, with 0.5 ml/kg providing better recovery and 0.75 ml/kg producing deeper and longer anaesthesia.

ANS-31

COMPARATIVE STUDY OF ETOMIDATE, PROPOFOL AND KETAMINE AS INDUCTION AGENTS IN ORTHOPAEDIC SURGERY OF DOGS

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The present study was conducted on eighteen dogs presented for orthopaedic surgery to evaluate balance anaesthetic techniques and induction dose of propofol, ketamine and etomidate anaesthesia; premedicated with glycopyrrolate, butorphanol and midazolam. In all groups anaesthesia was maintained with gaseous anaesthesia isoflurane. Animals were randomly divided into three groups. All animals were pre-medicated with glycopyrrolate, after 10 minutes butorphanol and midazolam was given in all groups. After 10 minutes of premedication, the induction of anaesthesia was achieved by propofol in the group A, ketamine in the group B and etomidate in the group C as per requirement; followed by maintenance with isoflurane until the last closure of skin suture. The study was compared on the basis of clinico-physiological, haemato-biochemical, haemodynamic and electrocardiographic parameters. Adequate sedation, depth of analgesia and muscle relaxation was observed in the animals of all the groups during surgery. Significantly lower doses of etomidate were needed for induction in the group C as compared to propofol in the group A and ketamine in the group C. Incidence of apnea was more with propofol as compared to ketamine and etomidate. Etomidate had shorter recovery time as compare to propofol and ketamine. Propofol had shorter sternal recumbency and standing time as compare to ketamine and etomidate. Etomidate provided excellent hemodynamic stability, minimal respiratory and cardiovascular effects when used as for induction and premedicated with glycopyrrolate, butorphanol and midazolam in orthopaedic surgery of dogs.

ANS-32

COMPARATIVE EVALUATION OF ZOLEFOL AND KETOFOL AS AN INDUCTION AGENT WITH BUTORPHANOL AND DIAZEPAM PREMEDICATED DOGS

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The present study is planned to comparatively evaluate Zolefol and Ketofol as an induction agents in butorphanol and diazepam premedicated dogs undergoing general anaesthesia. Twelve dogs of either sex, aged 1–8 years and weighing 10–30 kg, scheduled for elective surgical procedures will be randomly divided into two groups. Following premedication with atropine, butorphanol and diazepam, anaesthesia will be induced using either Zolefol or Ketofol and maintained with inhalational anaesthetics. The efficacy of both induction agents will be assessed based on clinical observations, quality of induction, and maintenance of anaesthesia, recovery characteristics, physiological, haemodynamic parameters and haemato-biochemical variables. The study aims to determine a safe and effective anaesthetic protocol providing smooth induction, stable anaesthesia, and rapid recovery in dogs.

COMMON SOFT TISSUE SURGERY IN BIRDS

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INTRODUCTION

Soft tissue surgery in birds increased substantially over the last decade, particularly in metropolitan cities where birds are increasingly kept as companion animals. Concurrently, the widespread use of inhalational anesthesia such as isoflurane, along with the introduction of microsurgical techniques, has significantly reduced perioperative and post-operative mortality in avian patients. These advances have improved surgical outcomes thereby enhancing surgeon confidence in avian soft tissue surgery in recent years.

Soft tissue surgery in birds has several limitations, including the small size of the abdomen, complex respiratory system anatomy, and extremely delicate soft tissues. These factors increase surgical difficulty and demand meticulous handling.

Prior to surgery in birds physical condition of patient must be assessed and fluid or blood deficits must be corrected before surgery, as must be control of perioperative and postoperative hypothermia, analgesia and shock.

Additionally, in India, Makar Sankranti a Hindu festival celebrated in several parts of the country during the month of January. During this festival, kite flying is a popular activity, where people use a glass-coated kite string called "Manjha." Unfortunately, this practice has proven fatal for thousands of innocent birds, as they become entangled in the kite strings and suffer serious injuries. This competition for airspace between kites and birds has led to a significant increase in bird injuries, posing a serious threat to the bird population.

The injuries caused by kite strings include wing lacerations, broken feathers, injuries to the propatagium, and fractures of various parts of the wing, such as the humerus, radius, ulna, carpo-metacarpus, and phalanges. Additionally, leg and crop injuries may also occur (Patel, 2013).

SURGICAL INSTRUMENT

- Magnification with illumination: Essential for microsurgical techniques, particularly in less than 1 kg birds.
- Head lights
- Cotton buds
- Clear plastic sterile drapes
- Haemoclips
- Hemostatic agents eg. Botroclot
- Microsurgical instruments
- DeBakey thumb forceps
- Suture material : Suture material with swaged needle (atraumatic) used to minimize the tissue trauma. Polydioxanone suture, polyglyconate, and polyglecaprone 25 are recommended absorbable sutures (Bennett *et al.*, 1997 and Pollock *et al.*, 2006). Polyglactin 910 (Vicryl, Ethicon) causes severe inflammatory response in birds, and it is only recommended for cloacopexy to promote adhesions in the surgical site (Bennett *et al.*, 1997 and Pollock *et al.*,

2006). Polypropylene (Prolene, Ethicon), nylon, and steel are recommended nonabsorbable sutures. The sizes 3-0 to 6-0 are commonly used in avian surgery.

COMMON SOFT TISSUE SURGERY TECHNIQUES

Crop Fistula Repair

The primary function of the crop is storage of food. When the crop is full of food, it is often prominent and pendulous, making it more susceptible to trauma (Harrison, 1987). Crop fistula occurred as a result of animal bites, improper and force feeding, foreign body ingestion, trauma and consumption of excessively hot food items (Harrison, 1987). A permanent fistula may form because food will pass continuously from the crop through the defect in the crop and skin and out into the environment. This allows food to escape from the esophagus or crop and collect under the skin, creating an abscess and potential toxemia. Early diagnosis and treatment are essential for optimum recovery (Altman, 1992; Harrison, 1987 and Joyner, 1991).

Crop fistulae occur most commonly occur in neonates being hand-fed. The crop of neonates is more fragile and susceptible to injury than the adult ingluvies (Harrison, 1987).

It is important to repair the crop as a separate structure from the skin to minimize the chance of dehiscence, which is more likely to occur if the two are closed as one tissue. For suturing of crop fistula, first remove food and necrotic tissue from the crop and thoroughly clean the surgical area with diluted povidone iodine or chlorhexidine solution. Once the surgical area is thoroughly cleaned debride the circumferentially edges of the fistula with scissors and also separate the crop from overlying skin. Two stay sutures are placed in both ends of the crop wall. Then crop is sutured with a single layer of inverting sutures using vicryl 4-0 or 5-0 and the skin is closed with simple interrupted sutures using vicryl 3-0. Placement of a tube from the mouth through the crop into the distal esophagus or into the proventriculus will aid in identifying the crop lumen.

In some cases, the crop may develop a defect while the skin remains intact causing an accumulation of food in the subcutaneous space that may be misdiagnosed as crop stasis. The affected skin should be opened, the subcutaneous tissues debrided, the crop and esophagus closed and the skin defect managed as an open wound. The wound should be evaluated periodically and debrided of any food material or necrotic tissue accumulates. Once the subcutaneous tissues are healthy, the skin defect may be closed or it may be left to heal by second intention.

Ingluviotomy

Surgical entry into crop to remove impacted feed material and foreign bodies is known as ingluviotomy. Small non-penetrating foreign body may be removed from the crop using a flexible endoscope and a biopsy instrument.

Indications for ingluviotomy include foreign body removal (Altman, 1992; Lloyd, 1992) placement of a feeding tube and gaining endoscopic access to the proventriculus and ventriculus (Van Zant, 1992). To perform an ingluviotomy, the bird is positioned in dorsal recumbency with the head elevated and the esophagus occluded with moist cotton to prevent fluids from refluxing into the oral cavity. An incision is made through the skin, only over the cranial edge of the left lateral sac of the crop.

Because of the ability of the ingluvies to stretch, the incision should be made only about half the size necessary to accomplish the procedure; however, having adequate exposure is more important than having a small incision, and retrieval of large foreign bodies through small ingluviotomy incisions should not be attempted. The crop

generally heals without complication. The crop incision should be made with a blade in an avascular area. Radiosurgery should be used to seal only specific vessels.

The incision is closed using an inverting technique with an absorbable material swaged on an atraumatic needle. Two-layer inverting patterns are frequently recommended; however, one layer of simple continuous appositional sutures over-sewn with an inverting pattern is effective and is less compromising on the size of the crop lumen. The crop may be inflated with saline or air to check for leakage prior to skin closure.

Patagial Tendon Repair

The proptagium is an indispensable anatomical feature for the successful execution of avian flight. In the event of injury, the two sides of the dorsal aspect of the ligament should be re-joined, as should the two sides of the ventral aspect. Firstly, wound was prepared for surgery and vital parameters (heart and respiratory rate) of birds were monitored throughout the surgery. The birds were kept on hot water bags wrapped in towels to prevent hypothermia during surgery. Severed patagial tendon was identified and sutured with vicryl 3-0 (suturing thread) using interrupted suture pattern. Bicep muscle was opposed with vicryl 2-0 in interrupted pattern and dorsal and ventral layers of proptagium were sutured with vicryl 3-0 in continuous pattern. The injured wing was stabilized using figure of eight wrap with vet wrap.

Contracture of the proptagium is a unique and significant concern in cases of wing injury. In particular, the constriction and fibrosis of the proptagium resulting from the use of wing bandages can lead to a serious complication that impedes flight, even with successful healing of other wing injuries. In the event of pro-ptagial contracture, early detection and subsequent implementation of physiotherapy aimed at gradually increasing the range of motion may result in functional restoration of the wing.

Cloacal Prolapse

Cloacopexy is indicated to correct cloacal prolapse which is common in birds. Generally cloacal prolapse is associated with reduced cloacal sphincter tone. According to Avgeris and Rigg, (1988) chronic gram-negative enteritis may be an initiating factor for cloacal prolapse. Minor or acute cloacal prolapses may respond to placement of a mattress suture on both side of the cloaca; however, when the entire organ prolapses, this method of treatment is ineffective. If mattress sutures are used, they must allow for the passage of droppings. Purse-string sutures are contraindicated due to frequent postsurgical cloacal atony secondary to nerve damage.

Chronic recurrent prolapse may require cloacopexy may be performed as a definitive treatment for cloacal prolapse (Echols, 2002). For performing cloacopexy following steps follow.

Step 1: The feathers have been removed on the skin over the abdominal muscles with the bird positioned in dorsal recumbency.

Step 2: The prolapsed mass should be lavaged with antiseptic solution and assess viability of prolapsed tissue.

Step 3: A midline incision is made over the skin and muscles is performed.

Step 4: Soft tissue retractors and cotton buds introduced in the cloaca are used to expose the cloaca within the coelomic cavity.

Step 5: The fat on the ventral surface of the cloaca is excised.

Step 6: The suture passes through one side of the body wall, through the full thickness of the cloaca, and through the other side of the body wall in a simple interrupted pattern.

Step 7: The abdominal muscles are closed with a simple interrupted pattern.

Step 8: The skin is sutured routinely in simple interrupted pattern.

Egg Binding Syndrome

Egg binding occurs commonly in companion birds and has been associated with a genetic predisposition, improper nutrition, atony of the uterus, oversized eggs, inexperience of the hen, tumors of the reproductive tract and extraluminal compression of the reproductive tract by abdominal masses.

Egg binding in birds is most commonly the result of malnutrition. If the egg remains in the uterus (shell gland), it will continue to deposit shell material into the egg, further lowering systemic calcium levels. Any bird presenting for egg binding should be evaluated for hypocalcemia prior to planning surgery, and any abnormalities should be addressed. Ovocentesis should be attempted prior to considering surgical intervention.

If medical management of egg binding fails, ovocentesis is performed. For ovocentesis under general anaesthesia, the opening of the vagina into the cloaca is identified. A blunt probe is used to dilate the opening. Once the egg is visualized, a needle can be inserted into the egg to aspirate its contents. Following ovocentesis, the egg can be collapsed and the shell fragments removed. The vagina and uterus should be flushed repeatedly to verify that all egg material has been evacuated. Post operative radiograph may be taken to rule out the presence of another egg or remaining fragments.

In cases where the egg is lodged farther cranial in the oviduct, it may be best to perform a midline celiotomy, and hysterotomy may be the best technique for removing the egg.

Air Sac Cannulation (Harris, 2001)

Tracheal obstructions from foreign bodies, neoplasia, fungal granulomas, etc. initially require the creation of an alternate breathing passage. The existence of the air sac system in birds provides a means of ventilation not possible in mammals. Effective respiration can be achieved by intubating the caudal thoracic air sac.

Anesthesia is helpful in birds that are capable of resisting restraint. Those which are severely dyspneic may offer little resistance and the need to establish effective ventilation may preclude anesthesia.

The type of tube utilized depends on the size of the patient and the urgency of the situation. In small birds a 2-3 cm section of I.V. tubing will suffice. In larger birds a standard 3.0 mm I.D. cuffed endotracheal tube can be modified for abdominal installation. The tube is trimmed just above the airline thereby preserving the integrity of the cuff. A 1 X 5 cm strip of Elasticon™ is wrapped around the endotracheal tube 2-3 mm above the cuff. Inflation of the cuff after placement in the bird offers the advantage of securing the tube in place and more importantly expanding the air sac thereby improving the patency and effectiveness of the tube (figure 1).

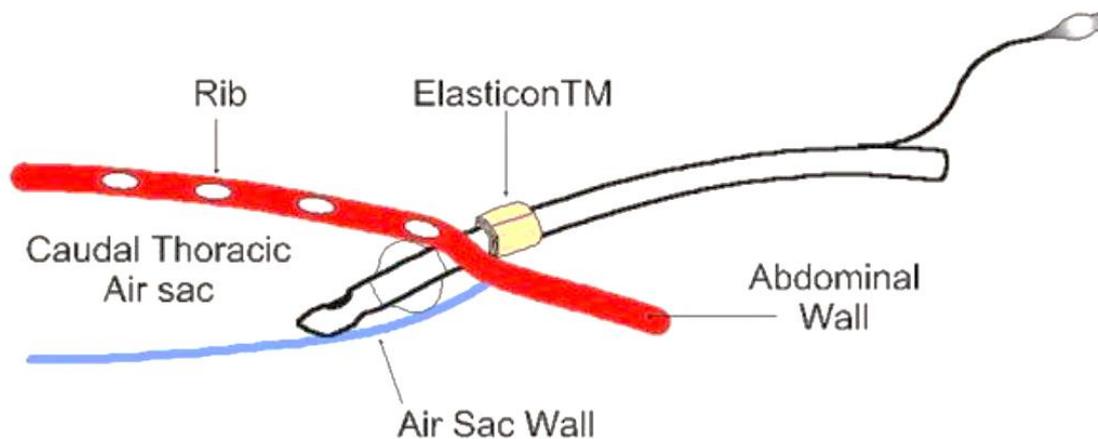


Figure 1 : Air sac Cannulation

The breathing tube can be installed into the caudal thoracic air sac either between the last two ribs or just behind the last rib, both just dorsal to the dorsal edge of the pectoral muscle. The patient is secured in lateral recumbency and the area is surgically prepped. The leg is *flexed and abducted* (not pulled cranially or caudally) to expose the last rib. A stab incision is made through the skin with the point of a #15 scalpel blade. A fine mosquito hemostat is used to bluntly dissect through the intracostal or abdominal muscles forming a hole barely large enough to insert the breathing tube. The tube is inserted and secured either by suturing or inflating the cuff, or both. Patency can be tested by holding a microscope slide at the opening to observe for breathing induced fogging. Once secured, the bird can breathe freely through the tube or an airline can be connected for oxygen administration or anesthesia.

Traumatic Wounds

Apply a surgical soap (Chlorhexidine scrub) and use antiseptic solution (e.g. povidine/iodine or chlorhexidine solution) and sterile gauze pads to soak dry, dead material. It's easier on the patient if this solution is prewarmed on a heating pad or in the microwave. You will also find that the soap is generally more comfortable than the straight solution in fresh, raw wounds. This is because it is more isotonic. Gently remove dead and dry tissue using gentle scrubbing or sterile tweezers and small scissors. Do not cut living tissue (recognized by pink color or bleeding) and do not attempt to tear out tissue that is stubborn or that appears to be deeply connected (dead tendons). Instead, cut off the exposed dead portions. If bleeding occurs, apply gentle pressure with dry, sterile gauze. After removing as much material as possible, rinse the wound with lukewarm antiseptic solution.

Beak injuries

Many birds will suffer beak injuries during the course of their lives. The upper and lower mandible are vulnerable to trauma and will often fracture as a result. The horny beak or bill (*rhamphotheca*) is a hard, tough, keratinized epidermal structure in birds of prey, as well as seed and grass eaters. Collisions occur regularly and can result in beak injuries. The beak will heal by a process of granulation and epithelialization, much as with any other epidermal tissue. The use of a waterproof dressing is indicated. Products such as the protective paste (Orabase) are resistant to water and can be used to pack the wound cavity. Hydrocolloid dressings can then be applied over the wound to

provide further protection. Broad-spectrum antibiotics are indicated until a healthy bed of granulation tissue is established.

Head injuries

Head injuries are difficult to treat as the avian head shape is not easy to bandage. Head injuries may arise following collision with a motor vehicle, window or aviary wall. They may also result from territorial disputes between birds of the same species (conspecific fighting) or as a result of attacks between birds of different species (interspecific fighting). The head wounds are cleaned and then dressed with a hydrogel (Intrasite). A thin vapour permeable adhesive dressing (Opsite) is then placed over each wound. A broad-spectrum antibiotic (cephalexin 100mg/kg orally twice daily) is administered until a healthy bed of granulation tissue is established.

Barbed wire injuries

Birds caught on barbed wire are likely to struggle and considerable soft tissue trauma is likely to result from this struggling. The barb, of the barbed wire, may only be caught in the skin, but it may also catch in and damage underlying tissues. Damage to the tendons of the propatagial membrane and wing are especially common and are likely to be very serious, usually warranting euthanasia. The bird is anaesthetized if considerable soft tissue is exposed and vulnerable to desiccation. The twisted skin is resected, removing all the compromised tissue. The wound is then closed with simple interrupted absorbable sutures (3/0 Vicryl) and a protective coating of aluminum powder applied over the wound (Aluspray). Broad-spectrum antibiotic cover is provided for seven days.

Keel wounds

Keel wounds are usually seen in sick and debilitated birds. Such birds spend long periods sitting down and will fall heavily onto their keels through weakness. The development of a pressure ulcer is a progressive process that will eventually result in bone necrosis. Treatment will only be successful if the underlying problems are properly addressed.

Caught-by-cat flesh wounds

Cat bites may range from tiny puncture wounds to lacerations. For infected bites clavulanate-amoxicillin or combination therapy with penicillin, or clindamycin, and a fluoroquinolone is recommended. Bite wounds should be aggressively cleaned and flushed with saline or 0.05% chlorhexidine. Flushing may need to be repeated. Puncture wounds can be left open to drain but lacerations should be dressed to protect the underlying tissues. Some puncture wounds may need to be opened up to facilitate access to the underlying traumatized tissues. Torn, necrotic muscle should be removed and the wound packed with a hydrogel. A hydrocolloid dressing (eg. Duoderm Extra Thin) can be applied over the wounds to provide additional protection.

Dog bite wounds

Dogs attack from behind and it is perhaps for this reason that the tail and rump area is most often targeted. Some of these injuries can be very severe and vulnerable to fly strike. Infection tracks readily between the fascial layers of the tail muscles and euthanasia may be the only option in many cases. A fresh wound is likely to warrant treatment. Most of the wounds healed well following careful debridement, dressing and delayed closure.

Carpal injuries

Trauma to the skin and tissues overlying the carpal joint can easily lead to complications. Tendon sheath infections and joint infections are very serious and appropriate wound management techniques are indicated to ensure that carpal injuries do not lead to complications.

A hydrocolloid dressing (eg. Granuflex) can be applied and stitched into place. It may be possible to perform a delayed closure of the wound, tissue tension permitting. In such cases a hydrocolloid dressing (eg. Granuflex) may be applied over the stitched wound to provide additional protection and support. Use of absorbable suture materials can allow flighty birds to be placed in a quiet aviary, or even released, and the dressing allowed falling off.

Power cable injuries

Electrical burns will occur where contact has been made between two wires. The manifestation of electrical injuries can be insidious and all birds found adjacent to power lines should be thoroughly and repeatedly examined for signs of burns to the feathers, skin or musculature over a period of up to five days. Devitalized tissue will become cold and oedematous to the touch, before sloughing in a compartmentalized fashion, delineating the tract along which the electricity travelled.

Wing Amputation

Amputation of the humerus at the junction of the middle and proximal thirds of the bone provides adequate soft tissue coverage and creates a stump short enough to prevent self-trauma. The skin incision should be made at the distal humerus, just proximal to the elbow. The muscles

are transected at their musculo-tendinous junctions near the elbow. The humerus should be transected at the proximal third, to provide sufficient muscle distally to be sutured over the stump. Subcutaneous and skin closure is routine.

POST OPERATIVE CARE AND MANAGEMENT

Postoperative management of birds is crucial for ensuring their successful recovery after surgery. The management typically involves providing species specific husbandry, adequate pain management, proper wound care, monitoring overall health of the bird and behavior closely. The diet of a bird should also be modified according to the postoperative requirements and the activity level should be restricted as needed to promote healing. Additionally, providing a stress-free and comfortable environment for the bird is essential during the postoperative period. The medication prescribed after post-surgery typically consists of antibiotics to prevent infection, NSAIDs and opioids to manage pain. Antibiotics like enrofloxacin (15mg/Kg IV/IM/PO), amoxicillin (125 mg/kg IV/IM/PO) and clindamycin (100mg/kg IV/IM/PO) can be administered (Carpenter, 2013). Butorphanol, tramadol and NSAIDs, such as meloxicam or carprofen, have been used to good effect (Barron and Powers, 2012). Syrup Meloxicam is given @ 0.5mg/kg orally to alleviate pain, inflammation and antipyretic property as recommended by (Thomas and Marle, 2008). It has deemed as a safe NSAID to be used in birds (Naidoo *et al.*, 2009). Calcium supplement and multivitamin syrup is given orally as a supportive therapy. Opioids such as butorphanol (0.4–2.0 mg/kg IM) are commonly used, especially to provide perioperative analgesia (Ford *et al.*, 2008).

For bandaging the operated wing, 'figure-of-eight' bandage is used in combination with the body wrap for fractures of the distal wing, while the body wrap is employed for fractures of the pectoral girdle and humerus.



Avian Surgery Session



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AVS-01**SURGICAL REMOVAL OF TUMOROUS MASS IN PARAKEET – CLINICAL REPORT OF 2CASES****Brihaspati Bharti, Shailendra Singh and Balendra Singh***Government Veterinary Hospital Satna (M.P.)*

Two parakeets having age of eleven and twenty-one years were presented with the history of subcutaneous hard swelling in the neck region and in one case this growth was ulcerated. Anaesthesia was induced with the help of midazolam @ 0.5mg/kg wt and Ketamine hcl @ 20 mg/kg bwt intramuscularly. The surgical site was prepared aseptically, growth masses were excised, subcutaneous tissue and skin were sutured with the help of 3-0 polyglactin-910 separately. Growth mass was preserved 10% formalin solution and examined for gross and histopathological alterations. Histopathological features were consistent with squamous cell carcinoma (SCC). Post operative care was done by injection enrofloxacin 15mg/kg bwt for four days and syrup meloxicam @ 0.5 mg/kg bwt for two days and daily antiseptic dressing by povidone iodine solution. The complete recovery was observed within 15 days in one cases and recurrence were not reported.

AVS-02**SURGICAL MANAGEMENT OF NON-INFECTIOUS NEOPLASMS IN SIX BIRDS****Jithesh Thottiyil, Gurunathan N, Tina Roshini S, Vigneswari M, Uma S, Arul Jothi N, Deepika A, Mahalakshmi M, B. Dayana Priyatharshini***Department of Veterinary Surgery and Radiology,
Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry*

A total of six birds presented to the department of Veterinary Surgery and Radiology, VCC, RIVER, Puducherry from February to November 2025 with neoplasms were recorded. The age of the affected birds ranged from 6 months to 3 years. In which, one pigeon was having growth on the eyelid. A mass was noticed on wing in a pigeon, fowl and cocktiel. Ovarian growth in a fowl, one parakeet presented with tumor on dorsal aspect of neck. All the birds were pre anaesthetized with butorphanol (@ 1mg/kg) and midazolam (@ 1mg/kg), and induction with zoletil (@10mg/kg) and maintained using isoflurane (2%). The growths were surgically removed and send for histopathology. Out of 6 neoplasms, one was benign sebaceous adenoma in the eyelid. The malignant fibrosarcomas in the wings (3), one was ovarian papillary adenocarcinoma and one was diagnosed as neurofibroma in the neck region.

AVS-03**SUCCESSFUL SURGICAL MANAGEMENT OF CLOACAL PROLAPSE IN DOMESTIC GOOSE (ANSER ANSER)****Nakade S.N., Chepte S.D., Raut S.U., Ghuge A.R., Shirsath G.R., Gondavale H.P.***Department of Veterinary Surgery and Radiology
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The present case describes a domestic goose (*Anseranser*) presented to the Veterinary Clinical Complex, COVAS, Parbhani, with a history of cloacal prolapse persisting for the past 3–4 days. The bird had been previously treated by a field veterinarian by manual repositioning of the prolapsed tissue along with supportive therapy; however, recurrence occurred due to persistent and severe straining. On clinical examination, the bird appeared dull and depressed and showed marked straining during defecation. For detailed examination and correction of the prolapsed mass, light sedation was achieved using inj. Xylazine @ 1 mg/kg bwt. and inj. Lignocaine 2% as local anaesthesia. The prolapsed cloacal tissue was oedematous and inflamed. Cloacal palpation under adequate lubrication revealed the presence of accumulated dried faecoliths within the cloaca, which were considered the primary cause of recurrence of the

prolapse. Prior to surgical correction, careful evacuation of the hardened faecoliths was performed using a cloacal enema, followed by thorough cleansing of the prolapsed tissue with warm normal saline. The cloaca was adequately lubricated and manually repositioned using gentle digital pressure. Subsequently, a purse-string suture were taken around the vent using prolene No. 2-0 to restore anatomical integrity and prevent re-prolapse while allowing passage of faeces. Postoperative management included administration of broad-spectrum Antibiotic and NSAID, along with deworming to eliminate possible parasitic etiologies. Follow-up examination after 10 days revealed complete recovery, with normal defecation and no recurrence of cloacal prolapse.

AVS-04

TIBIO-TARSAL FRACTURE REPAIR IN BACKYARD POULTRY USING LOCKING AND NON-LOCKING RECONSTRUCTION PLATES

Karan Hosmani, B.V. Shivaprakash, B. Bhagavantappa and Dilipkumar. D

Department of Veterinary Surgery and Radiology, Veterinary College, Bidar

The study was conducted on 12 backyard poultry birds taken as experimental model for fracture repair. Tibio-tarsal bone fracture was created under xylazine-ketamine anaesthesia. Birds were divided into two groups consisting of six birds in each group. In group I, the fractures were stabilized with non-locking reconstruction plate and in group II, fractures were repaired with locking reconstruction plate. Xylazine HCl @ 3mg/kg BW and Ketamine HCl @ 30mg/kg BW proved to be a good anaesthetic combination for fracture repair in poultry. The weight bearing in group-I was mild to moderate from day 15 and good to very good on 30th and 45th post-operative days. The weight bearing in group-II was mild to moderate from 7th postoperative day itself and good to very good from 30th and 45th post-operative days. The weight bearing was similar from 45th and 60th post-operative days in both the groups. The fracture healed with minimal callus resembling primary union. In group-I, callus formation was more appreciable at the fracture site as the screws were not locked for the reconstruction plate. In group-II, the callus was very minimal for the locking reconstruction plate with early remodelling. The bio-chemical analysis showed non-significant rise in serum calcium, serum inorganic phosphorous and serum alkaline phosphatase on 15th and 30th post-operative days and were within normal limits. The levels returned to base values by 45th and 60th postoperative day. Both reconstruction plates are not commercially available, require fabrication and can be successfully used for fracture repair in birds.

AVS-05

COMPARATIVE EVALUATION OF DIFFERENT TECHNIQUES OF FRACTURE FIXATION IN KITES

R.R.Anjana, P.B.Patel, P.T.Sutaria, P.V.Parikh, D.A.Ratnu

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Kites (N=24) suffering with pectoral limb fractures were randomly divided into two groups during kite flying festival. They were divided into two groups of twelve each viz. Group-A: Intramedullary Pinning+PMMA (Polymethylmethacrylate) and Group-B: ESF (External Skeletal Fixation). Clinical evaluation was carried out by external palpable callus, wing bearing movement and radiographic investigation. Different leukocyte count and total platelet counts were estimated manually and biochemical parameters using analyzer. Formation of hard and thick secondary callus formation earlier in group-A (20.50 ± 0.44) as compared to group-B (22.08 ± 0.50) observed in present study. Intramedullary pinning with PMMA and external skeletal fixation-I techniques of fracture fixation produced 58.33% and 50.00% success rate, respectively.

AVS-06**COMPARATIVE EVALUATION OF INTRAMUSCULAR AND INTRANASAL INDUCTION OF ANAESTHESIA IN KITES****R.R. Anjana, P.B.Patel, P.T.Sutaria, P.V.Parikh, D.A.Ratnu***Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Kamdhenu University, Sardarkrushinagar, Dantiwada, Gujarat*

All kites were premedicated with butorphanol tartrate @ 1.0 mg/kg b. wt., intramuscularly (IM), using a tuberculin syringe in orthopaedic surgery. Kites induced by tiletamine-zolazepam combination (@ 25.0 mg/kg) intramuscularly in Group-A1 (N=6) and intranasally in GroupB1 (N=6). Physiological parameters, viz., cloacal temperature, heart rate, respiratory rate and SpO₂ were recorded. The quality of anesthesia was assessed on the basis of induction time, recovery time, sitting time, standing time and complete recovery time. The mean induction time was found 1.9 times lower in kites in intranasal induction (Group-B1; 46.83±02.02 sec.) as compared to intramuscular induction (Group-A1; 91.67±12.92). The mean time of recovery was recorded to be shorter in intranasal administration as compared to intramuscular administration, with the difference being significant (p<0.05) between Group-A1 and B1. Intranasal route of induction in kites resulted into more rapid induction, recovery, standing, sitting and complete recovery time as compared to intramuscularly induced anaesthesia

AVS-07**EVALUATION OF INTRAMEDULLARY PIN (IMP) TECHNIQUE FOR FRACTURE STABILIZATION IN THE TIBIOTARSUS OF INDIAN ROSE-RINGED PARAKEETS****Aman Kumar Tiwari, Harsha Sahu, Vikash Kumar, Rohit Kumar, Rekha Pathak, A. C. Saxena and A. M. Pawde***Division of Surgery, Indian Veterinary Research Institute, Izatnagar, Bareilly, Uttar Pradesh.*

Fracture fixation in avian species presents unique challenges due to their lightweight skeletal architecture and the necessity to preserve flight capability. This study evaluates the clinical and radiographic outcomes of intramedullary pinning (IMP) for the management of tibiotarsus fractures in the Indian Rose-ringed Parakeet (*Psittaculakramerianillensis*). Six parakeets with closed, mid- to distal-diaphyseal tibiotarsus fractures were treated using stainless-steel K-wires inserted through the proximal tibiotarsal condyle in a normograde manner under general anesthesia. Postoperative care included analgesia, antibiotics, and restricted flight activity for three weeks. Radiographic evaluation was conducted at 0-, 7-, 14-, and 28-days post-surgery to assess alignment, callus formation, and bone healing. Functional recovery was graded based on limb use and weight-bearing capacity. Results demonstrated satisfactory alignment in all cases, with radiographic union observed by day 28 and minimal postoperative complications such as pin migration or infection. Birds regained full limb function within 4–5 weeks. The study concludes that intramedullary pinning offers a reliable, minimally invasive, and cost-effective method for stabilizing tibiotarsus fractures in small psittacines. Proper pin selection, atraumatic technique, and tailored postoperative management are critical to achieving optimal outcomes and preserving flight ability.

AVS-08**AVIAN FRACTURE MANAGEMENT: A COMPARATIVE RETROSPECTIVE STUDY OF CENTRAL INDIA'S WILD AND PET BIRDS**

Anushka Upadhyay, Nidhi Rajput, Babita Das, Shobha Jawre, Vedant Kasambe, Rajat Garg and Utkarsh Chillar

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A retrospective study reviewing 155 cases of central India's free-ranging birds (2025–2026) with appendicular fractures highlights distinct management divergences when compared to companion psittacines. While free-ranging bird's fractures predominantly resulted from high energy trauma, Chinese Manja or automobile collision, companion psittacine fractures often stem from household accidents (ceiling fan collision) or nutritional deficiencies. In the free ranging birds, physiological and surgical stabilization was prioritised to maximize return to function, with 22 birds undergoing repair via intramedullary pins (19%) and 95 by external coaptation (81%). For surgically treated fractures, out of 116 cases, only 78 healed (67%) and 38 did not heal (32%), 65 birds out of 116 died post operative (56%) and 39 of them died before surgery. Although surgical healing was robust, complications included pin migration, septicemia, and osteomyelitis but most importantly stress. On the other hand, 35 companion psittacine were brought in S.W.F.H with appendicular fractures, 19 of them were treated via IM pinning and rest with external coaptation. Post operative management is comparatively easy as they are used to human handling but frequently complicated by post-operative self-mutilation. The most significant disparity lies in long-term management goals. For free-ranging birds, strict ecological requirements necessitate perfect anatomical alignment for release; consequently, only 41 birds in this study returned to the wild. Unlike companion psittacines, which are managed for "functional comfort" in a domestic setting, Free-ranging birds that fail to regain full physical function due to permanent limitations are classified as non-releasable. This comparison underscores that while surgical principles remain constant, the patient's intended environment, wild versus captive, dictates the prognostic threshold, determining whether the bird returns to the wild or adapts to permanent managed care.

AVS-09**SURGICAL REPAIR OF A ROSTRAL MAXILLARY BEAK FRACTURE USING AN IMPROVISED METAL IMPLANT SCAFFOLDING AND PROTEAN 3M ESPE (MEDICAL GRADE) DENTAL ACRYLIC IN AN INDIAN PARROT (PSITTACULA KRAMERI)**

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A 17-year-old male red beak green headed Indian parrot (*Psittaculakrameri*) presented for a traumatic maxillary beak fracture. On initial examination, the parrot had a partial or incomplete fracture of the rostral third of the maxillary beak that exposed the underlying pre-maxillary bone and blood supply. A supporting apparatus was created using five 23-gauge stainless steel wire, passed from two sites, through the rostral edges of the exposed bone of both proximal and distal fragments of maxilla, forming acircular scaffolding for the fractured beak. One layer of dental acrylic was applied over the circular wiring apparatus. The inside-out approach for securing the scaffolding apparatus provided enhanced stability against the strong kinetic forces of the parrot's beak. This allowed the parrot to return to normal diet and activity very rapidly after the procedure. Post-surgical follow-up for 3 months leads to uneventful recovery and mild rhinotheca formation. This case showed that open rostral maxillary fracture in Indian parrot can manage by means of a scaffolding framework and protean 3M dental acrylic that resulted in an immediate return to beak function and normal regrowth of the rhinotheca.

AVS-10**SURGICAL MANAGEMENT OF A FEEDING TUBE FOREIGN BODY IN A COCKATIEL (*NYMPHICUS HOLLANDICUS*)****Rajesh Kumar**, Aakanksha, N.K. Singh, Ramesh Tiwary, G. D. Singh and M. Kumar*Department of Veterinary Surgery and Radiology, Bihar Veterinary College, Patna, India*

Foreign body ingestion is a frequently encountered clinical problem in psittacine birds and may result in obstruction of the crop or proventriculus, leading to impaired digestion, chronic debilitation, and even mortality. Linear or long-standing foreign bodies often fail to respond to conservative management, making surgical intervention necessary. The present report describes the successful surgical management of a chronic feeding tube foreign body extending from the crop to the proventriculus in a cockatiel (*Nymphicus hollandicus*). A pet cockatiel was presented with a history of accidental ingestion of a feeding tube approximately two months earlier. No immediate treatment had been initiated, as it was presumed that the foreign material would be digested or expelled spontaneously. Clinical examination revealed a palpable linear structure along the crop region, while radiographic evaluation confirmed the presence of a foreign body extending from the crop into the proventriculus. Despite the chronicity of the condition, all physiological parameters were within normal limits. Surgical removal was performed under general anaesthesia, with induction using ketamine hydrochloride (60 mg/kg body weight) and maintenance with isoflurane. Following aseptic preparation, a crop incision was made, and the feeding tube was carefully retrieved through the crop without complications. The crop was closed using 5-0 polyglycolic acid in a simple continuous pattern, and the skin was sutured with 5-0 polyamide in a horizontal pattern. The bird resumed normal feeding the day after surgery, and complete recovery was achieved within ten days, with no postoperative complications. This report highlights that prompt surgical intervention under ketamine–isoflurane anaesthesia is a safe and effective approach for managing chronic crop–proventricular foreign bodies in cockatiels.

AVS-11**SURGICAL MANAGEMENT OF VARIOUS CLINICAL CONDITIONS IN AVIANS: A CASE SERIES****S. Likhitha**, Rambabu Kalaka, Ch.Mallikarjuna Rao and G. Vani*NTR College of Veterinary science, Gannavaram, SVVU, Andhrapradesh.*

The present case series describes the successful surgical management of various avian clinical conditions presented to the Department of Veterinary Surgery and Radiology, NTR College of Veterinary Science, Gannavaram. The soft-tissue conditions included crop fistula in an African grey parrot, cloacal prolapse and traumatic oesophageal laceration in an Aseel cross, egg binding, and a fistula of the lower beak in a desi hen, among others. The ocular conditions comprised descemetocoele, periorbital abscess, and subconjunctival cyst in an Aseel crosses among others. Orthopaedic conditions included a femoral fracture among others. All cases were diagnosed based on detailed clinical examination and relevant diagnostic findings. Species-appropriate anesthetic protocols and aseptic surgical techniques were employed. The details of surgical techniques and postoperative management of the above cases will be discussed. This case series highlights the importance of early diagnosis, precise surgical intervention, and comprehensive post-operative care in the successful management of diverse avian surgical conditions. The outcomes demonstrate that timely and well-planned surgical management can significantly improve prognosis and survival in avian patients.

AVS-12**SURGICAL MANAGEMENT OF FOREIGN BODY OBSTRUCTION IN CROP OF PARAKEET (*SUN CONURE*)**

Divyanshu Jaiswal, Reshma Jain, B.P. Shukla, P.D.S. Raghuvanshi, A.S. Parihar, M.K. Ahirwar and Shreya Singh

Department of Veterinary Surgery and Radiology, College of Veterinary Science & A.H. Mhow, Indore, NDVSU Jabalpur M.P.

A 3-month-old female parakeet (*Sun conure*) weighing 80gms, was presented to the Veterinary Clinical Complex (VCC), Mhow, Indore (M.P.), with a history of accidental ingestion of a feeding tube in the morning, as it is hand fed during its initial days. Clinical examination revealed the tube lodged in the crop, causing localized discomfort. Surgical removal was performed under injectable general anesthesia, by using Diazepam(@ 5mg/kg BWT) and Ketamine(0.1 mg/gm BWT) combination with careful oxygen supplementation, hydration and temperature regulation throughout the procedure. The foreign body was successfully retrieved via a crop incision and appropriate layered closure. Postoperative management included antibiotics, analgesics, topical care and fluid therapy. The bird made a complete and uneventful recovery, resuming normal behavior within 24hrs of surgery.

AVS-13**SURGICAL MANAGEMENT OF HUMERAL FRACTURE IN AN INDIAN RINGNECK PARAKEET (*PSITTACULA KRAMERI*): A CASE REPORT**

Aniket Tyagi, Apoorva Mishra, Randhir Singh, Apra Shahi, Shobha Jawre, Babita Das, Shivangi Thakur and Eshan Nema

Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Nanaji Deshmukh Veterinary Science University, Jabalpur

An Indian Ringneck Parakeet (*Psittaculakrameri*) was presented at Veterinary Clinical Complex, COVSc& A.H, Jabalpur with a fracture of the left humerus, which confirmed radiographically as a complete mid-diaphyseal oblique fracture. The bird was premedicated with butorphanol @1 mg/kg and midazolam @0.5 mg/kg administered i.m and anaesthesia was induced with ketamine @20 mg/kg i.m and maintained using isoflurane @2-3% MAC. Open reduction internal fixation (ORIF) was performed using a Kirschner wire to achieve stable fracture fixation. A postoperative radiograph confirmed appropriate implant placement and satisfactory fracture fixation. Muscle layers were sutured using polyglactin 910 of size 3-0 with a continuous suture pattern, followed by interrupted sutures for the skin. The bird recovered uneventfully from anaesthesia and a postoperative assessment indicated good limb stabilization. A supportive wing bandage was applied postoperatively to restrict movement. Syrup amoxicillin clavulanate @125 mg/kg PO b.d was administered for five days and drop meloxicam @1mg/kg PO b.d was administered for three days. A follow-up radiographic evaluation was performed at 35 days to assess fracture healing, which confirmed adequate callus formation. Following radiographic confirmation of union, K-wire was removed at 35 days. The bird recovered uneventfully after surgery.

AVS-14**EVALUATION OF POLYMETHYL METHACRYLATE WITH INTRAMEDULLARY TITANIUM K-WIRE FIXATION FOR LONG BONE FRACTURE IN BIRDS**

Naveen Bhatt, Randhir Singh, Babita Das, Apra Shahi, Shobha Jawre, Apoorva Mishra and **Neha Sharma**, Payal Jain

Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Jabalpur, NDVSU(M.P.)

The study was conducted to evaluate the occurrence of fractures in birds and to compare the efficacy of intramedullary titanium K-wire fixation with and without polymethyl methacrylate (PMMA) for management of long bone fracture in avian species. Out of 6863 animals presented at the Veterinary Clinical Complex, Jabalpur, 182 animals were having fracture, of which birds accounted for 14.83% (27/182). The highest incidence of fracture in birds was recorded in limbs (62.96%), followed by wings (25.92%). Among the affected bones, tibio-tarsus fractures were most common (44.44%), followed by radius-ulna fractures (18.51%). A total 12 birds having long bone fractures were selected for this study and randomly allocated into two equal groups. Group 1 was treated using intramedullary K-wire fixation alone, whereas in Group 2 fixation was done using intramedullary K-wire augmented with PMMA. Radiographic evaluation revealed a progressive increase in healing score in both the groups. However, in Group 2, a significantly ($p \leq 0.05$) scores were recorded at day 7, 21 and 45. Similarly, lameness scores decreased significantly over time, with birds in Group 2 exhibiting earlier functional recovery, improved weight bearing and reduced pin migration. The study concluded that the addition of PMMA to intramedullary K-wire fixation provides superior fracture stabilization, enhanced healing and earlier clinical recovery. Thus, PMMA serves as an effective adjunct in avian orthopaedic fracture management.

AVS-15**SURGICAL MANAGEMENT OF TIBIOTARSUS FRACTURE WITH INTRAMEDULLARY PINNING IN PIGEONS**

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Six birds presenting with tibiotarsal fractures were brought to the Department of Veterinary Surgery and Radiology, Bikaner, with a history of inability to walk or fly. All cases underwent thorough clinical and radiographic evaluation. General anaesthesia was induced using an intramuscular cocktail of xylazine (2 mg/kg), ketamine (20 mg/kg), and tramadol (4 mg/kg). Following standard aseptic preparation, a surgical incision was made at the fracture site, the bone fragments were properly aligned, and retrograde intramedullary pinning was performed using the stylet of an 18-gauge spinal needle as the intramedullary pin. The incision was closed routinely, and limb immobilization was achieved using a reinforced Robert-Jones bandage supported with plastic splints. Postoperative management included oral administration of antibiotics for seven days and analgesics for three days. Uneventful recovery was observed in four birds, while minor complications occurred in two cases.



Equine Surgery Session



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EQ-01**SINONASAL SQUAMOUS CELLS CARCINOMA IN A THOROUGHBRED MARE****Satyaveer Singh, Hemant Kumar Fagana, Renu, Shriram Karir and S.K. Jhirwal***Department of Veterinary Surgery and Radiology,
Post Graduate Institute of Veterinary Education and Research (PGIVER),*

This report describes the chronicity and detailed clinical findings/outcome/lesions of sinonasal squamous cells carcinoma in a 18 years old thoroughbred mare presented with chronic epistaxis (bilaterally) & oral haemorrhage. Maxillary region (Right side) has semisolid palpable swelling. There was foul smell (Halitosis) from mouth cavity; feed material was trapped between molar teeth and cheek. Last cheek teeth (Two) were half exfoliated which was removed after application of mouth gag. Radiographic and sonographic findings described the disturbed upper teeth table, maxillary sinus and nasal passage filled with soft tissue mass, osteolytic changes in maxillary and nasal bones. Surgical intervention retrieved the around 2.5 kg tumourous mass from sinonasal cavity. Histopathological findings confirmed the squamous cells carcinoma.

EQ-02**SURGICAL REPAIR OF SEVERE TONGUE LACERATION IN A MARWARI HORSE: A CLINICAL CASE REPORT****Hemant Kumar Fagana, Shree Ram Karir and Satyaveer Singh***Department of Veterinary Surgery and Radiology, Post-Graduate Institute of Veterinary Education and Research, Jaipur (RUVAS, Jobner)*

A 10-year-old Marwari horse was presented to the Veterinary Clinical Complex, PGIVER, Jaipur with a severe bit-induced tongue injury presenting with profuse oral bleeding with saliva, oral discomfort. Clinical examination revealed multiple, deep transverse lacerations involving both the dorsal and ventral surfaces of the tongue, affecting approximately two-thirds of the organ. The dorsal surface exhibited a near-complete transverse laceration suggestive of a possible flail tongue, while the ventral surface showed a smaller but deep laceration. Assessment of tissue colour, temperature, and active bleeding confirmed preservation of the ventral neurovascular supply, indicating favourable conditions for surgical reconstruction. Preoperative management included systemic antimicrobial administration, NSAIDs and thorough lavage of the oral cavity remove feed and debris. General anaesthesia was achieved using xylazine (1.1 mg/kg) and ketamine (2.2 mg/kg), with maintenance on 2% isoflurane. The tongue was exteriorised using a gauze loop placed caudal to the laceration, and devitalised wound margins were excised. Precise multilayer closure was performed to eliminate dead space and ensure accurate approximation of tissues. Vertical mattress sutures (Vicryl no. 1) were placed in the dorsal musculature and mucosa, followed by simple continuous sutures (Vicryl no. 0) to reinforce the closure. The ventral mucosa was similarly repaired using a combination of vertical mattress and simple continuous patterns with absorbable material. Postoperative care included antimicrobials, NSAIDs for 3–5 days, and soft-feed supplementation. A minor complication partial suture breakdown due to tongue mobility and saliva was occurred on day four but healed without major intervention. Despite the severity of the injury, successful restoration of tongue integrity and function was achieved. The case demonstrates that early assessment of tissue viability and meticulous multilayer suturing are critical for favourable outcomes in extensive equine tongue lacerations.

EQ-03**CLINICO-PHYSIOLOGICAL EVALUATION OF SYSTEMIC ENZYMES FOR INFLAMMATION MODULATION IN HORSES**

Sourabh Sharma, P.D.S. Raghuvanshi, A.S. Parihar, B.P. Shukla, Reshma Jain, Nidhi Shrivastava, Shweta Rajoriya and Mukul Mourya

Department of Veterinary Surgery and Radiology, College of Veterinary Sc. & A.H., NDVSU, MHOW, Indore

The present study aims to evaluate the effect of systemic enzymes therapy on inflammation associated with lameness in horses. Systemic enzymes, known for their anti-inflammatory, anti-oedematous, fibrinolytic and immunomodulatory properties, offer a potential alternative to conventional anti-inflammatory drugs with fewer adverse effects. Eighteen horses aged 5–20 years exhibiting grade 2–4 lameness (AAEP scale) will be divided into control and treatment groups. The treatment group will receive oral Exclzyme Equine™ for 36 days, while the control group will receive a placebo. Therapeutic response will be assessed through clinico-physiological parameters, gross and lameness examination as per international standards and haemato-biochemical analysis including inflammatory biomarkers such as Serum Amyloid A and Prostaglandin E₂, Interleukin 1 beta and Interleukin 6. The study is designed to assess the efficacy of systemic enzymes in reducing inflammation and improving lameness in horses.

EQ-04**MUCOCUTANEOUS SQUAMOUS CELL CARCINOMA IN HORSES: REVIEW OF 25 CASES**

Brihaspati Bharti, Shailendra Singh and Balendra Singh

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A retrospective study was conducted on 25 horses affected with MC-SCC. Analysis of all horses was done based on age, sex, coat colour and anatomical sites. Treatment of MC-SCC, follow-up and recovery status were also recorded. Confirmative diagnosis was done based on histo-pathological examination. Different treatment protocols were followed; surgical excision was done in most of the horses followed by topical 5-fluorouracil application and immunotherapy (i.e., mycobacterium cell-wall extracts, whole cell Bacilli Calmette-Guerin (BCG). Surgical excision was done under general anaesthesia; suturing was done as routine procedure. Albino colour horse was affected in highest number, followed by skewbald 28.00% (n=07), bay 4.00% (n=1) and Dun 4.00% (n=1). Age wise distribution of cases was observed in the range of 9 to 18 years. The gender distribution was 72.00% (n=18) mare and 28.00% (n=07) stallion. Seven anatomical SCC locations were identified: Vulvar 48.00% (n=12), third eyelid 24.00% (n=6), lower eye lid 12.00% (n=3), cornea 8.00% (n=2), mouth 4.00% (n=1), perianal 4.00% (n=1) and penile region 4.00% (n=1). The follows up time was 10 days to 500 days. Recurrence was noted in 22 cases (88.00%) after the treatment and three cases were fully recovered. As per the results it can be concluded that recurrence of cases should be considered in cases of MC-SCC and early recognition of cases is advised.

EQ-05**CLINICAL MANAGEMENT OF RECURRENT EXUBERANT GRANULATION TISSUE (PROUD FLESH) IN THREE HORSES**

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Exuberant granulation tissue (EGT), commonly referred to as proud flesh, is characterized by excessive granulation tissue formation that protrudes beyond the wound margins, interferes with epithelialization, and delays wound healing. It typically appears as dark

red, friable tissue with serosanguinous discharge. The present study reports successful management of proud flesh in three horses presented to the Department of Veterinary Surgery and Radiology, Bihar Veterinary College, Patna. One horse had a chronic wound with EGT at the fetlock joint of the right hind limb, while the two animals had a similar lesion below the left hock joint. The wounds were of traumatic origin and approximately one month old, previously treated with antibiotics and routine wound dressings. Physiological parameters, including heart rate, respiratory rate, and rectal temperature, were within normal limits in both animals. Initial treatment involved sharp surgical excision of the exuberant granulation tissue under general anaesthesia, followed by open wound management using triple sulphate dressing and bandage changes every alternate day. However, recurrence of EGT was observed after 14 days. Subsequently, chemical ablation was performed using intralesional infiltration of 4% formaldehyde solution. The procedure was carried out in a standing position following proper surgical preparation and sedation. Formaldehyde was injected into the EGT in a fan-shaped pattern, and the treatment was repeated three times at three-day intervals. Within 10 days, approximately 70% reduction in granulation tissue was observed, and bleeding had completely ceased. Haematological and biochemical parameters remained within normal limits throughout the treatment period. Complete wound healing occurred within 40 days, with no recurrence noted during a six-month follow-up period. The study concludes that intralesional injection of 4% formaldehyde is a safe, economical, and effective method for chemical ablation of proud flesh in horses.

EQ-06

SUCCESSFUL SURGICAL MANAGEMENT OF LARGE COLON ENTEROLITH-INDUCED IMPACTION IN A THOROUGHBRED MARE

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A six-year-old female thoroughbred mare weighing 222 kg was presented to the Department of Veterinary Surgery and Radiology OP unit, Veterinary Clinical Complex, VC & RI, Namakkal with acute abdominal pain unresponsive to medical management and absence of defecation for two days; clinical examination revealed severe abdominal distension, tachycardia and tachypnoea, necessitating emergency exploratory laparotomy. The animal was premedicated with xylazine, induced with ketamine, and anaesthesia was maintained using isoflurane. A mid-ventral celiotomy revealed a gas-distended caecum and large colon impaction caused by an enterolith. The affected colon was exteriorized and a longitudinal enterotomy was performed to remove the enterolith, followed by closure using Cushing and Lambert suture patterns with absorbable polyglycolic acid (PGA No. 1-0). The abdominal musculature and skin were closed routinely using polyamide in a cross-mattress pattern. Postoperative management included fluid therapy, antibiotics for seven days, analgesics for three days and wound care for ten days, resulting in an uneventful recovery with complete resolution of clinical signs.

EQ-07

A CASE REPORT ON THROUGH-AND-THROUGH IMPALEMENT INJURY DUE TO A WOODEN PEG IN A HORSE: SURGICAL MANAGEMENT AND OUTCOME

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A 13-month-old horse was presented with a history of traumatic injury caused by a wooden peg. Clinical examination revealed that a wooden peg had impaled the horse, entering ventrally through the right inguinal region and exiting laterally near the dorsal sacral region, resulting in extensive soft-tissue damage and hemorrhage. After initial stabilization, the animal

was subjected to surgical intervention under general anesthesia. Pre-anesthetic medication consisted of xylazine hydrochloride administered at 1.1 mg/kg body weight, followed by induction with ketamine hydrochloride at 2.2 mg/kg body weight. Anesthesia was maintained using isoflurane inhalation. The wooden peg was carefully removed in a slow and controlled manner to minimize further tissue damage. This was followed by thorough wound exploration, meticulous debridement of devitalized tissues, and copious lavage using sterile solutions. Primary wound closure was performed using polydioxanone (PDS) suture material No. 2. To facilitate effective drainage from the dependent portion of the wound, a Foley's catheter was placed at the ventral wound opening. Postoperative management included administration of injectable piperacillin–tazobactam at a dose of 50 mg/kg body weight for antimicrobial coverage and flunixin meglumine at 1.1 mg/kg body weight for analgesia and anti-inflammatory effects. Daily antiseptic wound dressing was carried out to promote healing and prevent infection. The animal showed satisfactory postoperative recovery and was discharged after one month, at which time the wound had completely healed. A one-year follow-up revealed excellent recovery with no evidence of lameness, and the horse was reported to be running normally, indicating an uneventful and successful outcome.

EQ-08

CAESAREAN SECTION FOR MANAGEMENT OF RIGHT SIDED 90-180° UTERINE TORSION IN THREE MARES

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Three mares in 8th, 9th and 11th months gestation were presented with history of continuous abdominal pain. Right sided uterine torsion of 90-180° was diagnosed upon per uterine and per rectal examination. Clinical findings revealed anaemia, neutrophilia, high SGOT levels in all three mares. Emergency caesarean section was performed and uterus was de-rotated under general anaesthesia using xylazine premedication, ketamine and midazolam induction and maintenance with isoflurane inhalant anaesthesia. Two of the mares were operated within 12 hours of development of colic signs with delivery of one live and one dead foetus but the third mare was operated after 72 hours with a live foetus. The mares were administered antibiotic Piperacillin, analgesic Flunixin Meglumine, fluid therapy with Ringer's lactate along with Oxytocin in the post-operative period. Mares operated within 12 hours recovered uneventfully but the mare operated after 72 hours developed metritis in the post-operative period. None of the live foetus survived. This abstract highlight the importance of earlier surgical intervention for 90-180° uterine torsion in mares.

EQ-09

SURGICAL EXCISION OF PENILE TUMOR IN STALLION

R. K. Gosai, A. N. Patel, F. A. Asodiya, J. V. Vadalía, **H. P. Patel** and Anurag Verma

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A 11 year old stallion was presented at Department of Veterinary Surgery and Radiology, CoVSAH, KU, Anand with the history of tennis ball sized mass on the ventral surface of penile region. The clinical examination revealed cauliflower like ulcerated mass at the preputial ring so it was decided to remove the growth surgically. The stallion was restrained in lateral recumbency under general anesthesia. Surgical site prepared aseptically and elliptical incision was made at the base of tumor mass. The mass was removed by blunt dissection and hemorrhage was controlled with ligation of blood vessels. The penile mucosa was suture with continuous suture pattern using 2.0 polygalactin-910. The excised tissue sent for

histopathological examination. Post-operative antibiotics, NSAIDs and supportive therapy was given for 5 and 3 days, respectively. Animal was recovered uneventfully without complications.

EQ-10

SURGICAL MANAGEMENT OF DUAL-SITE SQUAMOUS CELL CARCINOMA IN A STALLION: A RARE CASE REPORT

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An eight-year-old stallion was presented with proliferative growths involving the preputial region and the right eye. Clinical examination revealed an exophytic, cauliflower-like mass on the internal lamina of the prepuce and a proliferative lesion at the medial canthus of the right eye. Impression smear cytology from both masses was suggestive of squamous cell carcinoma. Based on the clinical history, physical findings, and cytological evaluation, a tentative diagnosis of concurrent preputial and ocular tumors was made. Surgical excision of the ocular mass and partial postectomy for removal of the preputial lesion were performed under general anesthesia. Histopathological examination of the excised tissues confirmed squamous cell carcinoma at both sites, representing a rare concurrent occurrence in equines. The postoperative period was uneventful, and no recurrence was observed during a six-month follow-up. The anesthetic protocol, surgical procedures, and postoperative management will be discussed in detail.

EQ-11

SURGICAL MANAGEMENT OF SQUAMOUS CELL CARCINOMA IN MARE

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Squamous cell carcinoma (SCC) is a common malignant neoplasm of squamous epithelium in horses, frequently affecting mucocutaneous junctions such as the genital and periocular regions, particularly in lightly pigmented animals exposed to chronic ultraviolet radiation. Two cases of SCC were presented to the Veterinary Clinical Complex (VCC), LUVAS, Hisar. The first case involved an 8-year-old mare with a chronic, non-healing, ulcerative mass in the vulvar region persisting for two years, characterized by irregular margins, necrotic areas, and mucopurulent discharge. The second case involved an 8-year-old mare presented with an ulcerated, irregularly margined mass with purulent discharge affecting the left eyelid for one year. In both cases, clinical examination revealed locally invasive lesions without evidence of systemic illness, and haematological parameters were within normal physiological limits. Cytological examination in the periocular case revealed abundant squamous epithelial cells, while histopathological examination of excised tissues in both cases confirmed SCC, characterized by irregular cords of neoplastic squamous cells with keratin pearl formation and occasional mitotic figures. Surgical excision with adequate margins was performed under appropriate anaesthesia, followed by adjunct topical and/or intralesional application of 5-fluorouracil. Post-operative care included analgesics, antibiotics, antiseptic wound management, and supportive therapy. Both mares recovered uneventfully, with no evidence of recurrence during follow-up. These cases highlight that early diagnosis combined with surgical excision and adjunct chemotherapy offers an effective therapeutic approach for managing squamous cell carcinoma in horses.

EQ-12**MANAGEMENT OF EXUBERANT GRANULATION TISSUE (PROUD FLESH) IN HORSE**

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Exuberant granulation tissue, commonly referred to as proud flesh, is a frequent complication of equine wound healing, particularly in areas subjected to motion, tension, or delayed epithelialization. This case report describes the management of proud flesh in the lower back of an 15year old adult male equine. History revealed that traumatic injuries had occurred approximately one month earlier, treated local wound dressings. Physiological parameters, including heart rate, respiratory rate, and rectal temperature, were within the normal physiological range. Initial management included wound cleaning, assessment of underlying tissue viability, and control of contamination. The proud flesh was sharply excised under local infiltration with 2% Lignocaine HCL. The surgical wound was not sutured and was dressed with Povidone solution and Aziquine ointment with bandage changes every day to monitor healing. However, recurrence of growth was observed after 5 days. Consequently, proud flesh was treated with topical application of Mg sulfate and glycerine and copper sulphate. Surrounding wound was treated by application of Tilapia fish grafts. The treatment was repeated every alternate day. After 10 days, the EGT had reduced by approximately 70%, and bleeding had completely ceased. No significant changes were observed in hematological or biochemical parameters. The wound healed almost completely after 40 days, and no recurrence. In conclusion sulfate powder and glycerine and copper sulfate along with skin graft can be effectively used for the chemical ablation of proud flesh through local injection.

EQ-13**SURGICAL OUTCOME OF STRANGULATING AND NON-STRANGULATING COLIC IN FOALS AND YEARLINGS**

Manish Kumar, Inder Pal Singh, Arun Anand, **Shashi Kant Mahajan**, Navdeep Singh, Ashwini Kumar, Vandana Sangwan, N. Umeshwori, Harmanpreet Singh Sodhi and Nikita Gupta

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Colic is a significant cause of morbidity and mortality in foals and yearlings. They are more prone to surgical colic as compared to adult horses. Low body reserves and increased susceptibility to endotoxemia and sepsis necessitate timely intervention and the utmost level of care. Data focusing on this particular age group are limited and require greater attention. The present study evaluated the surgical outcomes of colic in equines less than two years of age subjected to exploratory celiotomy at the Veterinary Hospital, Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana, between June 2025 and December 2025. A total of eighteen cases were operated upon, with an overall survivability rate of 50% (9/18). Strangulating intestinal lesions were identified in four cases (22.2%), and none of these animals survived, resulting in a survivability rate of 0%. Non-strangulating lesions were observed in fourteen cases (77.8%), with a survivability rate of 64% (9/14). Enterotomy was performed in six cases, including two cases with strangulating lesions and four cases with non-strangulating lesions; however, only one animal undergoing enterotomy survived. Notably, non-survivors in the non-strangulating group had a prolonged duration of colic prior to surgery. Ischemic and necrotic intestinal changes, along with postoperative complications such as adhesion formation, were major contributors to non-survival. These findings indicate that lesion type, duration of colic, and the requirement for enterotomy are important prognostic indicators in foals and yearlings undergoing colic surgery, highlighting the critical importance of early surgical intervention, particularly in cases of non-strangulating colic.

EQ-14**SURGICAL OUTCOME OF STRANGULATING AND NON-STRANGULATING INTESTINAL LESIONS IN EQUINE COLIC CASES**

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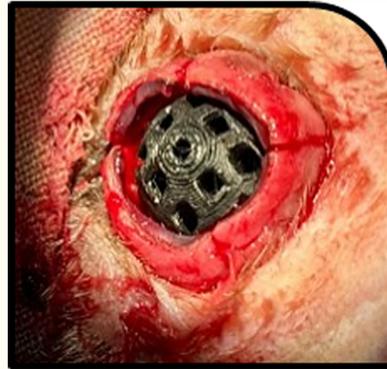
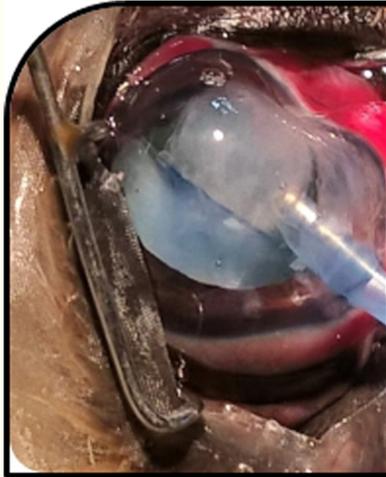
Colic is a major surgical emergency in equine practice and survival largely depends on the type of intestinal lesion and the timeliness of surgical intervention. The present study evaluated the surgical outcomes of equine colic cases subjected to exploratory celiotomy at the Veterinary Hospital, Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana, between April 2025 and December 2025. A total of 30 colic cases above two years of age of any gender were included and categorized intra-operatively into strangulating and non-strangulating intestinal lesions. Survival and associated gross pathological findings were recorded. Of the total cases, 12 (40%) were diagnosed as strangulating lesions, while 18 (60%) were non-strangulating lesions. Overall survival was observed in 17 cases (56%), whereas 13 cases (44%) did not survive. Survival among strangulating lesions was low, with only 3 of 12 cases (25%) surviving, while non-strangulating lesions showed a significantly higher survival rate of 14 out of 18 cases (77.77%). All non-surviving non-strangulating cases exhibited gross intestinal necrotic changes at the time of celiotomy, indicating advanced disease. In contrast, surviving strangulating cases showed absence of mesenteric edema and no evidence of established gross intestinal necrosis, which likely contributed to favorable surgical outcomes. The study highlights the poor prognosis associated with strangulating intestinal lesions and emphasizes the importance of early diagnosis and prompt surgical intervention to improve survival in equine colic cases.

EQ 15 SUCCESSFUL MANAGEMENT OF DYSTOCIA DUE TO UTERINE TORSION IN MARE: A CASE REPORT

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A Marwari five and half year-old full term pregnant mare was presented to the Veterinary Clinical Complex (VCC), College of Veterinary Science & A.H., Mhow, with the history intermittent straining for 6 days, mucus discharge from vagina and failure to deliver fetus. The mare exhibited typical symptoms of uterine torsion *viz*, abdominal pain, anorexia, rapid pulse rate and restlessness. Per vaginal examination revealed the case of left side clockwise pre-cervical uterine torsion as there was complete obstruction of vagina due to twisting of vaginal fold towards right side and fetal parts were absent. Hematological results revealed neutrophilia with shift to left. Trans-rectal ultrasonography confirmed left side uterine torsion. The dystocia was corrected using modified Schaffer's technique under the sedation using Inj. Xylazine and Ketamine I/V. This involved the placing a wooden plank on the left flank after palpation of fetus. Rolling was done slowly twice, rolling to mare corrected the torsion and after per vaginal palpation fetal extremities were palpable. The dead fetus was removed in anterior presentation dorsosacral position by supporting the head using ropes in fore limbs. Supportive therapy included analgesics, antihistaminic, antibiotic, fluid therapy, calcium and phosphorus supplementation by intravenous route. The animal recovered within 3 days uneventfully after medication.



Ophthalmology Session



Intraoperative Challenges in Phacoemulsification for Canine Cataracts

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Cataract surgeries are usually elective, a good preoperative schedule, patient and eye, preparation and client education about topical medications are essential to avoid intra operative and post-operative complications. Owner cooperation is equally important as surgical skill and medication. Among this, acclimation to topical medication before surgery is considered as the key factor to prevent complications.

The complications associated with cataract surgery in dogs are divided into 1) intraoperative; 2) short-term postoperative; and 3) long-term postoperative complications. Prevention remains the key. The short and long-term outcomes depend on effectively addressing significant intraoperative issues, and experience with managing such complications.

Intraoperative challenges: Intraoperative complications during cataract surgery and lens implantaion require prompt management and often the complications result from patient selection, incomplete preoperative preparation, or unforeseen surgical events.

1) Inadequate exposure

Access to the eyeball differs between dog breeds and is generally more consistent among cat breeds. Enophthalmic eyes with ventromedial rotation and protruding nictitating membranes complicate and prolong surgery. Ocular prominence also varies by breed. Enophthalmic globes require extra time and patience. Stay sutures to advance the globe and retract the nictitans have pros and cons. General inhalational anaesthesia with neuromuscular blockers gives optimal exposure, while lateral canthotomy maximizes globe exposure. Subtenon's block also provides eyeball centration by paralyzing ocular muscles. In phacoemulsification, a 3–4 mm peripheral corneal or limbal incision is ideal; shorter cuts risk thermal injury, while longer ones can lead to excess fluid leakage.

2) Miotic pupil

Inadequate dilation of pupil causes a miotic pupil. This is caused by aging, synechia, previous trauma or surgery, diabetes, uveitis, chronic miotic therapy, or pseudo exfoliation.

Performing phacoemulsification procedure in a mitotic eye increase the risk of zonular dehiscence, capsular rupture, vitreous loss, dropped nucleus, tear of the iris sphincter, bleeding, and rupture of the posterior lens capsule. Perioperative medications aim to dilate the pupil for better cataract visibility during surgery and to prevent miosis should be followed strictly.

If a small pupil is detected just before general anaesthesia, it is best to postpone the surgery for several days to allow for intensive mydriatic treatment and achieve maximum dilation.

With even the best preoperative treatments, intraoperative miosis may result. There may be several explanations, including:

- 1) The corneal or limbal incision required extra time and manipulations.
- 2) The iris was repeatedly touched with surgical instruments.
- 3) Excessive volumes of irrigation fluids were used during the phacoemulsification procedure.
- 4) The irrigating solutions for the anterior chamber were cold; and
- 5) The time for cataract extraction was unduly long.

Management

- a) Pre-operative: Preoperatively flurbiprofen eye drops and tropicamide or atropine eye drops are used to prevent miosis during surgery.
- b) Intra cameral use of epinephrine and lignocaine (1% or 2%) result in significant mydriasis.
- c) STB: Subtenon's block anesthesia with the 2% lignocaine hydrochloride as local anesthetic produces sufficient pupillary dilation and eyeball centration preoperatively.
- d) Intra-operative: A miotic pupil can be managed by different techniques intraoperatively. The pupillary diameter enlargement techniques can be essentially divided into Visco mydriasis, surgical (pupillary membrane removal, multiple partial sphincterotomies, iris stretching (iris retractors), and iris expanders. Intra ocular administration of adrenalin prior to Viscomet injection also helps in dilating the pupil. **Inadequate pupillary dilation** increases the risk of intraoperative complications such as capsular tears, vitreous prolapse, and iris trauma.

3) Excessive fibrin within the aqueous humour

Fibrin can develop during cataract surgery, with pre-existing lens-induced iridocyclitis leading to increased aqueous humour turbidity or fibrinous clots. This is often associated in older dogs with hypermature cataracts, prolonged surgery time, or low IOP, which causes blood–aqueous barrier (BAB) breakdown. Haemorrhage during surgery may also contribute to excess fibrin. Prevention with topical and systemic corticosteroids and NSAIDs is recommended, along with IOP monitoring.

Add heparin (1–2 IU/mL) to topical and anterior chamber irrigation solutions to minimise intraoperative fibrin without affecting haemostasis. Large fibrin clots are treated with a 25 mg tPA (tissue plasminogen Activator) injection within 7 days after surgery; tPA does not work on clots older than 7–10 days.

4) Intraoperative bacterial contamination

Cataract surgery in small animals is performed aseptically, but bacterial contamination of the aqueous humour occurs in at least 25% of dog eyes post-surgery. Contamination is less common after phacoemulsification than large incision extracapsular extractions, and bacteria found in the aqueous humour differ from those on the conjunctiva and eyelids.

5) Aberrant and radial anterior capsule tears

Anterior capsulectomies are the less predictable step in cataract surgery in small animals especially in older dogs and those with hypermature cataracts. While performing circular capsulectomy for extracapsular or phacoemulsification extraction, the needle-created can-opener or continuous capsulorhexis may go awry and begins to extend toward the thinner equator capsule or even into the posterior lens capsule, with the resultant presentation of a small portion of formed vitreous. Hence in these cases, most of the capsulotomy is performed using intraocular scissors, followed by removal of the incised capsule with Utrata forceps. Automated capsulotomy methods, including high-frequency diathermy, result in a precisely centered capsulotomy.

6) Anterior and posterior capsular opacities

The anterior lens capsule in dogs may undergo textural alterations during cataract development, with localized regions of capsular thickening, fibrosis, calcification, and plaque formation occasionally observed. In small animals, the posterior lens capsule generally remains clear and is typically not implicated in opacification, except in cases of hypermature, posterior cortical, or capsular cataracts. If the posterior lens capsule appears translucent or exhibits minor opacities, it is advisable to delay intervention intraoperatively. However, when the axial

posterior lens capsule demonstrates significant opacity, excision of this area using intraocular scissors is warranted after cataract extraction.

7) Posterior Capsular Tears

The posterior lens capsule in canines and felines is extremely thin (approximately 2–4 µm), constituting about 4–6% of the thickness of the anterior lens capsule. Posterior lens capsule tears are relatively common in dogs, often occurring during lens extraction via the extracapsular technique or during the later stages of phacoemulsification. Incorporating neuromuscular blocking agents into the anaesthetic protocol for canine cataract surgery may reduce intraoperative incidence of posterior capsular tears by decreasing extraocular muscle tone and subsequent pressure on the posterior segment. Of Cataract Surgery in Dogs

8) Anterior vitreous presentation

Formed vitreous can appear in the pupil and anterior chamber if zonular attachments are torn during anterior capsulectomies, degenerate causing subluxation, or if the posterior lens capsule is damaged during procedures like phacoemulsification or capsulectomy. Preoperative measures such as deep general anaesthesia, neuromuscular blockers, mannitol (1–2 g/kg IV), and careful intraocular handling help minimize vitreous complications. At the end of cataract extraction, any formed vitreous in front of the posterior lens capsule should be removed with a vitrector.

9) Hyphema

Intraoperative hyphema typically arises from bleeding at the scleral edge of the limbal incision, iris, or ciliary body. In corneal incision it is very rare. Incising the iris, especially at its base, can cause significant haemorrhage, while minor contact with the canine iris or tension on the zonules may lead to limited bleeding. The phaco needle can also trigger minor haemorrhages if it contacts the iris or ciliary body. Most intraoperative bleeding is minimal and managed during cataract extraction or lensectomy.

Postoperative hyphema occurring months after these surgeries usually results from retinal detachment with associated retinal vessel tears.

10) Zonular dialysis

Weak zonules (Zonular dialysis) should be identified pre operatively and capsular tension rings are used to stabilise the capsule. Another indication is wrinkling of the anterior capsule during capsulorrhexis due to weakness of zonules is indicative of zonular dialysis. Incomplete hydro dissection would lead to zonular dialysis while rotating the lens nucleus.

Common errors presented by the beginner are listed below

- a) Corneal incisions that are too large or too small;
- b) Injury to the posterior capsule from the phaco tip while removing the last portion of the nucleus;
- c) Damage to the corneal endothelium due to improper direction of the bevelled tip;
- d) Excessive force applied by the phaco needle in hard cataracts;
- e) Use of excessive fluid during hydro dissection;
- f) Iris prolapse caused by an excess inflow of fluid into the anterior chamber;
- g) Sudden collapse of the anterior chamber due to differences in irrigation bottle height, which can break down the blood-aqueous barrier;
- h) Nucleus drops into the vitreous resulting from a posterior capsule rent;
- i) Improper loading of the intraocular lens into the injector, leading to ripping of the capsule by the leading haptic.

Addressing all the above intraoperative challenges results in a good visual outcome.

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OPH- 01**ROLE OF OCULAR ULTRASONOGRAPHY IN EVALUATING
INTRAOCULAR STRUCTURES BEYOND CORNEAL OPACITY AND
CATARACT IN DOGS AND CATS**

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Visualization of intraocular structures in canine and feline ophthalmic patients is frequently compromised by corneal opacity, mature cataract, and anterior chamber inflammation, limiting the utility of routine ophthalmic examination techniques. The present clinical study conducted at Veterinary Clinical Complex, CVSc, AVFU, Khanapara evaluated the role of B-mode ocular ultrasonography not only as a diagnostic modality but also as a guide for therapeutic and surgical decision-making in such ophthalmic cases. A series of 12 canine and feline ophthalmic cases were examined with primary emphasis on ultrasonographic assessment of intraocular structures beyond opaque ocular media in addition to other ophthalmic examinations. B-mode ocular ultrasonography was performed using a high-frequency linear transducer following standard scanning techniques. In eyes affected with cataract, ultrasonography enabled evaluation beyond the lens, facilitating assessment of the vitreous chamber, retina, and posterior chamber prior to therapeutic planning. Similarly, in cases presented with corneal opacity, ultrasonographic imaging aided in determining observable corneal changes, intraocular integrity and extent of pathology. These findings influenced clinical management by assisting in selection of cases suitable for medical management and surgical intervention such as cataract extraction, or conservative therapy. The study highlights that ocular ultrasonography could serve as a rapid, non-invasive, and reliable adjunct for both diagnosis and therapeutic planning in canine and feline ophthalmology. Its application enhances case selection, improves prognostic assessment, and supports informed surgical decision-making in eyes with limited clinical visibility.

OPH- 02**EFFECT OF AUTOLOGOUS PLATELET RICH PLASMA WITH AND
WITHOUT OZONATED SALINE FLUSH IN THE MANAGEMENT OF
CORNEAL AFFECTIONS IN TWELVE DOGS**

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Twelve dogs irrespective of breed, age, sex affected with corneal affections presented to DVSR, VCC were divided into two groups of 6 animals in each where group 1 treated with subconjunctival injection of autologous platelet rich plasma and group 2 treated with ozonated normal saline flush with subconjunctival injection of autologous platelet rich plasma with phonophoresis on day 0, 3 and 7 followed by PRP with gentamicin drops. All the 12 animals had detailed ophthalmic examination, Schirmer tear test and Fluorescein dye test on the day of presentation. In group 1 (n=6), conjunctival infection (n=3), decreased tear production (n=1), fluorescein dye uptake (n=5), neo-vascularisation (n=2) and in group 2 (n=6), conjunctival infection (n=5), decreased tear production (n=3), fluorescein dye uptake (n=6), neo-vascularisation (n=3) were observed. The concerned parameters were recorded at 7th day, 14th day and 28th day. The results suggested that early corneal healing with less scar was observed in group 2 with the healing time of less than 20 days than group 1.

OPH- 03**BIOENGINEERED AMNIOTIC–SVF CONSTRUCTS FOR CORNEAL REGENERATION IN FOOD AND COMPANION ANIMALS**

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Corneal affections in veterinary patients represent a significant surgical challenge, leading to ocular pain, visual impairment, and compromised productivity and welfare across species. These conditions are increasingly exacerbated by climate-driven environmental stressors such as dust exposure, heightened ultraviolet radiation, and emerging infectious agents. Effective management therefore requires an integrated approach that combines precise surgical intervention with regenerative innovation and imaging-based outcome assessment. This clinical study evaluated the therapeutic potential of a stromal vascular fraction (SVF)–seeded decellularized buffalo amniotic membrane (dBAM) as a bioengineered scaffold for corneal regeneration in veterinary practice. The dBAM, derived from buffalo placenta and processed using standardized decellularization protocols, exhibited excellent optical transparency, mechanical stability, and immunocompatibility, supporting its suitability for ophthalmic surgical application. A total of eight clinical cases, including two buffaloes, three cats, and three dogs presenting with diverse corneal affections, were treated using SVF-seeded dBAM grafting following comprehensive ophthalmic examination and imaging-guided diagnosis. Grafts were implanted under aseptic conditions and secured using fine simple interrupted sutures. Postoperative healing was monitored through an integrated scalpel-to-screen approach involving serial slit-lamp bio-microscopy, fluorescein staining, evaluation of corneal epithelialisation and vascularisation, pain scoring, and restoration of corneal clarity. Across all species, the SVF–dBAM construct facilitated rapid epithelial regeneration, significant reduction in corneal edema, minimal stromal fibrosis, and effective preservation of globe integrity, resulting in faster functional recovery compared to conventional medical management alone. Imaging-based follow-up enabled objective documentation of graft integration and healing dynamics. This study highlights the clinical relevance of an indigenous, eco-adaptive, cell-based regenerative graft that bridges surgical precision with imaging-guided evaluation, offering a sustainable and cost-effective strategy for advanced veterinary ophthalmic care.

OPH- 04**FELINE DACRYOPS: SURGICAL MANAGEMENT AND OUTCOME IN TWO CASES**

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Dacryops is an uncommon cystic dilatation of the lacrimal gland or its ductal system and is rarely reported in feline patients. The present case report describes dacryops in two young domestic cats presented to the Small Animal Ophthalmology Unit, Madras Veterinary College Teaching Hospital. Both cats were presented with a history of slowly progressive periocular swelling of several weeks' duration. Ophthalmic examination revealed a fluctuant, translucent, non-painful cystic mass in the periocular region in each case. Diagnostic imaging, including skull radiography and computed tomography (CT), was performed to characterise the lesions and determine their anatomical extent. Radiographic evaluation revealed well-defined soft tissue opacities without evidence of bony involvement. Computed tomography demonstrated well-circumscribed, non-enhancing cystic lesions associated with the lacrimal gland, aiding in

definitive diagnosis and surgical planning. Based on the clinical and imaging findings, dacryops was diagnosed in both cats. Surgical excision of the cystic lesions was performed under general anaesthesia with meticulous care to preserve adjacent ocular structures. The postoperative recovery was uneventful in both cases, with complete resolution of clinical signs and no recurrence observed during follow-up. This report highlights the utility of advanced imaging modalities in diagnosing dacryops and supports surgical excision as an effective and curative treatment option in cats.

OPH- 05

SURGICAL MANAGEMENT OF PIGMENTARY KERATITIS IN DOGS

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This study evaluated the comparative therapeutic efficacy of cryosurgery and human amniotic membrane (HAM)-assisted lamellar keratoplasty in the management of pigmentary keratitis (PK) in brachycephalic dogs. Twelve dogs affected with PK were randomly assigned to two groups: Group I underwent cryosurgical ablation, while Group II received lamellar keratoplasty with HAM grafts. Clinical parameters assessed included corneal transparency, vascularisation, epithelial regeneration, graft retention, tear production, and pigmentation recurrence. Epidemiological analysis revealed that pugs accounted for 67% of PK cases, with the highest incidence (42.25%) in dogs aged 3–6 years. Both treatment protocols significantly reduced corneal pigmentation ($P < 0.05$). Group I demonstrated stable tear production and rapid epithelialization, along with minimal scarring and lower recurrence. In contrast, HAM transplantation resulted in a significant improvement in tear film function, enhanced corneal remodelling, and reduced vascularisation, although re-epithelialization required a longer duration. Postoperative fibrosis and pigment recurrence were observed in both groups, with nasal fold resection contributing to reduced mechanical irritation and recurrence risk. Overall, both cryosurgery and HAM-assisted keratoplasty were effective; however, cryosurgery provided superior early depigmentation, faster healing, and better visual outcomes.

OPH- 06

NON-INVASIVE MANAGEMENT OF CORNEAL AND UVEAL DISORDERS IN MULTIPLE ANIMAL SPECIES USING 5% NORMAL SALINE, FLURBIPROFEN, AND PLACENTRIX

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This study evaluated the effectiveness of a non-invasive therapeutic protocol for corneal and uveal disorders in multiple animal species, including a bullock, dog, cat, and horse. Following general, clinical and detailed ophthalmic examinations, ocular lesions were classified and diagnosed accordingly. Each animal received a single subconjunctival injection of Placentrix (0.5 mL), after which two topical ophthalmic medications—5% normal saline (Hypersol) and flurbiprofen (FLUR)—were prescribed. Both agents were administered four times daily at 4-hour intervals, with a 30-minute gap maintained between the two instillations. All animals demonstrated noticeable clinical improvement within one week, with complete resolution of corneal and uveal lesions by 15 days. The combined use of 5% normal saline, flurbiprofen, and Placentrix proved to be an effective, safe, and non-invasive management strategy for corneal and uveal pathologies across different animal species.

OPH- 07**TACKLING CORNEAL ULCERS AND ITS ROOT CAUSES BY MEDICAL AND SURGICAL MANAGEMENT IN DOGS**

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Corneal ulcer is a catastrophic affection which needs early diagnosis necessitating expedient medical therapy or corneal surgery. Thirty-three dogs reported to MVC, teaching veterinary clinical complex, Chennai with various corneal affections and degree of vision loss: 29 dogs had corneal ulcer with various etiology and 4 cases had corneal affection due to dermoid (n=2) and entropion (n=2). Ocular examination was carried out with direct and indirect ophthalmoscope, Fluorescein staining, Slit-lamp bio-microscopy, Schirmer Tear Testing, culture in infected cases. Treatment protocol was tailor made depends on severity of condition from medical to surgical interventions. Medical management includes topical broad-spectrum antibiotics (gentamycin, gatifloxin), cycloplegics (atropine), anti-collagenase agents (serum therapy), tear substitutes, and EDTA drops, while avoiding topical corticosteroids in active ulceration. Advanced or non-healing ulcers were surgically managed with conjunctival grafts, corneal suturing, amniotic membrane graft and other affections with rhytidectomy and hotzelsus procedure. Early diagnosis and appropriate therapeutic intervention are essential to promote corneal healing, preserve vision, and prevent complications such as perforation or endophthalmitis.

OPH- 08**OCULAR COHERENT TOMOGRAPHY VS ULTRASONOGRAPHY FOR DIAGNOSIS OF SUDDEN BLINDNESS DUE TO RETINAL DETACHMENT IN DOGS**

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The incidence of sudden blindness without any apparent lesions has been increasing in dogs. The probable causes include retinal detachment, glaucoma, optic neuritis, canine distemper, or toxicity, which cannot be diagnosed by the routine ophthalmological examination. In the present paper, retinal detachment was diagnosed by both B mode ultrasonography and Optical Coherent Tomography (OCT). The chief constraints of ultrasonographic diagnosis of retinal detachment (RD) in dogs include artifacts, differentials, and technical limitations. Improper gain often leads to false diagnosis and an increased gain makes vitreous echoic. Trans corneal approach demands patient cooperation despite topical analgesia. Standard B scans do not provide detailed retinal analysis. The principal ultrasonographic findings of retinal detachment in dogs include detection of a bright, V-shaped or "seagull wing" structure floating in the vitreous. Optical Coherent Tomography is considered as a safe and non-contact imaging modality. In the absence of veterinary specific OCT machine, medical OCT machines can be used with the prerequisite of sedation or light plane of general anaesthesia. This modality offers detailed cross-sectional views of retinal layers, optic nerve, and cornea. The features of retinal detachment include separation of the neurosensory retina from the underlying retinal pigment epithelium by subretinal fluid. In conclusion, when compared to B mode ultrasonography, Optical Coherent Tomography offers clear findings of the pathology leading to rapid and definitive diagnosis of retinal detachment in dogs.

OPH- 09**SURGICAL MANAGEMENT OF CHERRY EYE CONDITION IN DOGS****Benudhar Mahanand, Jayakrushna Das and Dharendra Kumar Behera***Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Odisha University of Agriculture and Technology (OUAT), Bhubaneswar, Odisha*

Sixteen numbers of dogs were presented for treatment of prolapsed of nictitans membrane (Cherry eye). The dogs were prepared for surgery as per standard operating procedure. The animals were administered with inj. glycopyrolate @ 0.01 mg/kg. bw. intramuscularly, inj. butorphanol @ 0.2 mg/kg. bw. Intravenously, inj. dexmedetomidine @ 5mcg/kg. bw. intravenously as preanaesthesia and inj. Ketamine @ 5 mg/kg. bw. was administered intravenously for smooth induction. Anesthesia was maintained with Isoflurane 1.5%. The third eye lid was painted with diluted povidone iodine and was grasped with plain thumb forceps. A circular incision was given at the base of the prolapsed mass. Then, the free incised margin was grasped with tissue forcep and by conjunctival scissor, the prolapsed mass was detached from outer membrane. The mass was pushed in to the pocket made due to detachment. The margins were sutured using Vicryl no. 5-0 . The eye was flushed with RL and instilled with povidone iodine eye drop. Post-operatively inj. Ceftriaxone @ 15 mg/kg body weight and inj. Meloxicam @ 0.2 mg/kg body weight were given intramuscularly for 5 days and 3 days respectively. Moxifloxacin and ketorolac eye drops was instilled four times a day for two weeks. The owners were advised to apply appropriate size E- collar to prevent mutilation done by the animal. The dogs were followed up to 4-5 months and no recurrence was found.

OPH- 10**EXTIRPATION OF EYEBALL IN DOGS****Benudhar Mahanand, Jayakrushna Das and Dharendra Kumar Behera***Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Odisha University of Agriculture and Technology (OUAT), Bhubaneswar, Odisha*

Twelve cases of dogs suffering from unilateral/ bilateral irreparable injury or tumors of eyes were presented for treatment in different times. The dogs were examined clinically. After following proper preanaesthetic care, the animals were preanaesthetized with inj. glycopyrolate @ 0.01 mg/kg body weight intramuscularly and inj. dexmedetomidine @ 5 mcg/kg body weight intravenously, inj. Butorphanol @ 0.2 mg/ kg body weight. Induction of anaesthesia was done using inj. Propofol @ 4 mg/kg body weight. Anaesthesia was maintained using 1.5 % isoflurane. Under standard operative procedure, the site was prepared for surgery. The eyeballs were cleaned with povidone iodine. One curved needle with catgut no. 2-0 suture was introduced at external canthus, simultaneously dragging forward the eye ball. The suture was slipped slowly towards tenon's capsule and knot was placed tightly at the base of eye in order to ligate the blood vessels supplying the eye ball. Then, the eye ball was extirpated using scalpel blade and curved scissors above the stump. The site was flushed using normal saline mixed with povidone iodine. Third eye lid was fixed with conjunctiva of lateral canthus. Tarsorrhaphy was done using trulon no 1-0. The dogs were administered with ceftriaxone @ 25 mg/ Kg Bw, meloxicam @ 0.2 mg/kgbw for 5 days. The owners were advised to use E-collar. After 10 days, the tarsorrhaphy suture was removed. There was no post operative complication in any cases.

OPH- 11**EVALUATION OF CONJUNCTIVAL PEDICLE GRAFT, AMNIOTIC MEMBRANE GRAFT AND PRP SOLID BUFFER CONJUNCTIVAL FLAP IN DOGS AFFECTED WITH CORNEAL ULCERS**

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Study was conducted on 24 dogs affected with corneal ulcers, divided randomly into four groups of six. The study consisted of two phases. The first phase evaluated the efficacy of various diagnostic methods, including comprehensive ophthalmological, neuro-ophthalmologic, and ophthalmoscopic examinations, Schirmer tear test, fluorescein dye test, tonometry, microbiological cultures and cytological analyses. In the second phase, treatment efficacy was evaluated: Group I received a conjunctival pedicle graft, group II an on-lay amniotic membrane graft, group III PRP with a 360° conjunctival graft, and group IV only medical therapy. Group II demonstrated optimal therapeutic efficacy, achieving complete photophobia resolution by day 30, elimination of ocular discharge, and earliest corneal opacity resolution by day 60. Neuro-ophthalmic reflexes recovered more rapidly in group II, with normal menace responses achieved by day 30 versus day 90 in group IV. Schirmer tear test values were below normal ranges in all groups suggesting keratoconjunctivitis sicca as a contributing factor. Surgically treated groups showed superior outcomes compared to medical management alone. Surgical interventions yielded faster epithelial healing confirmed by fluorescein testing, whereas medical therapy alone resulted in delayed recovery. Postoperative complications included graft dehiscence in one dog of group I and persistent corneal scarring in group IV. Overall, all diagnostic methods effectively assessed ulcer severity and healing progression. The results indicate that surgical management, particularly with human amniotic membrane grafts, offers superior outcomes for corneal ulcer healing and vision restoration in dogs.

OPH- 12**COMPARATIVE EFFICACY OF THIRD EYELID FLAP AND BULBAR CONJUNCTIVAL PEDICLE GRAFT WITH PLATELET RICH PLASMA FOR THE TREATMENT OF CORNEAL ULCER IN BOVINE**

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The clinical study was conducted in 18 bovine with clinical signs of corneal ulcers without any systemic diseases. Clinical examination of corneal ulcers *viz.*, culture and antibiogram, menace reflex, pupillary light reflex, dazzle reflex, palpebral reflex Schirmer I tear test, planimetry and fluorescein stain test were performed. The 18 cases with corneal ulcers were divided into three groups of six animals each. PRP with partial temporary tarsorrhaphy in group I, PRP with third eyelid flap and temporary tarsorrhaphy in group II and PRP with bulbar conjunctival pedicle grafting and temporary tarsorrhaphy in group III were performed. The surgical procedures were performed under regional anesthesia using Peterson and auriculopalpebral nerve blocks, along with peri-orbital infiltration of 2% lignocaine and topical administration of proparacaine eye drops. Group I showed the highest loss of corneal transparency and corneal edema, while groups II and III had better outcomes in terms of reflexes and healing. PRP combined with protective procedures in groups II and III was more effective, with faster healing times due to the beneficial effects of PRP and the protective actions of third eyelid flaps and conjunctival grafts. However, complications such as scarring and corneal edema were more common in these groups. In group III animals, conjunctival pedicle graft dehiscence

was noticed in five animals, which resulted in delayed healing and intact in one animal. Among three groups PRP with third eyelid flap and partial temporary tarsorrhaphy (group II) was ideal for faster healing of corneal ulcer in bovine.

OPH- 13

COMPARATIVE EVALUATION OF CONTINUOUS AND SUPERPULSED CO₂ LASER FOR RESECTION OF BOVINE OCULAR TUMOURS

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A total of seventeen animals presenting with ocular tumours ≤ 65 mm in diameter were included in the study. A total of 34 ocular tumours from 17 bovines were studied: 8 in the left eye (6 animals), 5 in the right eye (5 animals), and 21 in both eyes (6 animals). Most tumours were well demarcated (22), while 12 showed a spreading nature, with sizes ranging from 8 to 65 mm. All animals were sedated with xylazine hydrochloride (0.1 mg/kg, IM) as a pre-anaesthetic, and anaesthesia was induced and maintained using a guaifenesin–ketamine double drip. Animals were divided into two groups. In Group I (n = 9), tumours were excised using a CO₂ laser in continuous mode (4–10 W). In Group II (n = 8), tumours were excised using a CO₂ laser in SuperPulsed mode (4–8 W, 50% duty cycle). Mean power output and surgical time were higher in Group I. Physiological parameters and STT-I values remained within normal limits in both groups. The fluorescein dye test was negative in both groups. Histopathology confirmed dermoids (26), ocular squamous cell carcinoma (5), lacrimal gland hyperplasia (2), and papilloma (1). All surgical margins were tumour-free, with significantly lower thermal damage in the SuperPulsed mode. Complete recovery was achieved in all animals, with recurrence observed only in two cases from Group I. The study concluded that the SuperPulsed CO₂ laser proved to be a safer and more precise modality for resecting bovine ocular tumors.

OPH- 14

SURGICO THERAPEUTIC MANAGEMENT OF OCULAR NEOPLASIA IN BOVINE

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The present study was conducted on sixteen clinical cases of ocular neoplasia reported to the Veterinary Clinical Complex (VCC), College of Veterinary and Animal Sciences (COVAS), Parbhani. The animals were randomly divided into two treatment groups. Group A (n = 8) received intralesional chemotherapy with sesame oil–emulsified cisplatin at a dose of 1 mg/cm³, while Group B (n = 8) was treated with two doses of the same preparation, with the second dose administered one week after the first. The highest incidence of ocular tumors was observed in non-descript cattle (38.46%), followed by Khillar and Holstein Friesian crossbreds (23.07%), Deoni (11.53%), and Red Kandhari (3.8%). Animals aged 6–8 years showed the highest occurrence (50%), followed by those aged 8–10 years (30.76%) and 10–12 years (19.23%). Males (57.69%) were more commonly affected than females (42.30%). The nictitating membrane (38.46%) and limbus (34.46%) were the most frequently involved sites, followed by the eyeball (15.38%) and eyeball with eyelids (11.53%). The right eye (53.84%) was more frequently affected than the left (46.15%). Histopathological examination revealed squamous cell carcinoma in ten cases, fibrous proliferation in four cases, and plaque lesions in two cases. Complete regression was observed in six cases (two in Group A and four in Group B), while partial regression occurred in three cases. Seven cases showed no regression by day 14

post-treatment. Hematological and biochemical parameters remained within normal reference ranges, indicating minimal systemic toxicity of the treatment.

OPH- 15

SURGICAL MANAGEMENT OF CORNEAL INJURY IN DOGS

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Corneal injuries are common ophthalmic emergencies in dogs and may result in significant visual impairment if not managed promptly and appropriately. This study describes the clinical presentation, surgical management and outcomes of corneal injuries in six dogs presented to a veterinary teaching hospital. The dogs varied in breed, age and sex and sustained corneal damage due to trauma, foreign bodies or ulcerative keratitis. All cases underwent complete ophthalmic examination, including fluorescein staining and slit-lamp biomicroscopy, to assess the depth and severity of corneal involvement. Surgical intervention was selected based on lesion characteristics and included procedures such as conjunctival grafting, temporary tarsorrhaphy, corneal suturing or third eyelid flap placement. Postoperative management consisted of topical antibiotics, anti-inflammatory agents, and systemic therapy when indicated. Clinical outcomes were evaluated based on corneal healing, restoration of ocular integrity and preservation of vision during follow-up. Successful corneal healing was achieved in the majority of cases, with minimal postoperative complications. Mild corneal scarring was observed in some dogs but did not significantly compromise visual function. This case series highlights the importance of early diagnosis and appropriate surgical intervention in managing canine corneal injuries. Timely surgical management, combined with adequate postoperative care, can result in favorable outcomes and preservation of vision in affected dogs

OPH- 16

H-PLASTY FOR MANAGEMENT OF SQUAMOUS CELL CARCINOMA IN EQUINES

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Three mares aged 6, 5 and 20 years were presented with tumorous growths of varying duration (2-7 months). The tumorous growth were located on the left upper eyelid, at base of ear right ear and around the right eyelid, respectively. Clinical examination revealed firm, proliferative masses, while all physiological and haematological parameters remained within normal reference ranges. All animals were operated under general anaesthesia using xylazine, diazepam and ketamine. Wide surgical excision of the tumour was performed with adequate healthy margins and reconstructive H-plasty was achieved by creating two vertically parallel skin incisions at the base of the surgical wound followed by excision of small triangular or rectangular skin segments to relieve tension. Subcutaneous dissection was carried out and the skin flap was advanced into the defect and secured using 2-0 polydioxanone or polyglactin 910 in simple interrupted suture pattern. Post-operative management included systemic antibiotics and analgesics for five days and twice-daily antiseptic dressing for twelve days. Skin sutures were removed on the twelfth post-operative day. Histopathological examination confirmed squamous cell carcinoma (SCC) in all cases. Uneventful healing was observed in two mares, while recurrence was noted in one case after 20 days. The study concludes that surgical excision combined with reconstructive H-plasty is an effective technique for managing equine SCC with satisfactory functional and cosmetic outcomes.

OPH- 17**MINIMALLY INVASIVE REMOVAL OF OCULAR NEMATODES IN THREE HORSES USING A 16-GAUGE NEEDLE**

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Three male horses, aged 5-8 years, presented with unilateral ocular discomfort, lacrimation, blepharospasm and blurred vision. Ophthalmic examination revealed motile worms present in the anterior chamber causing irritation and corneal edema. All cases were managed surgically under general anaesthesia using xylazine @ 1.1 mg/kg as pre-anaesthetic, ketamine @ 2.2 mg/kg for induction anaesthesia and ketamine with Diazepam for maintenance along with 4% lignocaine hcl for topical ocular analgesia. Under strict aseptic conditions, the worms were carefully extracted using a 16-gauge needle attached to a 5 ml syringe half-filled with sterile water ensuring minimal trauma to ocular structures. Worms were confirmed as *Setaria* spp. upon microscopical morphology. Post-operative management included topical antibiotics (Moxifloxacin), topical anti-inflammatory agent (Flurbiprofen) and a bolus of Fenbendazole @ 7.5 mg/kg orally. All horses recovered uneventfully with marked improvement in ocular clarity and restoration of vision.

OPH- 18**COMPARATIVE EVALUATION OF DIAMOND BURR SUPERFICIAL KERATECTOMY AND CRYOTHERAPY FOR PIGMENTARY KERATITIS IN DOGS**

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Pigmentary keratitis, also known as corneal melanosis or corneal pigmentation, is a common ocular condition in dogs. It is characterized by dark brown to black discoloration of the cornea caused by melanin deposition in the corneal epithelium and sometimes the anterior stroma. This study involved 18 dogs diagnosed with moderate pigmentary keratitis, presented at the Veterinary Clinical Complex (VCC), Jabalpur, over a six-months period from May to October 2024. The dogs were divided into three groups, irrespective of age, breed, or sex. Group 1 served as the control group and received medicinal treatment. In group 2 diamond burr superficial keratectomy was performed and in group 3 cryotherapy was performed. During the ophthalmic examination, incidence of eye affections were found 5.82%, with cataracts being the most common at 20.00%, followed by other ocular conditions. The incidence of pigmentary keratitis in the study was 14.00%, cases of severe pigmentary keratitis (52.63%), with diffuse pigmentation pattern presented the most, mostly in Pugs, males, and dogs aged between 3 to 7 years affected the most. Across all groups, The Schirmer tear test revealed significant ($p < 0.05$) reduction in mean values by day 7 in group 2, which subsequently normalized. Pigmentation grading score demonstrated significant ($p < 0.05$) reduction in mean values by day 7, In group 2 decreased from 7.58 ± 0.59 to 3.91 ± 0.27 , and group 3 from 6.25 ± 0.54 to 2.25 ± 0.30 . group 2 and group 3 exhibited statistically significant ($p < 0.05$) decreases in pigmentation grading score compared to group 1. These results indicate that cryotherapy (group 3) demonstrated superior outcomes compared to diamond burr superficial keratectomy (group 2) and medicinal therapy (group 1).

OPH- 19**ULTRASONOGRAPHIC ASSESSMENT OF CANINE PHAKIK EYES OF HEALTHY DOG AND PSEUDOPHAKIK EYES FOLLOWING MANUAL SMALL INCISION CATARACT SURGERY****Rakesh Mishra, Y.P. Singh, and M. C. Parashar.***Apollo College of Veterinary Medicine, Jaipur, Rajasthan*

Ocular B-mode ultrasonography is one of the noninvasive, rapid diagnostic imaging techniques to evaluate preoperative and postoperative conditions especially when the media is opaque and preventing a clear view of posterior segment of the eye. Cataract is the most common abnormality of lens and is major cause of blindness regardless of cause, size or location. Cataract surgery is not just about restoring sight, it is a vital procedure that improves an animal's quality of life, prevents complication, and advances veterinary medicine. MSICS- (Manual small incision cataract surgery) is a widely use surgical technique particularly in developing regions, due to its small, self-sealing incision, cost effectiveness and ability to handle advanced cataracts with minimal equipments. To compare phakic and pseudophakic eye in dogs by B- mode ultrasound 12 dogs (12 eyes) with different age and breeds were selected for study. B- Mode ultrasound of 6 phakic eyes of 6 healthy dogs were done. 6 cataractous eyes were operated through MSICS technique and IOL were implanted. Comparison between B-mode ultrasound of phakic and pseudophakic eyes were done. 14th post-operative day by B-mode ultrasound of pseudophakic eyes IOL appear as a "Flying Saucer" with hyperechoic margins and central anechoic optic area. Post-operative complication as retinal detachment and Vitreal degeneration was observed. B mode ultrasound is an essential tool in both phakic and pseudophakic eye evaluation, particularly in MSICS cases where dense cataracts or post-surgical complication may limit direct visualization. It aids in diagnosis, surgical planning and post-operative management, insuring optimal patient outcomes.

OPH- 20**SURGICAL MANAGEMENT OF BILATERAL CONVERGENT STRABISMUS AND EXOPHTHALMOS IN A HOLSTEIN FRIESIAN CATTLE: A RARE REPORT OF 03 CASES****Naveen Kumar Verma, Gaurav Kumar and Amit Kumar***Department of Veterinary Surgery & Radiology, College of Veterinary Sciences, Rampura Phul, Guru Angad Dev Veterinary and Animal Sciences University*

Bilateral convergent strabismus with exophthalmos (BCSE) is a hereditary ocular anomaly commonly observed in cow breeds, especially in Holstein and German Brown cattle. BCSE shows a gradual trajectory that frequently ends in total blindness. In India, there is a scarcity of reports on the surgical management of BCSE in cattle. The present report detailsthe management of predominantly bilateral, and in one case unilateral, convergent strabismus with exophthalmos in Holstein Friesian cattle. The cases were presented to the Teaching Veterinary Clinical Complex, College of Veterinary Sciences, Rampura Phul (GADVASU), having a history of bilateral convergent strabismus and vision impairment. The clinical examination shows a bilateral, symmetric rotation of eyeballs in an antero-medial orientation along with extreme exophthalmos and epiphora. The third eyelid & cornea was found normal and moist upon manual reflection during physical examination. The eyeballs could be easily rotated to the central position by applying traction on the bulbar conjunctiva from the dorso-lateral side. The vision impairment was noticed in both the eyes due to reduced visual field. On the basis of clinical symptoms, the cases were diagnosed as cases of bilateral convergent strabismus with exophthalmos (BCSE). The surgery was performed in all the cases under regional nerve block anesthesia. The cases recovered uneventfully with no major complications. The owners were still made aware of the poor prognosis and the chances of this disorder being inherited.

OPH- 21**SURGICAL CORRECTION OF BILATERAL ENTROPION BY RHYTIDECTOMY AND NASAL FOLD RESECTION IN A CHOW CHOW DOG**

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Several dog breeds such as chow chow, shar-pei and mastiffs are predisposed to excess facial folds and pseudoptosis. These conditions can lead to entropion and trichiasis which may result in corneal ulceration and corneal perforation in severe cases. Rhytidectomy is a therapeutic veterinary surgery to remove excess facial skin folds. A two year old chow chow was presented to VCC, DUVASU, Mathura with a history of copious ocular discharge and difficulty in vision. A physical and ophthalmic examination revealed bilateral entropion and redundant forehead skin covering the visual axis. For correction, Coronal rhytidectomy along with nasal fold resection was performed. The excess skin fold from the forehead was lifted, marked and resected (coronal rhytidectomy) and the excess skin fold around the nose was also lifted, marked and resected (Nasal fold resection). Facelift was achieved by applying a modified walking suture technique and the skin incision was closed by simple interrupted suture pattern. A good therapeutic and cosmetic outcome was achieved with significant widening of the palpebral fissure. Rhytidectomy alleviates entropion and trichiasis, improves vision and helps control dermatitis associated with excess skin folds.

OPH- 22**QUANTITATIVE MORPHOMETRY AND DENSITOMETRIC ANALYSIS OF THE CANINE GLOBE VIA COMPUTED TOMOGRAPHY (CT)**

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This study was conducted in 12 clinical healthy dogs to establish a baseline value for the dimensions and Hounsfield Unit (HU) densities of internal ocular structures using Computed Tomography (CT), facilitating more accurate diagnosis of ocular pathologies. CT scans of the dog's head were evaluated to measure the density and morphometry of the ocular globe (having normal eyes). All measurements were performed in the sagittal plane to ensure anatomical consistency. Densitometric analysis (HU) was conducted for the aqueous humour, vitreous humour and the lens. Also B-mode USG was also performed to establish the relationship between computed tomography and ultrasonography with reference to morphometric parameter. CT reconstruction at thinner slice thickness enabled accurate biometric and attenuation assessment. Mean axial globe length and lateromedial globe diameter on CT were 19.54 ± 0.23 mm and 19.42 ± 0.33 mm, respectively. The anterior chamber depth, vitreous chamber depth, and lens thickness averaged 3.68 ± 0.08 mm, 8.96 ± 0.08 mm, and 6.63 ± 0.16 mm. Mean attenuation values were 16.27 ± 1.74 HU for aqueous humour, 13.08 ± 1.44 HU for vitreous humour, and 136.74 ± 1.57 HU for the lens, with a significant difference between aqueous and vitreous humour ($P = 0.0065$). Ultrasonographic measurements showed comparable values with no significant differences between eyes. Comparative analysis demonstrated close agreement between CT and USG, confirming both modalities as reliable tools for canine ocular biometry.

OPH-23**ENTROPION INDUCED CORNEAL ULCERATION: SURGICAL MANAGEMENT & AUGMENTATION OF CORNEAL HEALING USING AUTOLOGOUS PLATELET RICH PLASMA (PRP)**

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Present report describes the surgical management of entropion - induced corneal ulceration and augmentation of corneal healing using autologous platelet rich plasma (PRP) in two cattle. A, 4 years old, Ongole bullock weighing approximately 450kg and 3 years old Gir cow weighing about 350 kg were presented to the Department of Veterinary Surgery and Radiology with a history of ocular discomfort, photophobia and epiphora. Detailed ophthalmic examination revealed absence of menace reflex and pupillary light reflex (PLR), along with blepharospasm and inward rotation of lower eyelid (OD) in the first case. In the second case, intact ophthalmic reflexes were observed with inward rotation of upper eyelids (OU). In both cases, observed corneal ulceration with varying degree of corneal opacity and vascularisation. On fluorescein dye test (FDT), dye uptake by the cornea confirmed the presence of corneal ulcer. Based on history and detailed ophthalmic examination, condition was diagnosed as entropion induced corneal ulceration. In both the cases, entropion condition was corrected surgically by Hotz - Celsus technique under local anaesthetic technique. Post - operatively, both the cases were administered with systemic antibiotics and intra ocular application of autologous PRP three times daily. Both animals showed uneventful recovery with good corneal transparency and intact ophthalmic reflexes by the end of 3rd post - operative week.

OPH- 24**SURGICAL INTERVENTION AND RECURRENCE RATE OF BOVINE OCULAR SQUAMOUS CELL CARCINOMA IN CATTLE**

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Bovine ocular squamous cell carcinoma (BOSCC) is a frequent ocular tumor in cattle of Dharmapuri district and surgery in its early stages is crucial to halt the growth and recurrence of the tumor. This study investigated the surgery and recurrence rate of BOSCC in six cows referred for treatment in the field using the following five factors: tumor size, site, type of surgery, healing time and recurrence of the tumor. Tumor size measured 2.8 ± 0.48 cm and in four animals (66.7%), the lesions occurred in the eyelid and conjunctiva with lesions in the cornea in the other two (33.3%) cases. In four cases of BOSCC with little growth, the surgery type involved local excision along with medical management, but in the other two with advanced growth invading the deeper parts of the eyes, enucleation became necessary. The healing time for the six animals measured 16.5 ± 0.42 days and in all the healing occurred with no complications. Approximately six months after the surgery, recurrence occurred in one animal (16.7%) due to inadequate excision, but in the remaining animals (83.3%), no recurrence occurred. The average period to remain recurrence free measured 3.4 ± 0.41 months. Tumor size and stage at presentation strongly influenced the surgical outcome, with early-stage BOSCC responding to simple local excision, while more advanced lesions required enucleation. An important factor in preventing recurrence was adequate tumor margin clearance. Early diagnosis, appropriate surgical planning, and postoperative monitoring on a regular basis are imperative for the effective management of BOSCC under field conditions to improve animal welfare and reduce the economic losses that farmers incur.

OPH- 25**SURGICO-THERAPEUTIC MANAGEMENT OF CORNEAL ULCERS IN DOGS: A STUDY OF SIX CASES****S.K.Jhirwal**, Mohan Lal Sharma, Ayub Mohammad, Arjun Singh Bhadoria and Satyaveer Singh*Veterinary Clinical Complex, PGIVER, Jaipur*

Corneal ulcers are frequently encountered ocular emergencies in dogs and may result in severe pain, vision loss, or globe rupture if not promptly and appropriately managed. This study describes the surgico-therapeutic management of corneal ulcers in six canine patients presented with varying degrees of ulcer severity, including deep stromal ulcers and non-healing lesions unresponsive to medical therapy. A thorough ophthalmic examination, including fluorescein staining and slit-lamp evaluation, was performed in all cases to assess ulcer depth and progression. Surgical interventions such as third eyelid flap, temporary tarsorrhaphy, and conjunctival pedicle grafting were employed based on the severity and location of the corneal defects, in conjunction with appropriate medical management including topical antibiotics, cycloplegics, and anti-collagenase therapy. Postoperative follow-up revealed satisfactory healing in all cases, with restoration of corneal integrity and preservation of vision in the majority of patients. Minor complications such as corneal scarring were observed but did not significantly impair visual function. The study concludes that timely surgical intervention combined with adjunct medical therapy is effective in the management of complicated corneal ulcers in dogs and plays a critical role in improving clinical outcomes and visual prognosis.

OPH- 26**THERAPEUTIC EFFICACY OF GRID KERATOTOMY WITH AUTOLOGOUS SERUM IN THE MANAGEMENT OF CORNEAL ULCERS IN DOGS AND CATS****Rahul Kumar Udehiya**, Ashutosh Mishra, Sehajdeep Singh, Dayamon D. Mathew and Naresh Kumar Singh*Department of Veterinary Surgery and Radiology, Banaras Hindu University*

The present clinical study was conducted on 16 clinical cases comprising 14 dogs and 2 cats presented with corneal ulcers. Based on detailed ophthalmic examination, including fluorescein dye test and slit-lamp biomicroscopy, the cases were classified into superficial corneal ulcers (Group I, n = 10) and deep corneal ulcers (Group II, n = 6). All animals were subjected to thorough clinical and ophthalmic evaluation before initiation of treatment. Both groups were treated with autologous serum therapy and superficial grid keratotomy followed by temporary tarsorrhaphy. In addition, all affected eyes received routine topical therapy consisting of Gatifloxacin eye drops, Carboxymethylcellulose as a lubricating agent, and Flurbiprofen for control of inflammation. Topical medications were administered for seven days, except flurbiprofen, which was given for three days. Systemic oral or injectable antibiotics were administered to all animals for seven days post-operatively. Group I animals showed excellent healing response with rapid epithelialization, restoration of corneal transparency and complete recovery without any postoperative complications. In contrast, Group II animals exhibited delayed healing and a higher incidence of complications. Symblepharon, pigmentary keratitis, and varying degrees of corneal opacity were observed in four cases, while two cases showed satisfactory recovery. The study concluded that superficial grid keratotomy combined with autologous serum therapy is a safe, effective, and economical treatment modality for the management of superficial corneal ulcers in dogs and cats. All superficial ulcer cases showed uneventful recovery with restoration of vision during a three-month postoperative follow-up period.

OPH- 27**MANAGEMENT OF ENTROPION IN CHOW CHOW BREED OF DOG BY RHYTIDECTOMY**

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The present study done for upper eyelid entropion cases of chow chow. It involved 8 Chow Chow dogs (4 males and 4 females) diagnosed with entropion and associated corneal injuries. The dogs were between 10 months and 8 years old, weighing from 5.2 kg to 28.7 kg. All had a history of issues such as excessive tearing (epiphora), varying degrees of blindness, corneal cloudiness (keratitis), secondary trichiasis and corneal ulcers. They were otherwise in good health condition. Neurophthalmic examinations of the dogs are variable. Clinical examination revealed that 7 of the dogs had entropion in both eyes, while 1 dog showed excessive entropion only in the right eye due to an excessive skin fold in the temporal region. In our protocol we treat cases with local antibiotic and lubricant to counteract secondary entropion for 2 weeks. In every case, corneal opacity and ulceration were present, though the severity differed among individuals. Blood test results for all dogs remained within normal ranges. Some cases have mild neutrophilic leucocytosis because of incidental systemic infections. Under general anesthesia (using combinations such as Atropine–Xylazine with Isoflurane, or Butorphanol–Acepromazine–Atropine–Propofol with Isoflurane), the excess skin in the temporal area was surgically removed to correct the entropion. Postoperative care included systemic antibiotics (cefotaxime) and the anti-inflammatory drug meloxicam for three days, along with Gatifloxacin eye drops (every two hours) and methylcellulose lubricant drops (four times a day) for two weeks. Daily wound care with povidone-iodine and the use of an Elizabethan collar were also recommended. Of the 8 dogs, 7 cases underwent rhytidectomy surgery, and in one case, only the excess skin flap above the right eye was removed. Entropion correction was successfully achieved in seven operated dogs. However, one dog continued to experience epiphora, and one case developed mild suture dehiscence after surgery. And in one case entropion is corrected in one eye only. Overall corneal health is improved in all. However we concluded rhytidectomy is better method for entropion correction in the chow chow breed than any other method of entropion correction because of common incidence of upper eyelid entropion with complication of secondary trichiasis which lead to poor corneal & conjunctival health.

OPH- 28**EVALUATION OF CONJUNCTIVAL PEDICLE GRAFTS WITH OR WITHOUT TARSORRHAPHY FOR REPAIR OF CORNEAL ULCERS IN DOGS**

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Corneal ulcers are common ophthalmic emergencies in dogs and may lead to serious ocular morbidity if not managed appropriately. Conjunctival pedicle grafting is an established surgical technique for treating moderate to severe corneal ulcers; however, the benefit of adjunctive tarsorrhaphy remains debatable. During the study period, 3,024 surgical cases were presented, of which 153 cases involved ocular affections. The incidence of corneal ulcers was 0.76% among total surgical cases and 11.30% among ocular affections. A total of fourteen canine cases diagnosed with corneal ulcers were selected and equally divided into two groups of seven cases each. Group I underwent conjunctival pedicle grafting with tarsorrhaphy, while group II underwent conjunctival pedicle grafting alone. The ulcers included in the study ranged from mid-stromal to deep stromal ulcers and descemetocoeles (Grade III to Grade V). Clinical parameters such as photophobia, ocular discharge, corneal edema, vision status, graft adherence,

and graft perfusion were evaluated on postoperative days 0, 7, 14, 28, and 35. The result revealed no significant difference in healing outcomes between the two groups. Both techniques resulted in satisfactory corneal healing when meticulous surgical techniques and strict postoperative care were followed. The study emphasizes the importance of surgeon expertise and consistent use of an Elizabethan collar over routine adjunctive tarsorrhaphy in achieving favourable outcomes.

OPH- 29

SURGICAL MANAGEMENT OF SCROLLING OF T-CARTILAGE OF THE THIRD EYELID IN A DOG: A RARE CASE REPORT

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Scrolling of the third eyelid cartilage is an uncommon ophthalmic condition in dogs, typically involving deformation of the T-shaped cartilage, leading to abnormal eversion, ocular irritation, and cosmetic deformity. The condition is rarely reported in non-descriptive breed but common in Saint Bernard, Newfoundland and Great Dane breeds. A 1.5-year-old non-descriptive dog was presented at Veterinary Clinical Complex, COVSc, Jabalpur with abnormal protrusion and curvature of the third eyelid in the both eye. Detailed ophthalmic examination revealed eversion and scrolling of the third eyelid consistent with deformation of the T-shaped cartilage. No associated conjunctival inflammation, corneal ulceration, or systemic abnormality was detected. Based on detailed ophthalmic examination, a confirmed diagnosis of scrolling of the third eyelid T-cartilage was established. Pre-operative topical antibiotic (Moxifloxacin) along with topical NSAID (Flurbiprofen) was started. Surgical correction was planned and performed on left eye under general anesthesia using Atropine and Xylazine as pre-anesthetics and induction done with ketamine and maintained on combination of Ketamine and Diazepam. A conjunctival incision was made just above the scrolled part of T cartilage on the bulbar surface of the third eyelid, and the horizontal branch of the T-cartilage was separated from the surrounding conjunctival tissue then horizontal arm of T cartilage was excised. The conjunctiva was apposed using polyglactin 910 absorbable suture (5-0). Postoperative management included topical and parenteral antibiotics and anti-inflammatory medications. After 7 days same procedure was done for right eye. The postoperative outcome was satisfactory, with restoration of normal third eyelid position, improved ocular comfort, and excellent cosmetic appearance. No recurrence or postoperative complications were observed during the follow-up period.

OPH- 30

A TECHNIQUE OF REMOVAL OF THE EYE WORM FROM THE ANTERIOR CHAMBER - 11 HORSES

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The Eye Vet Clinics, India

A novel surgical technique for the removal of *Setaria digitata*, a nematode from the anterior chamber in horses. Eleven horses were presented over the period of 3 years with a live worm in the anterior chamber. Corneal edema and anterior uveitis of various grades were encountered in all animals. The worms were successfully removed surgically in standing sedation along with local nerve blocks and topical anesthesia. A full thickness perilimbal incision was created ventrolaterally by 2.8mm keratome. The anterior chamber was filled with dispersive viscoelastic material (HPMC) and the incision was gently opened by depressing the lower lip of the incision with a 21 G canula, the worm flowed out along with the viscoelastic

material. Viscoelastic material was left inside the anterior chamber and left unsutured. Postoperatively, uveitis management was initiated. Identification of the worm was confirmed microscopically. The worm was successfully removed from all horses within 2mins. 9 out of 11 horses are maintained vision and clinically improved within 7 days postoperatively. The 2 preexisting blind eyes did not regain vision. Effective, early removal of the eyeworm avoids complications like uveitis or glaucoma. Conventional techniques may require general anesthesia or rely on unpredictable spontaneous extrusion, with a risk of intraocular complications. The use of viscoelastic material in this technique reduces worm motility and enables controlled viscoexpulsion while maintaining globe stability. The procedure is minimally traumatic, requires minimal sedation, and was not associated with any complications.

OPH- 31

SURGICAL MANAGEMENT OF OCCULAR SETARIASIS IN SEVEN HORSES

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Seven horses aged 4-10 years were presented with unilateral ocular involvement, showing signs of epiphora, blepharospasm, severe corneal edema and blurred vision. Ophthalmic examination revealed live motile *Setaria* spp. in the anterior chamber. Diagnosis was confirmed through detailed ocular assessment and direct visualization of parasites. All cases were managed surgically under general anaesthesia using xylazine @ 1.1 mg/kg as pre-anaesthetic, ketamine @ 2.2 mg/kg for induction and ketamine with midazolam for maintenance. A minimally invasive corneal paracentesis was performed using a BP blade no. 11 at the limbus, allowing controlled drainage of aqueous humour and successful extraction of parasites without damage to intraocular structures. Post-operative management included topical antibiotics (Moxifloxacin), topical anti-inflammatory agents (Flurbiprofen) and Bolus Fenbendazole @ 7.5 mg/kg orally. All seven horses recovered uneventfully with marked improvement in ocular clarity and restoration of vision. No post-operative complications were observed during follow-up.

OPH- 32

A CLINICAL STUDY ON CORNEOCONJUNCTIVAL TRANSPOSITION WITH PRP SOLID BUFFER FOR THE TREATMENT OF DESCEMETOCELE IN DOGS

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The study was conducted on six clinical cases of dogs with descemetocoele at the Dept. of Veterinary Surgery and Radiology, Veterinary Clinical complex, Rajendranagar, Hyderabad. Out of six dogs chosen for the study, all six dogs were shih tzu breeds. The ages of the affected dogs ranged from four months to 36 months. Two dogs had issues with their right eye, while four had problems with their left eye. A comprehensive ophthalmic examination was performed on all the dogs, which included a bilateral evaluation of various responses and tests: menace response, palpebral reflex, pupillary light reflex, cotton ball test, Schirmer tear test, fluorescein dye test, and direct ophthalmoscopy. Under general anesthesia, corneo-conjunctival transposition grafting was performed with platelet-rich plasma solid buffer. All the corneas were then protected with temporary tarsorrhaphy. In current study all cases underwent corneo-conjunctival transposition (CCT) grafting. CCT grafting demonstrated notably shorter surgical operating time. Pre- and post-operative evaluations encompassed ophthalmic, neuro- ophthalmic and behavioural vision tests up to day 60. Dogs with CCT grafts exhibited prompt vision

restoration, achieving corneal near transparency by day 60. Post-operation complication of graft dehiscence observed in one case. Autologous platelet-rich plasma solid buffer therapy was found to be a very safe treatment for canine descemetocoeles, with no host reactions observed. In conclusion, CCT was helpful in achieving complete corneal healing. CCT graft technique emerged as a superior technique, as it achieved earlier near corneal transparency, accelerated improvement in vision, and a reduced surgical operating time.

OPH-33

PLANNED POSTERIOR CAPSULORRHESIS IN CANINE CATARACT SURGERY: 67 EYES

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The Eye Vet Clinics, India

Posterior capsular opacification (PCO) is a common long-term complication following phacoemulsification in young and long-standing cataract in dogs and leading to significant visual impairment when it involves the visual axis. A total of 67 eyes that underwent phacoemulsification procedure with planned posterior capsulorhexis at various clinics of THE EYE VET between January 2024 and January 2026. Vitreous prolapse was the only intraoperative complication encountered in 2 dogs for which anterior vitrectomy was performed. Postoperatively, visual axis clarity was maintained in all the cases during the follow-up period. The visual axis clarity was better when compared to the eyes that had undergone cataract surgery without posterior capsulorhexis during this period. Breed-wise distribution showed a higher representation of Siberian Huskies among young dogs. Planned posterior capsulorhexis during routine canine cataract surgery will help in reducing long-term visual axis opacification in young and to improve visual outcome in dogs with pre-existing posterior capsular opacification.

OPH- 34

LONG-TERM VISION OUTCOME AFTER GONIOIMPLANTATION IN 15 DOGS (2020-2025)

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The Eye Vet Clinics, India

To evaluate long-term vision outcomes in dogs with refractory glaucoma treated with gonioimplantation. Fifteen dogs diagnosed with glaucoma were presented over 4y period. All dogs were refractory to intensive topical antiglaucoma therapy and had markedly elevated intraocular pressure (IOP >30–70 mmHg). Gonioimplantation was performed under general anesthesia using a wide fornix-based conjunctival-Tenon's flap extending from the 10 to 2 o'clock positions to create a large sub-Tenon's pocket. Valved implants (Ahmed Glaucoma Valve) were placed in 11 dogs, while non-valved implants (AADI shunt in 3 dogs and GlauDrain in 1 dog) were positioned approximately 10 mm posterior to the limbus. Subconjunctival Mitomycin C (0.4 mg/mL) was applied for 5 minutes, followed by thorough irrigation with normal saline. The tube was advanced 3 mm into the anterior chamber through a 23-gauge needle tract and secured under a partial-thickness scleral flap; the implant plate was fixed to the sclera with 8-0 nylon sutures, and the conjunctiva was closed using continuous 6-0 PGA. Postoperative IOP control was achieved in all dogs for periods ranging from 7 days to 4 years. All non-valved gonioimplants failed within 15 days of surgery. In dogs receiving Ahmed valve implants, the average duration before IOP increased beyond 20 mmHg was 8 months. Bleb revision surgery was required in 5 dogs. Following bleb revision, 2 dogs lost vision at an average of 6 months, whereas 6 dogs retained vision with a median vision preservation time of 1.5 years. Implant extrusion was observed in 2 dogs. Gonioimplantation is

an effective surgical option for vision preservation in dogs with refractory glaucoma. Valved implants demonstrated superior long-term vision outcomes compared to non-valved devices.

OPH- 35

STUDIES ON OCULAR ULTRASONOGRAPHY AND ECHOBIOOMETRY IN JAMUNAPARI GOATS

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Transcorneal ultrasonographic scanning of male and female healthy kids and adult goats (n=6) were performed in an axial imaging plane to standardized the echomorphometric measurements of various ocular structures. Echo-morphological details of various intra-ocular structures were standardized. The echo-biometric studies on five parameters i.e. aqueous chamber depth (ACD), lens thickness (LT), vitreous chamber depth (VCD), axial globe length (AGL) and scleroretinal rim thickness (SRRT) was conducted using 8-10 MHz convex transducer at 4-8 cm scanning depth with suitable gain. Non-significant ($P>0.05$) difference was observed in ACD, LT, VCD, AGL and SRRT when compared male and female in kids as well as in adult goats. These standard echo-morphometric details provide a benchmark to diagnose the various ocular affections. Intra-ocular pressure (IOP) in mmHg values and Shirmer tear test (STT) in mm/min. were measured in healthy kids and adult goats. Kids demonstrated relatively higher IOP and lower tear production compared to adult goats. The standardized ultrasonographic and ophthalmic baseline data generated through this study provide valuable reference values for clinical evaluation, diagnosis, and monitoring of ocular affections in caprines, and contribute to improved precision in veterinary ophthalmic imaging.

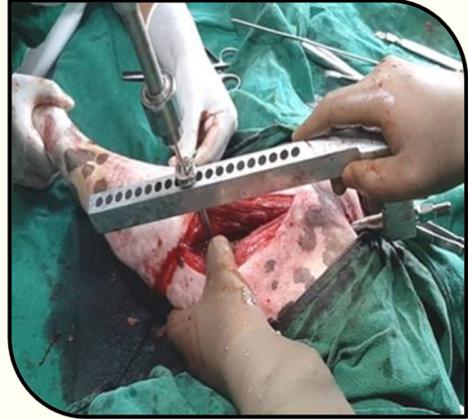
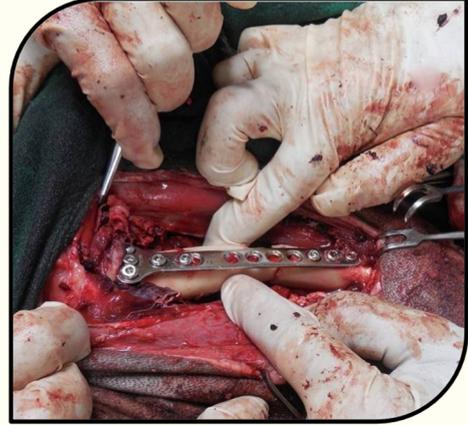
OPH-36

SURGICAL MANAGEMENT OF BILATERAL ENTROPION BY RHYTIDECTOMY IN A 6-MONTH-OLD CHOW CHOW DOG

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Various degrees of entropion associated with excessive facial skin folds are commonly observed in brachycephalic dog breeds such as Chow Chow and Shar-Pei. Continuous irritation of the cornea by inward rolling of the eyelids leads to epiphora, blepharospasm and corneal damage. The present case describes the successful surgical management of bilateral entropion in a six-month-old Chow Chow dog presented to the Veterinary Clinical Complex, (RAJUVAS), Bikaner with a history of epiphora, mucopurulent ocular discharge and photophobia. Clinical examination revealed bilateral upper and lower eyelid entropion with excessive facial skin folds and conjunctival congestion, while menace response and pupillary light reflex were intact. Temporary tacking sutures were initially placed to relieve corneal irritation and to assess the amount of redundant skin. Definitive correction was achieved by rhytidectomy. The animal was premedicated with atropine sulphate (0.04 mg/kg, SC) followed by xylazine hydrochloride (1 mg/kg, IM) and anesthesia was induced using ketamine hydrochloride (5 mg/kg, IV) and general anesthesia was maintained with isoflurane in oxygen. Excessive facial and supraorbital skin was excised along natural tension lines and the skin was apposed using non-absorbable sutures. Postoperatively, ceftriaxone (20 mg/kg, IM) and meloxicam (0.2 mg/kg, SC) were administered along with topical moxifloxacin–ketorolac eye drop and lubricating eye drops. Sutures were removed on the tenth postoperative day. Complete resolution of entropion with improved corneal clarity and absence of discomfort was observed. This case highlights rhytidectomy as a safe and effective technique for the correction of severe bilateral entropion associated with redundant facial skin in Chow Chow dogs.



Orthopaedic Surgery Session



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ORT-01**IMPACT OF HANDS-ON FRACTURE FIXATION TRAINING FOR VETERINARY PRACTITIONERS AT ICAR-IVRI, PUNE (MAHARASHTRA)****H.P. Aithal**, A.K. Bhalerao, S.V. Bahire, S.K. Das, K.N. Bhilegaonkar and D. Bardhan*Training and Education Centre, ICAR- Indian Veterinary Research Institute College of Agriculture Campus, Shivajinagar, Pune (Maharashtra)*

An impact analysis was conducted on 210 veterinary professionals from 17 Indian states and Nepal who participated in a series of 12 hands-on training programmes on various fracture fixation techniques, held between March 2017 and January 2024. Participants included veterinary officers, private practitioners, university faculty, and recent graduates. The objective was to enhance theoretical knowledge and practical skills in fracture management. Training effectiveness was evaluated both immediately (178 respondents) and in the long term (127 respondents, 6 months to 7 years post-training). Post-training assessments showed a 25% improvement in subject knowledge (from 54% to 79%). Feedback was overwhelmingly positive, with 96% rating the programme as excellent or very good, and 92.7% finding it highly relevant. Instructor ratings were similarly high. Long-term feedback confirmed sustained impact: over 95% rated the training as excellent or very good, and 98.4% felt the objectives were fully met. Participants reported significant gains in surgical skills, confidence, and clinical application. Many successfully treated 50 to over 1,000 fracture cases, improving animal welfare outcomes. Financially, more than 80% reported increased monthly income post-training, with some earning up to ₹ 1 lakh, and a few earning between ₹ 1–10 lakh or more. Additionally, 78% shared their knowledge with peers, extending the programme's impact. In conclusion, these training programmes significantly advanced veterinary surgical capabilities, improved economic outcomes, and enhanced animal welfare. They serve as an effective model for skill-based capacity building in the veterinary sector.

ORT-02**SURGICAL MANAGEMENT OF METACARPAL AND METATARSAL FRACTURES IN DOGS****Jagan Mohan Reddy K***Department of Veterinary Surgery & Radiology, College of Veterinary Science, Warangal
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The study conducted on dogs (20) presented with metacarpal and metatarsal fractures to the Department of surgery and radiology, Veterinary Clinical complex, PVNR TVU Rajendranagar. The dogs (6) diagnosed by physical and radiographic examination for the selection of implants for metacarpal and metatarsal fractures for internal fixation with plate rod technique using 2.0 mm DCP and K -wire through cranial approach to the meta carpal and metatarsal bones in dogs. The dogs were given post operatively antibiotics and anti-inflammatory drugs along with dressing and bandaging on daily basis and advised owner for leash walk. All dogs recovered uneventfully with weight bearing on 15th post -operative day. Radiographic evaluation with regular intervals of 30 days, 60 days and 90 days revealed the implants are in place and provided stable fixation for bone healing.

ORT-03**SURGICAL CORRECTION OF COMMINUTED FRACTURES IN DOGS - A REPORT OF 9 CASES****N.V.V. HARI KRISHNA***Dept. of Veterinary Surgery and Radiology, College of Veterinary Science, Sri Venkateswara Veterinary University, Garividi, A.P*

Dogs presented to Dept. of Veterinary Surgery and Radiology with non-weight bearing lameness and suspected of fracture were considered. Detailed clinical examination revealed non-weight bearing lameness of the affected limb, swelling, pain, crepitus and soft tissue contusion. Radiographic examination confirmed the presence of fracture with various degrees of comminution. It was decided to go for surgical correction either with single or double IM pin and cerclage wire or plate-rod technique based on the case. The dogs were premedicated with inj. Atropine sulphate @ 0.4 mg/Kg b.wt. followed by inj. Xylazine Hcl @ 1mg/Kg b.wt. Anaesthesia was induced by inj. Diazepam @ 0.5 mg/Kg b.wt. and inj. Ketamine hydrochloride @ 5 mg/Kg b.wt. and maintained by 2 to 3% isoflurane. In plate-rod technique, the fracture was first reduced with IM pin followed by bone plate application. The dogs recovered uneventfully and details were discussed.

ORT-04**FEMUR FRACTURE MANAGEMENT IN DOGS AND CATS USING SPECIAL CUSTOM SPLINTS****Sanjay Gaikwad***Nashik, Maharashtra*

The femur, a major long bone of the hind limb, is covered with strong muscle mass such as the quadriceps and hamstrings, making fractures of this bone difficult to immobilize. Fractures commonly occur due to trauma, automobile accidents, falls, or crushing injuries. Femoral fractures commonly present with lameness, non-use of the limb, shortening of the affected hind limb, swelling, pain on manipulation, and crepitus. Conventional surgical fixation may not always be feasible in field conditions due to cost, equipment limitations, and technical demands. The use of custom-made splints with adhesive fixation provides a reliable, economical, and field-friendly alternative for stabilization of femoral fractures, while maintaining a biological environment conducive to rapid healing. This study reports the successful management of femur fractures in 17 cases (9 dogs and 8 cats) using specially designed custom splints with adhesive tape fixation. The technique, practiced for the past four years, demonstrated a 100% success rate with excellent functional recovery, minimal discomfort, and high cost-effectiveness. The method is reliable and can be adapted under field conditions.

ORT-05**HUMERUS FRACTURE MANAGEMENT IN DOGS AND CATS USING SPECIAL CUSTOMISED SPLINTS****Sanjay Gaikwad***Nashik, Maharashtra*

The humerus, a major long bone of the forelimb, Fractures commonly occur due to trauma, automobile accidents, falls, or crushing injuries. Common clinical signs include lameness, non-use of the limb, shortening of the affected forelimb, swelling, pain on manipulation, and crepitus. Conventional surgical fixation may not always be feasible under field conditions due to cost and equipment limitations. The use of specially designed customised splints with adhesive fixation provides a reliable and economical method for stabilization of

humeral fractures, while maintaining a biological environment conducive to rapid healing. This study reports the successful management of humerus fractures in 19 cases (10 dogs and 9 cats) using specially designed custom splints with adhesive tape fixation. The technique, practiced for the past four years, demonstrated a 100% success rate with excellent functional recovery, minimal discomfort and high cost-effectiveness. After splint removal, normal limb function was restored with no postoperative complications. Functional outcomes were uniformly excellent, with a 100% success rate across all cases. The method is reliable and can be adapted under field conditions.

ORT-06

MESENCHYMAL CELLS --- A PROMISING BIOMATERIAL IN BONE TISSUE ENGINEERING IN DOGS

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Canine Adipose derived mesenchymal stem cells seemed to be a promising biomaterial for augmenting the bone healing in the cortical gap defects. Mesenchymal stem cells were isolated and cultured from adipose tissue that was aseptically harvested from the omental fat of healthy dogs, CAD-MSCs. All the fractured long bone fractures were stabilized with intramedullary pinning in all the 18 animals, along with autogenous Platelet rich fibrin in 6 animals (Group II) and allogenic canine adipose tissue derived mesenchymal stem cells in 6 animals (Group III). Clinically, lameness grading was assessed based on gait and weight-bearing in all animals at 0, 3rd, 7th, 14th, 21st, 30th, 45th and 60th post-operative days. The outcome was also evaluated, radiographically, hematologically and biochemically on 0th day, 15th, 30th, 60th and 90th day post operatively. Among the different groups under this study, clinically early ambulation, with nearly normal gait was noticed in group III followed by group II and group I. Application of MSCs augmented fracture healing which was evidenced by dogs' performance at 21-30 days. Mesenchymal stem cells hold therapeutic potential in fractures by accelerating healing and initiating the repair process, forming a cartilaginous template that is subsequently replaced by new bone to bridge the gap. In conclusion, the present study stressed the need of utilizing PRF/MSCs at the fracture site for early fracture healing preventing delayed or non-union cases, in improving the dog's gait and ability to have a normal life with absence of side effects.

ORT-07

DIAGNOSIS AND SURGICAL TREATMENT OF PATELLAR LUXATION IN EIGHT DOGS

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Eight client owned cases of patellar luxation in dogs were presented to surgical ward of Department of Veterinary Clinical Complex, College of Veterinary Science, Tirupati. All the dogs were physically examined, evaluated for lameness, and graded according to severity. Radiographic examination of the affected stifle joint was done with lateral, craniocaudal and skyline projections to evaluate luxation, trochlear sulcus angle, and medial and lateral trochlear inclination angles. Appropriate surgical treatment was planned with various surgical procedures such as trochlear wedge recession, trochlear block recession, trochlear ridge augmentation and retinacular imbrication. In one case, PRP was infused into the joint to promote healing and in another case, PRF was used as a biological glue to the resected articular cartilage graft. The surgical technique, intraoperative gross findings, synovial fluid analysis, postoperative care and the outcome of treatment are presented and discussed.

ORT-08**COMPARATIVE EVALUATION OF STEINMANN PIN AND INTRAMEDULLARY INTERLOCKING NAIL FOR TIBIAL FRACTURE REPAIR IN CAPRINES**

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Twelve clinical cases of tibial fractures in caprine presented for the treatment of tibial fracture to the Veterinary Clinical Complex, Veterinary College, Bidar were studied for open reduction and internal fixation technique by placing Steinmann pin and IILN as internal fixators in all the cases. Clinical signs of non-weight bearing, reluctance to move, lifting the limb above the ground level or just touching the toe to the ground, dangling of the limb indicated a broken bone. The medio-lateral and antero-posterior radiographs provided confirmatory diagnosis of the type of fracture. Open reduction and internal fixation technique was followed to place Steinmann pin (6 cases) and IILN (6 cases) as internal. Radiographic evaluation of fracture healing was carried out on the 30th, 45th and 60th post-operative day and compared with the 0th day post-operative radiograph based on the status of the implant, callus formation and union of fragments. In Steinmann group one case had osteoarthritis of stifle joint and animal was unable to bear weight on operated leg. In IILN group one case locking bolt was malpositioned due to excessive curvature of tibia bone distally, however the animal was additionally managed with external fiber glass cast until the normal limb function was restored. Radiographic evaluation of fractures showed progressive healing in both the groups. Both, intramedullary pinning and intramedullary interlocking nailing techniques provided adequate stability at the fracture site in this study. Animals treated with static IILN showed early weight bearing when compared to dynamic dynamic IILN and Steinmann pin.

ORT-09**SURGICAL MANAGEMENT OF FEMUR FRACTURES IN DOGS: A RETROSPECTIVE STUDY**

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Femur is one of the most commonly fractured bones in dogs and cats. The aim of the present study was to record the incidence of femur fractures in dogs of various breeds age, gender and to evaluate the different techniques adopted for fracture stabilization. This study was conducted on 115 cases of long bone fractures presented to Kothari Veterinary Hospital, College of Veterinary Science and Animal Husbandry, DUVASU, Mathura in the period from March 2024 to February 2025. According to this study, fracture of long bones of the hind limb (77.39%) showed a higher incidence rate compared to the fore limbs (25.22%). Out of the 115 long bone fractures studied, 66 (57.39%) cases were of femur fractures. Femur was the most affected compared to other long bones. Juvenile dogs (less than one year) showed a higher incidence rate (63.63%) compared to older ones. The femoral diaphysis was the most affected part (81.81%) followed by the distal extremity. The proximal extremity of femur was least affected. Similarly, the number of transverse fractures was highest (43.94%), followed by the short oblique (37.88%), long oblique (10.60%) and comminuted (7.57%) fractures. Based on the circumstances the fractures were presented, internal fixation techniques were most commonly selected for the management of femoral fractures, of which intramedullary pinning was most frequently used (65.15%). The mean cortex to medulla ratio for femur bones in lateral aspect was 1.422.

ORT-10**EVALUATION OF THE FIXIN[®] CONICAL COUPLING LOCKING PLATE SYSTEM FOR FEMORAL FRACTURES IN CATS**

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Femoral fractures are among the most commonly encountered orthopaedic injuries in cats and require stable internal fixation to restore limb function and ensure optimal fracture healing. The study was undertaken to evaluate the clinical application of the IntraumaFixin[®] conical coupling locking plate (CCP) system for the repair of femoral fractures in cats under Indian clinical conditions. Pre-operative fracture case assessment scoring was performed and all six animals were evaluated clinically and radiographically for 60 days postoperatively. A balanced anesthetic protocol comprising Dexmedetomidine (7.5 µg/kg IM), Butorphanol (0.2mg/kg IM), and Tiletamine-Zolazepam (7.5mg/kg IM) provided satisfactory anesthesia with uneventful recovery. Femoral fractures were stabilized using the Fixin[®] Mini (1.9-2.5mm) Conical Coupling Plate (CCP) system. Postoperative pain was assessed using the Glasgow Feline Composite Measure Pain scale (CMPS-Feline), which confirmed effective analgesia when supported with oral Robenacoxib while Amoxicillin-clavulanate to prevent infection. Clinical assessment included evaluation of lameness grading and ambulation at predetermined postoperative intervals. The primary construct of the Fixin[®] plate system being bridging plate in nature with three screw holes in proximal and distal aspect provided “Rigid internal fixation”. All the cases showed early ambulation by day 15. The thin and elastic nature of the Fixin[®] plate system gave an early and strong bridging callus by day 15 to day 60 conforming to the principles of “Elastic plate osteosynthesis”. One postoperative complication involving screw pull out was successfully managed by revision surgery resulting in complete ambulation. The study concludes that the Fixin[®] conical coupling locking plate system (CCP) is an effective and dependable method for femoral fracture repair in cats, providing excellent implant stability, early ambulation and favourable clinical and radiological outcomes.

ORT-11**BIOACTIVE COMPOSITE BONE GLUE FOR MANAGEMENT OF COMPLEX COMPOUND LONG BONE FRACTURE IN DOGS**

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The present study aimed to develop a bioactive composite bone glue (BCBG) and evaluate its clinical efficacy in the management of complex compound fractures in dogs. The work was conducted in two phases. In Phase I, BCBG was formulated using decellularized bone granules and collagen gel, followed by assessment of its biomechanical properties, cell biocompatibility, and osteogenic potential. The material exhibited an optimized pore size of 37.736 to 119.597 µm, suitable for cell adhesion and tissue ingrowth. Biomechanical analysis revealed a compressive modulus ranging from a 10 MPa yield point to an ultimate strength of 118.75 MPa, along with a shear strength of 8 ± 1 MPa. In-vitro studies demonstrated excellent biocompatibility, with active attachment, proliferation, and osteogenic differentiation of ADSCs even without differentiation media, supported by SEM findings showing improved surface architecture and new matrix formation. In Phase II, the clinical performance of BCBG was evaluated in dogs with compound fractures. Treated animals showed rapid improvement in all postoperative parameters. Inflammation, exudation, and pain significantly decreased, with complete resolution by Days 14, 7, and 30 respectively. Radiographic evaluation revealed

accelerated fracture healing, with callus formation evident by day 10 and complete cortical continuity established by day 30. Wound healing progressed rapidly, showing 40 % contraction in first week and 80-90% by the third week, despite extensive soft tissue damage. Overall, the BCBG proved to be a biocompatible, mechanically stable, osteogenic, and clinically effective biomaterial that significantly enhanced both soft tissue and bone healing in dogs with complex compound fractures.

ORT-12

DIAGNOSIS AND SUCCESSFUL MANAGEMENT OF TRAUMATIC ELBOW DISLOCATION IN TWO DOGS

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Two clinical cases of traumatic forelimb non-weight bearing lameness in dogs, one a 2.5-year-old, male, Labrador Retriever involving right forelimb, whereas another a 4-month-old, female, mongrel dog involving both forelimbs, were presented to the surgical ward of the Department of Veterinary Clinical Complex, College of Veterinary Science, Tirupati. Physical examination of the Labrador Retriever revealed marked pain on manipulation of the right elbow joint. In contrast, mongrel dog exhibited crepitus and restricted flexion on right elbow joint and swelling and crepitus over the left mid-forearm region. Radiographic examination of the right elbow in Labrador Retriever revealed complete elbow dislocation and exposure of the articular surface with medial displacement of the humeral condyle. Radiographs of mongrel dog revealed complete dislocation of the right elbow joint and a complete overriding transverse interdigitating fracture of the mid-shaft of the radius and ulna of left forelimb. Surgical correction in Labrador was achieved through open method using 2.7-mm screws and orthopaedic wire applied in a figure-of-eight manner between the distal humerus and proximal radius. In mongrel dog, closed reduction of the elbow joint was achieved under C-arm, followed by stabilization of the radius and ulna fractures using a POP cast. The surgical management, intraoperative findings, postoperative care, and clinical outcomes are presented and discussed.

ORT-13

ORTHOGONAL PLATING FOR RIGID MULTIPLANAR STABILIZATION OF CANINE LONG-BONE FRACTURES: SURGICAL TECHNIQUE AND SHORT-TERM OUTCOMES IN A CASE SERIES OF SIX DOGS

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A fracture is a partial or complete disruption in the continuity of bone. Fracture of long bones were common in dogs. The present study evaluated the effectiveness of orthogonal plating for the stabilization of acute closed diaphyseal long-bone fractures in heavy and active dogs. A total of twelve dogs presented to the Small Animal Orthopaedic Outpatient Unit of the Madras Veterinary College Teaching Hospital, Chennai, were included in this study. Fracture stabilization was achieved using orthogonally placed plates to provide rigid multiplanar fixation. Orthogonal Plating involving the application of two plates positioned at 90 degrees to each other was employed in all cases. Detailed assessment of fracture configuration, surgical technique, postoperative management was performed. Clinical evaluation of fracture healing comprised standardized lameness and pain scoring, serial radiographic monitoring and biochemical analysis conducted at predetermined postoperative intervals. Most animals exhibited Grade 1 lameness by the fourth postoperative day, while cases 5, 6 and 10 achieved this as early as the first postoperative day. Pain scores showed a progressive decline and reached 0 by the 15th postoperative day, except in dogs with ipsilateral fractures. Radiographic evaluation demonstrated primary bone healing in the majority of cases, indicating excellent construct

stability. By the 60th postoperative day, most fractures had achieved complete union with uniform bone density. A refracture occurred in one case on the 20th postoperative day at the same site. Radiographic examination revealed callus formation and the dog was managed with strict cage rest. Satisfactory fracture union was achieved by the 41st postoperative day. It is concluded that Orthogonal Plating was a reliable and biomechanically superior method for managing long-bone fractures in heavy and active dogs.

ORT-14

THE EFFECTIVENESS OF FEMORAL HEAD AND NECK OSTECTOMY IN MANAGEMENT OF SEVERE LUXATION DUE TO HIP DYSPLASIA IN YOUNG DOGS

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Thirteen dogs suffering from severe coxofemoral luxation due to hip dysplasia were included in the study. Majority of the dogs were of less than one year age and mostly males with impaired gait, bogging of hip joints and difficulty to rise after rest. Clinical and radiological examinations revealed luxated hip joints with or without osteoarthritic changes. Ten out of thirteen dogs underwent unilateral and three dogs underwent bilateral femoral head and neck ostectomy. The first two weeks following surgery, the patients were restricted in activity allowing short leash-controlled walking. The intraoperative findings, post operative rehabilitation management and clinical outcome will be discussed.

ORT-15

SUCCESSFUL CLINICAL MANAGEMENT OF COMPOUND METATARSAL FRACTURES IN TWO CALVES USING TYPE II LINEAR ESF

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Compound metatarsal fracture is a common orthopedic emergency in large animals, often resulting from traumatic injuries and requiring prompt surgical intervention. A 15 days-old male calf weighing approximately 50 kg was presented to the Veterinary Clinical Complex (TVCC), Bikaner, with a history of severe lameness and non-weight bearing on the left hind limb following trauma. Clinical examination revealed marked swelling, pain, abnormal mobility, and an open wound over the distal metatarsal region. Radiographic examination in lateromedial and dorsoplantar views confirmed a complete displaced compound fracture of the metatarsal bone. The animal was stabilized preoperatively with fluid therapy, broad-spectrum antibiotics, and analgesics. Anesthesia was provided by distal epidural anesthesia using 2% lignocaine hydrochloride (5 ml). The surgical site was prepared aseptically, and thorough wound lavage was performed using sterile normal saline, diluted povidone iodine, and hydrogen peroxide to remove debris and necrotic tissue. Fracture stabilization was accomplished using a Type II linear external skeletal fixation system. Two 3 mm transfixation pins were placed proximally and two distally to the fracture site, connected bilaterally using 5 mm connecting rods and medium-sized clamps to achieve rigid stabilization and proper alignment. Postoperative radiographs confirmed satisfactory implant placement. Postoperative management included systemic antibiotics, anti-inflammatory drugs, and regular wound dressing. Progressive improvement in weight bearing was observed, and satisfactory fracture healing was achieved on follow-up, indicating that Type II linear external skeletal fixation is an effective and minimal invasive technique for the management of compound metatarsal fractures in calves.

ORT-16**ARTHRODESIS PROCEDURE FOR TRAUMATIC/ACQUIRED SEVERE JOINT INSTABILITIES IN DOGS**

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The present report describes successful surgical management of bilateral hock and bilateral stifle joint instabilities in dogs by arthrodesis procedure. Dog 1 had a history of big bite, presented with exposed bilateral tarsometatarsal joints, unable to stand on hind limbs with damaged ligaments and only skin attachments. Radiographic examination revealed complete dislocation of tarso metatarsal joints bilaterally with severe soft tissue injury. Dog 2 was presented with chronic history of inability to stand on both hind limbs, latero medial and cranio caudal instability and radiographic examination revealed mismatched articular surfaces of femur and tibia with abnormal joint spaces bilaterally. Dog 1 was operated by exposing distal tarsal and proximal metatarsal articular surfaces, nibbling off the articular surfaces and the 2nd and 3rd metatarsal bones were fixed with distal row of tarsals using 1.8mm K wires completely arresting the joint movement and stabilizing the joints bilaterally along with soft tissue reconstruction. Dog 2 was operated by exposing the stifle joints, nibbling off the articular surfaces of distal femur and proximal tibia and joints were fixed with 2.0 mm pins using cross pinning technique. The intraoperative findings, post operative care, recovery and clinical outcome will be discussed.

ORT-17**CLINICO PATHOLOGICAL STUDIES TO ESTABLISH OSTEOARTHRITIS IN DYSPLASTIC YOUNG DOGS**

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The study was conducted on twelve clinical cases of young dogs with clinical symptoms like difficulty to rise after rest, improper weight bearing on hind limbs, muscular atrophy, positive barden and ortoloni signs decreased Norberg's angles, flattened acetabulum and luxated hip joints. All dogs were operated under general anaesthesia and uni/bi lateral femoral head and neck excision arthroplasty was performed. The synovial fluid was tested for turbidity, HA index and joint capsule and excised femoral heads were subjected for histopathological studies. The joint capsule and femoral heads showed progressive changes of arthritis with age. The synovial layer showed thickness of 3-8 cell layers. The four zones in the articular surface of femoral head showed undulations, fibrillation and flaking indicating osteoarthritis as the age of dog advances. The study established the fact that dysplasia will definitely lead to osteoarthritis that could not be diagnosed on radiographs, if not treated early. The intraoperative findings, post operative care and clinical outcome will be discussed.

ORT-18**CROSS PINNING TECHNIQUE FOR STABILIZATION OF SUPRACONDYLAR FEMUR FRACTURES IN DOGS**

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A clinical study conducted at the Dept. of Veterinary Clinical Complex, College of Veterinary Science, Tirupati evaluated the surgical management of the supra condylar femur fractures in three young dogs under one year old, stabilized with cross pinning technique. All

the cases were presented with history of trauma and acute non-weight bearing lameness on the affected limb. At the presentation all animals showed pain on palpation, moderate swelling, crepitus at the distal femur of affected limb and all the fractures were closed and were confirmed by two orthogonal radiographic views. All cases were operated under general anesthesia with lateral parapatellar incision, lateral stifle joint arthrotomy and fractures were reduced, stabilized with single or double cross pins. Post operatively the limb was immobilized with modified Roberts jones bandage for 10 days and physiotherapy was advised after two weeks of surgery. Clinical and radiographic evaluation was performed for assessing weight bearing and fracture healing post operatively. All the patients made an excellent recovery with a minor complication of single pin migration in one patient. The study revealed efficacy of the cross-pinning technique for stabilization of supra condylar femur fractures in immature dogs.

ORT-19

SURGICAL STABILIZATION OF THE WEIGHT-BEARING AXIS OF THE CANINE PELVIS USING STRING-OF-PEARLS PLATING: A SIX-CASE SERIES

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Pelvic fractures are relatively frequent injuries in dogs, most often caused by traumatic events such as being hit by a car or falling from a height. The canine pelvis is a strong but complex structure that supports the hind limbs and protects important organs. A total of six cases with canine pelvic fracture cases were documented in the Orthopaedic Outpatient Unit of the Madras Veterinary Teaching Hospital, Chennai. Preoperatively, all animals underwent thorough physical, orthopaedic and neurological examinations. Surgical stabilization was achieved using 2.7 mm and 3.5 mm SOP locking plates, selected based on body weight and fracture location. The SOP system allowed efficient contouring to the complex pelvic anatomy and facilitated secure fracture fixation. Fracture healing was monitored through sequential radiographic evaluation, callus index measurement, lameness and pain scoring and assessment of serum biochemical parameters, including calcium, phosphorus, and alkaline phosphatase levels. Clinical evaluation revealed marked and progressive improvement in limb function, with most animals achieving near-normal weight bearing by the 30th postoperative day. Radiographic grading showed a reduction from grade 5 on day 0 to grade 1 by day 50, reflecting well-organised and continuous fracture healing. Postoperative complications were minimal, with only two cases developing seroma, all remaining animals demonstrated uneventful recovery. It is concluded that SOP system offered substantial advantages over traditional plating systems due to its multidirectional contouring ability, reduced stress concentration across the fracture site.

ORT-20

SUCCESSFUL SURGICAL MANAGEMENT OF PATELLAR LUXATION IN DOGS AND A CAT – A CLINICAL CASE STUDY

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Patellar luxation is a common orthopedic disorder affecting the stifle joint of small animals, particularly young dogs. This clinical study represents the surgical management and outcome of patellar luxation in ten cases, comprising nine dogs and one cat. Among these, eight cases were diagnosed with medial patellar luxation, while two exhibited lateral patellar luxation. Bilateral involvement was observed in four cases. Most affected animals were young, indicating a likely developmental origin of the condition. Diagnosis was primarily based on clinical

examination and radiographic evaluation. In selected cases with suspected angular limb deformities or complex anatomical involvement, computed tomography (CT) scans were utilized for advanced surgical planning. Surgical correction involved a combination of techniques tailored to individual cases, including trochlear block resection with wedge recession, tibial tuberosity transposition, and medial or lateral soft tissue imbrication. In one severe case, corrective osteotomy with angular deformity correction was additionally performed. Postoperative outcomes were favorable in the majority of cases, with improved limb alignment and restoration of functional weight bearing. This case series highlights the importance of accurate diagnosis and a multimodal surgical approach in achieving successful clinical outcomes in patellar luxation cases in dogs and cats.

ORT-21

STABILISATION OF LONG BONE FRACTURE IN CALVES BY STACK PINNING - A REVIEW OF 2 CASES

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Two different calves (Case-1: 6 months old female Jersey calf, Case-2: 4 months old female non-descriptive calf) were presented to the Department of Veterinary Surgery and Radiology, Veterinary College Hassan with a complaint of non weight bearing lameness after an automobile accident one day ago. The calves were subjected to physical, clinical, radiological and haematobiochemical examination. Orthopedic examination revealed non-weight-bearing lameness in right hindlimb, swelling in the femoral region, pain on palpation and crepitation at the midshaft region in case-1 and non-weight bearing lameness in left hind limb, pain on palpation and crepitation at the tibial region in case-2. Radiographic examination confirmed simple complete oblique diaphyseal fracture of right femur in case-1 and simple complete oblique diaphyseal fracture of left tibia in case-2. The calves were stabilised by fluid and electrolyte therapy, analgesics and antibiotics. A retrograde stack pinning was performed using end threaded positive profile pins under general anaesthesia in case-1 to stabilise the femur fracture and retrograde stack pinning with orthopedic wiring using 18 SWG orthopedic wire to stabilise tibial fracture in case-2. A Thomas splint was applied externally in both the cases. Post operatively the calves were on antibiotics for five days, analgesics for two days and calcium supplementation for 30 days with regular wound dressing and rest. Skin sutures were removed on 15th postoperative day. The calves showed positive response and recovered successfully.

ORT-22

STABILIZATION OF COXOFEMORAL LUXATION USING TOGGLE PIN IN THREE DOGS

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Coxofemoralluxations are commonly observed orthopaedic condition in dogs and cats undergoing trauma. Coxofemoral luxation occurs due to disruption of joint capsule and the most common luxation noticed is cranio-lateral luxation. There are different methods of reducing the luxation and toggle pinning is one of them. Toggle pin serves as an artificial ligament anchoring the femur to hip. Three dogs were presented to Madras veterinary college clinics with a history of trauma and orthopaedic examination revealed unilateral coxofemoral luxation. The diagnosis were supplemented by radiographic findings. The luxation was reduced by toggle pins. The patient was stabilized preoperatively and premedicated with butorphanol (0.2mg/kg IV BW),

diazepam(0.25mg/kg IV BW), followed by induction with propofol, titrated to the effect. Anaesthesia was maintained with Isoflurane 2.-3% in oxygen via rebreathing circuit. The luxation was reduced and stabilized by toggle pin with nylon suture. The animal recovered successfully with weight bearing in three days .Post operative radiography revealed good reduction in luxated limb and it provides good fixation for the joint and enables early ambulation.

ORT-23

COMPARATIVE EVALUATION OF NANOHYDROXYAPATITE-PRP VERSUS BIOACTIVE GLASS-PRP IN ACCELERATING UNION OF OPEN LONG BONE FRACTURES IN DOGS

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This clinical study evaluated the management of open long bone fractures in twelve dogs presented to the Small Animal Orthopaedic Outpatient Unit, Madras Veterinary College Teaching Hospital, Chennai. The objective was to assess the effectiveness of autologous platelet-rich plasma (PRP) combined with nanohydroxyapatite or bioactive glass, along with negative pressure wound therapy (NPWT), in promoting wound and fracture healing. Dogs underwent thorough clinical, orthopaedic, and radiographic exams and were divided into two groups. All received initial NPWT with antibiotics for 5–7 days, yielding healthy granulation tissue. Fractures were stabilized using suitable internal or external fixation techniques. Autologous PRP, prepared by double centrifugation and demonstrating a three- to four-fold increase in platelet count over whole blood, was mixed with 0.5 cc nanohydroxyapatite in Group I and with 0.5 cc bioactive glass in Group II and applied at the fracture site. By day 28, wound contraction was 96% (Group I) and 92% (Group II), with most dogs achieving full weight-bearing and pain relief. Radiographs showed earlier cortical union and better function in Group I versus delayed union and minor complications in Group II. This study concluded that the nanohydroxyapatite with PRP provided faster bone healing and better functional recovery than bioactive glass with PRP.

ORT-24

CLINICAL STUDIES ON FUNCTIONAL OUTCOME OF LONG BONE OSTEOSYNTHESIS IN CANINE PATIENTS

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Long bone fractures are among the most common orthopedic injuries in dogs, commonly affecting the femur, tibia, radius, and humerus, which are essential for weight bearing and normal locomotion. Successful fracture management requires accurate diagnosis, stable fixation, early functional recovery, and prevention of complications such as malunion, delayed union, and implant failure. This study was conducted at the Veterinary Clinical Complex, OUAT, Bhubaneswar, and evaluated dogs presenting with diaphyseal long-bone fractures. Outcomes of intramedullary pinning, locking compression plate fixation, and plate-rod constructs were compared for femoral, tibial, radial, and humeral fractures using clinical, radiographic, and functional criteria. Diaphyseal fractures constituted 78.04% of cases and occurred predominantly in young, male, non-descript dogs. The femur was most frequently involved, road traffic accidents were the major cause, and oblique fractures predominated. Forty-one cases were treated using intramedullary pinning (n=19), bone plating (n=10), or plate-rod fixation (n=12). Ancillary stabilization, including cerclage wiring and lag screw application, was used when indicated. Postoperative assessment included weight bearing, lameness grading, range of motion, radiographic healing, implant integrity, functional outcome scoring, and

complication monitoring. Radiographs demonstrated secondary bone healing, with greatest relative stability in the plate-rod group, followed by the LCP group. Excellent functional outcomes were recorded in 51.28% of dogs, good in 28.20%, and fair in 20.51%, with two cases lost to follow-up. Observed complications included suture dehiscence, pin migration, and plate bending. Overall, the plate-rod technique produced the most consistent recovery, enabling improved bone healing overall.

ORT-25

HAEMATOLOGICAL AND BIOCHEMICAL RESPONSES DURING LONG BONE FRACTURE HEALING IN DOGS TREATED WITH TYPE-I COLLAGEN AND HA-B-TCP COMPOSITE

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Bone fractures disrupt stability and function, often damaging surrounding tissues. Scaffolds like β -tricalcium phosphate (β -TCP) and hydroxyapatite (HA) promote bone regeneration, with β -TCP+HA enhancing scaffold strength and Type-I collagen supporting tissue integrity. In this study, 18 adult dogs with long bone fractures were divided into three groups: Group A (internal immobilization), Group B (β -TCP+HA composite), and Group C (Type-I collagen), with fractures stabilized using intramedullary pinning. Hematological analysis showed transient decreases in hemoglobin and erythrocyte counts by day 7, followed by normalization by day 15. Leukocyte counts increased initially, then decreased, with no significant changes in monocytes, eosinophils, or basophils. Biochemically, serum calcium and phosphorus levels dropped on day 7 but recovered by day 15, while alkaline phosphatase peaked at day 30 before returning to baseline by day 60. Radiographs revealed improved callus formation in Groups B and C, with Group C achieving complete bone union by day 60, compared to nearly complete union in Group B. In conclusion, both β -TCP+HA and Type-I collagen scaffolds enhanced bone healing, with Type-I collagen showing superior recovery, particularly in hematological and biochemical markers, along with faster clinical recovery.

ORT-26

CLINICAL AND RADIOGRAPHIC OUTCOMES OF PARA-OSSEOUS CERCLAGE CLAMP STABILIZATION OF RADIUS–ULNA FRACTURES IN FOUR DOGS

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This study reports the clinical and radiographic outcomes of para-osseous cerclage clamp stabilization (PCCS) in four canine cases of traumatic radius–ulna fractures. Four dogs were presented to VCC, CVAS, Bikaner with history of lameness of forelimb. Age of dogs between 4 months to 36 months, automobile accident was major etiology followed by fall from vehicle. Based on clinical examination cases were diagnosed as radius-ulna fracture. Pre-operative orthogonal radiographs were obtained for location of fracture, type of fracture and for measurement of implants to plan surgery. Fracture patterns consisted of three transverse diaphyseal fractures and one distal diaphyseal fracture. Following clinical and radiographic evaluation, radius-Ulna fractures were stabilized by ORIF using an extracortical PCCS construct assembled with Kirschner wires (1.5–2.5 mm) under Inj. Xylazine HCl @ 1mg/kg, I/M, Inj. Ketamine HCl @ 3mg/kg, I/M and inhalant Isoflurane (1-2%) general anaesthesia. The clamps were positioned orthogonally at cranial and medial surface of radius bone and secured using circumferential 20-gauge cerclage wires, two at proximal side and two at distal side. The construct provided stable fixation with minimal disruption of periosteal blood supply.

Postoperative management included antibiotics, analgesics, and restricted activity. All dogs showed early limb use, complete functional recovery by six weeks, and radiographic union with bridging callus formation. No implant-related complications were observed. PCCS appears to be a safe, cost-effective, and biologically favourable technique for canine radius–ulna fracture management.

ORT-27

EVALUATION OF GELATIN-CHITOSAN BASED COMPOSITES OF HYDROXYAPATITE FOR BONE TISSUE REGENERATION

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The present study was undertaken to develop and evaluate biomaterials for enhancing fracture healing. Hydroxyapatite was synthesized from bovine femur and tibia through calcination and integrated into gelatin-chitosan scaffolds via freeze-drying, in three different proportions. Relevant characterization techniques including XRD, SEM, and TGA confirmed the composition and properties of the synthesized biomaterials. The comparative efficacy of all biomaterials was carried out in femoral condyle defect in rabbits. X-ray, CT scanning and histological studies revealed least amount of regeneration of new bone in control group whereas defects integrated with composite materials showed better healing characteristics, in varied proportions. The incorporation of gelatin-chitosan-hydroxyapatite (10% and 20%) scaffolds was done at long bone fracture site in dogs to assess its biocompatibility. Based on clinical, hematobiochemical and radiographic studies, no significant alterations were noticed in clinical parameters signifying biological uptake of the graft material. Biomaterial treated cases showed decrease in pain, lameness and increase in weight bearing from day 0 to day 60. Radiographically, scaffolds were not visible at the site of fracture and gradual decrease in the visualization of fracture line was noticed from day 15 to day 30 and complete obliteration of the fracture site was evident in all cases at 60th day. No complications related to xenograft were noticed on clinical, haematobiochemical and radiographic evaluation. No signs of host vs graft rejection or sclerosis, periosteal reaction and osteopenia was evident on radiographic scans.

ORT-28

FUNCTIONAL OUTCOME OF RUSH PINNING AND “J” PLATING IN DISTAL FEMORAL OSTEOSYNTHESIS IN DOGS AND CATS

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The study was conducted in sixteen clinical cases of distal femoral fractures in dogs and cats, which were randomly distributed into two groups based on the technique and implant type used for surgical correction. In Group I, cases were surgically managed with K-wires using rush pinning technique and in Group II, ‘J’ or ‘hockey stick’ or supracondylar plates were used majorly for bone plate osteosynthesis. Clinical examination of all the cases revealed impaired limb function along with pain, crepitus and swelling around stifle joint. Pre-operative radiographs revealed that the most common distal femoral fracture type was distal simple extra-articular (33A1) as per AO/ASIF classification, while Salter-Harris Type II was the predominant physal fracture pattern as per Salter Harris classification. Due to bilateral involvement in some cases, a total of 19 fractures were surgically managed in this study. Post operative observations were made with respect to clinical and radiographical evaluation, functional outcome as well as complications. Out of 16 cases, good to excellent outcome was observed in 12, fair outcome was seen in 1, and poor outcome was recorded in 3 cases. Complications recorded were quadriceps contracture, malunion, medial patellar dislocation, mild implant migration, femur shortening and reduced range of motion of stifle joint.

ORT-29**SUCCESSFUL SURGICAL MANAGEMENT OF SPINAL FRACTURE AND LUXATION IN SMALL ANIMALS**

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Spinal fractures and vertebral luxations constitute serious orthopedic emergencies in small animals and are often associated with varying degrees of neurological dysfunction depending on the location and severity of the injury. The present case compilation describes the clinical presentation, diagnostic evaluation, surgical management, and outcome of spinal fractures in four companion animals, comprising three dogs and one cat, presented with a history of acute trauma. The animals exhibited signs ranging from paraparesis to paraplegia, with altered or absent deep pain perception in the pelvic limbs. Neurological examination in all cases helped localize the lesions to the thoracolumbar or lumbar spinal segments. Survey radiography using lateral and ventrodorsal views revealed vertebral fractures with varying degrees of displacement and luxation, resulting in spinal cord compression. Based on the stability and severity of the lesions, surgical stabilization was performed using appropriate internal or external fixation techniques to restore vertebral alignment and to prevent further neurological deterioration. Postoperative management included broad-spectrum antibiotics, anti-inflammatory drugs, analgesics, and adjunctive therapy for neuropathic pain. Controlled physiotherapy was advised during the recovery period. Gradual neurological improvement was observed in all cases, with partial to complete restoration of motor function over time. The outcomes highlight the importance of early diagnosis, accurate neurological assessment, and timely surgical intervention in the successful management of spinal fractures in dogs and cats.

ORT-30**SURGICAL OUTCOME OF TIBIAL PLATEAU LEVELING OSTEOTOMY (TPLO) SURGERY IN CASE OF CRANIAL CRUCIATE LIGAMENT RUPTURE IN 12 DOGS**

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Cranial cruciate ligament rupture is a common cause of hind limb lameness in dogs. This study evaluated the surgical outcome of tibial plateau leveling osteotomy (TPLO) in twelve dogs diagnosed with cranial cruciate ligament rupture. Tibial plateau leveling osteotomy (TPLO) is considered the gold standard surgical technique for restoring dynamic stifle stability. Diagnosis was based on clinical examination and radiographic findings. All dogs were treated using a standard TPLO technique followed by appropriate postoperative medical management and restricted activity. Clinical evaluation revealed significant improvement in weight bearing and reduction in lameness within 4–8 weeks postoperatively. Radiographic assessment showed satisfactory healing of the osteotomy in all cases. Minor complications were observed and managed conservatively. TPLO provided good functional recovery with minimal complications.

ORT-31**MANAGEMENT OF DISTAL METAPHYSICAL FRACTURE OF TIBIAL BONE WITH BILATERAL (UNIPLANER) EXTERNAL FIXATION IN 3 CATS**

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Three cat cases of metaphysical fracture in tibial bone were presented in Dr Amol Pet Clinic Mumbai. Show sign of lameness, radiographic examination of 3 cats shows fracture of distal metaphysis of tibia. The fracture fixation by open reduction and bilateral external fixation with help of 1.5 mm k wire and epoxy. Post operative fracture healing evaluated by radiography. The k wire were passed from media lateral direction. Operated under ketamine 5–10 mg per kg IM and xylazine 0.5–1 mg/kg IM. After 3 week of cage rest all 3 cats shows good weight bearing of affected limb. After 60 days the whole assembly was removed. Epoxy external fixation was found to be economical and simple procedure for management of fracture in cat.

ORT -32**FEMORAL HEAD AND NECK OSTEOTOMY SURGERY IN DOGS SUFFERING FROM HIP DISLOCATION AND HIP DEGENERATION**

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FHO surgical procedure that aims to restore pain free mobility to diseased or damaged hip by removing head and neck of femur. FHO surgery performed in 7 dogs of 1yr period in different breeds of dogs of varying age, at dr amol's pet clinic mumbai. Weights of dogs range between 10–25 kg. Out of seven dogs 1 dog has degenerative joint disease, 1 dog shows subcapital femoral neck fracture, 5 dogs shows coxofemoral joint dislocation. Sudden, severe limping or holding the leg up (non-weight bearing), difficult in getting up from lying position are signs showed by dogs. Radiography is useful in diagnosing and for planning medical and surgical treatment. The dog recovered fully after FHO surgery and regained essentially normal function of the affected leg. Slight decreased range of motion or decrease limb length after FHO and these changes are typically minimal and do not affect the dog's quality of life.

ORT -33**THERAPEUTIC EVALUATION OF BMP-7 AUGMENTED AUTOLOGOUS BONE MARROW-DERIVED MONONUCLEAR CELLS (BMNCs) IN THE MANAGEMENT OF CANINE HIP DYSPLASIA**

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The present study evaluated the therapeutic potential of Bone Morphogenetic Protein-7 (BMP-7) augmented autologous, uncultured bone marrow-derived mononuclear cells (BMNCs) for treating canine hip dysplasia (CHD). Twelve dogs of both sexes exhibiting hind limb lameness and radiographically confirmed hip dysplasia were included. Clinical and radiographic examinations were conducted to assess joint condition, followed by an eight-week treatment evaluation at four-week intervals. Clinical improvement was measured using parameters such as the Ortolani test, pain score, lameness grade, jumping ability, and stair-climbing performance. Radiographic indices including the Norberg angle (NA), distraction index (DI), and percent femoral head coverage (PFHC) were used to assess hip joint stability. Haemato-biochemical

parameters (CBC and C-reactive protein) and oxidative stress markers—superoxide dismutase (SOD), catalase (CAT), and malondialdehyde (MDA)—were also analyzed. Physiological and hematobiochemical parameters showed no significant changes, and CRP values remained within normal limits, indicating no systemic inflammation. However, significant improvements were observed in clinical parameters, and radiographic indices demonstrated enhanced joint congruence. Among oxidative stress markers, catalase levels were significantly higher in BMP-7-treated dogs, indicating reduced oxidative stress. Dogs maintained on slippery surfaces exhibited an 83% predisposition to CHD. Treatment with uncultured autologous BMNCs alone improved 66% of clinical signs, promoting cartilage repair, while BMP-7 augmentation resulted in complete (100%) clinical recovery. The findings suggest that BMP-7-enhanced BMNC therapy offers a promising, minimally invasive, and regenerative approach for effective management of canine hip dysplasia, facilitating joint recovery and improved functional outcomes.

ORT-34

SURGICAL MANAGEMENT OF DISTAL RADIUS-ULNA FRACTURES IN DOGS USING LOCKING-T PLATE

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Radius and ulna fractures are among the most common long-bone injuries in dogs, particularly in small and toy breeds, usually resulting from falls, road traffic accidents, or trauma. The present clinical study on repair of distal radius-ulna fractures using Locking T-plates was conducted on four dogs which are presented for treatment at Department of Surgery and Radiology, Veterinary College Hassan. The radius-ulna fractures were diagnosed and confirmed using routine clinical, orthopedic and radiographic examination. The clinical signs like pain on palpation, non-weight bearing lameness, swelling and abnormal angulation. Physical examination revealed crepitation at the fracture site in all of the dogs. Fractures were confirmed by two orthogonal views of the proximal and distal joints on the medio-lateral and cranio-caudal radiographs of the affected limbs. Two of them had non displaced transverse fractures and two of them had displaced transverse fractures. Locking T-plate of 2.7 mm and 3.5 mm were used for stabilization of radius ulna fractures resulted in good fracture fixation and immobilization. Locking T-plates provide rigid angular stability in radius and ulna fractures of dogs, ensuring accurate alignment and strong fixation even in osteopenic or small distal bone fragments. Their fixed-angle construct preserves periosteal blood supply and reduces implant failure, promoting faster and more reliable bone healing.

ORT-35

DIAGNOSIS AND SURGICAL MANAGEMENT OF PELVIC FRACTURES IN DOGS

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Pelvic fractures account for a significant proportion of traumatic orthopedic injuries in dogs, most frequently resulting from road traffic accidents and high-energy blunt trauma. The canine pelvis, formed by the ilium, ischium, and pubis with associated sacroiliac articulations, plays a critical role in weight transmission and locomotion, making fractures of this region clinically significant. Eight dogs belonging to age group seven months to four years were

brought to Department of Veterinary Surgery and Radiology, Veterinary College Hassan with the history of limping and non weight bearing lameness due to an automobile trauma. The dogs were subjected to clinical, radiographic and computed tomographic examination. Out of eight cases three dogs had sacroiliac dislocation and five dogs with ilial fracture were treated surgically. Under general anaesthesia sacroiliac dislocation was stabilized with transilial pinning and lag screws and ilial fracture was stabilized using 2.7mm and 3.5mm locking T plates based upon body weight. Postoperatively course of antibiotic and analgesic therapy was administered along with pelvic bandaging. Out of eight cases five dogs were recovered uneventfully, one dog suffered from permanent lameness and two dogs with improving in lameness grade.

ORT-36

BIOMECHANICAL EVALUATION OF INDIGENOUSLY DEVELOPED IVRI-INDICAN CANINE HIP PROSTHESES

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Cemented total hip replacement (THR) remains the benchmark for restoring hip joint function in dogs with degenerative or traumatic coxofemoral disease; however, limited evidence exists regarding the mechanical integrity and load-transfer characteristics of cemented femoral stem constructs within native canine femora. This study critically evaluated the biomechanical performance of a novel modular cemented femoral stem using cadaveric femora from German Shepherd Dogs (GSDs) and Labrador Retrievers (LABs), emphasizing axial, bending, and torsional behaviors in correlation with radiographic and morphometric parameters. Eighteen pairs of adult canine femora were harvested postmortem, with one side implanted following standardized second-generation cementation protocols and the contralateral side retained intact. Following radiographic and CT-based templating, specimens underwent displacement-controlled axial compression, three-point bending, and torsion tests. Cemented implantation significantly reduced ultimate compressive, bending, and torsional strengths compared to intact femora ($p < 0.05$), though stiffness remained unaffected, suggesting preservation of elastic response despite altered failure thresholds. GSD femora consistently exhibited greater load-bearing capacity, yield strength, and energy absorption than LABs, reflecting breed-specific variations in cortical geometry and canal morphology. Radiographs confirmed precise stem alignment, uniform cement mantles averaging 5 mm, and consistent canal fill exceeding 60%, indicative of optimized cementation. Failure patterns transitioned from brittle cortical fractures in intact specimens to ductile interfacial shear at the bone–cement interface in implanted constructs, demonstrating efficient stress redistribution through the composite system. Collectively, these findings highlight the mechanical reliability and breed-dependent adaptability of the cemented THR system, supporting its translational potential for achieving durable fixation and functional load transfer in canine clinical applications while offering valuable insights relevant to comparative orthopaedic biomechanics.

ORT-37

CLINICAL EVALUATION OF AN INDIGENOUSLY DEVELOPED NOVEL CANINE CEMENTED THR SYSTEM

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This study aimed to assess the clinical performance, radiographic and computed tomographic (CT) outcomes, and functional recovery associated with a newly developed, cost-effective cemented total hip replacement (THR) system for dogs affected by chronic

coxofemoral joint disorders. Adult dogs presenting with severe, treatment-resistant hip dysplasia or degenerative joint disease underwent unilateral THR using the indigenously designed prosthesis. Postoperative monitoring included standardized lameness and pain scoring, along with radiographic and CT evaluations. Clinical outcome grades and owner-reported functional recovery were statistically analyzed. All procedures were completed without intraoperative complications. By postoperative day 30, both lameness and pain scores showed significant improvement ($p < 0.05$), with near-complete recovery observed in most cases by day 60. Imaging analyses confirmed appropriate implant placement, minimal cement defects, and absence of migration or loosening. Clinical grading classified two dogs as having an “excellent” outcome and three as “good,” which closely corresponded with owner assessments (Cohen’s $\kappa = 0.811$; ICC = 0.868). No short- or long-term postoperative complications were identified during the 90-day evaluation period. Overall, the low-cost cemented THR system demonstrated dependable clinical and imaging results, providing effective pain relief, improved limb function, and high satisfaction among owners. Its affordability and ease of application highlight its potential value for treating advanced hip diseases in resource-limited settings, including India.

ORT- 38

CLINICAL EVALUATION OF REPAIR OF RUPTURED DIGITAL FLEXOR TENDONS VIA TENORRHAPHY IN CATTLE: A SIX CASES STUDY

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Total six cases of cattles (5 males and 1 female) were presented to the Department of Veterinary Surgery and Radiology with the history of traumatic injuries (8–10 hrs. duration) involving the caudal metatarsal region along with lacerated and contaminated wounds. Clinical examination revealed fourth-degree of lameness and overextension of the hoof. Rupture of both the superficial digital flexor tendon (SDFT) and deep digital flexor tendon (DDFT) was confirmed in all six cases. After thorough clinico-physical examination, it was decided to repair all ruptured tendons via tenorrhaphy under a multimodal anaesthetic protocol (xylazine @0.01 mg/kg; ketamine @ 2mg/kg; epidural anaesthesia @0.5 mg/kg and diazepam @0.25 mg/kg). All animals were positioned in lateral recumbency and surgical site was prepared aseptically. Surgical repair was performed using a modified Kessler suture pattern with orthopaedic wire for both the SDFT and DDFT, reinforced with 1mm nylon. The tendon sheath was sutured using Vicryl No. 1 in a continuous pattern, and the subcutaneous tissue and skin were closed routinely. An open-window fiberglass cast with wooden splints was applied for post-operative stabilization of tendons in all cases. Post-operatively, all animals received NSAIDs, antibiotics and supportive treatment for five days and advised for antiseptic wound dressing. Continuous follow-up over a three-month period revealed that, four cattle were recovered uneventfully, whereas two animals showed postoperative complications like suture dehiscence and breakage of fiberglass cast. To summarize, the present clinical study highlights the challenges in repair of digital flexor tendon by tenorrhaphy and its effectiveness and uneventful recovery in four cases.

ORT- 39

DEVELOPMENT AND CLINICAL APPLICATION OF 3D-PRINTED LIMB PROSTHETICS IN SMALL ANIMALS

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Advances in additive manufacturing have enabled the development of affordable, customized prosthetic solutions in veterinary medicine. The present work describes the design, fabrication and clinical application of patient-specific limb prosthetics for small animals using

three dimensional (3D) printing technology. Limb prostheses were fabricated for three dogs and one cat using an in-house 3D printer. Anatomical data for prosthetic design were obtained through a combination of plaster of Paris (POP) casting and computed tomographic (CT) imaging, enabling accurate assessment of limb geometry, load-bearing regions and stump conformation. Computer-aided design (CAD) software was employed to generate customized prosthetic models, which were manufactured using fused deposition modeling (FDM). Polylactic acid (PLA) was utilized for rigid structural components to provide strength, durability and lightweight properties, while thermoplastic polyurethane (TPU) was incorporated at the limb prosthesis interface to enhance flexibility, shock absorption and wearer comfort. The modular prosthetic design permitted easy modification, refinement and rapid reprinting when necessary. Following fabrication, prosthetics were fitted and evaluated for comfort, stability, gait adaptation and overall functional performance. All animals demonstrated good tolerance to the prostheses, with progressive improvement in weight-bearing and ambulation after a short acclimatization period. Slight pressure sores, skin abrasions or prosthesis-related complications were observed during the follow-up period, that requires development of good padding material in future. The lightweight construction and strategic use of flexible materials contributed to improved compliance, mobility and functional limb acceptance. The study highlights the feasibility and clinical utility of in-house 3D-printed limb prosthetics, offering a cost-effective, customizable alternative for small animal orthopaedic rehabilitation and improved mobility.

ORT-40

COMPARATIVE EVALUATION OF EXTERNAL SKELETAL FIXATORS FOR IMMOBILIZATION OF LONG BONE FRACTURE IN BOVINE CALVES

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The study was conducted in 18 bovine calves with long bone fracture and were randomly allotted to three groups of 6 each. In Group-I, fracture was immobilization with linear external skeletal fixation whereas in Group-II and III, animals were subjected to circular external skeletal fixation and free form external skeletal fixation, respectively. The clinical and radiographic evaluation for fracture healing was carried out during the study period. The time for fixator application was significantly lower in group-I as compared to group-II and III. Radiographically, increased periosteal reaction with good dense callus formation observed in group-I whereas, in group-II, callus was more evident and consolidation on the fracture line and in group-III, excessive radio-dense callus production around the fracture site was observed on 30th days. The obliteration of fracture line was observed with compact callus formation in group-I, dense callus with cortical bridging and calcification in group-II and in group-III thicker denser callus was observed around the fractured fragments on 45th post-operative days. The fixation stability was higher in group-I as compared to group-II and III. The callus index in groups I and III non-significantly increased at 30th and 45th post-operative days as compared to 15 days within groups. While in group-II, value of callus index increased significantly at 30th and 45th post-operative days as compared to 15th days. It was concluded that linear external skeletal fixation better for clinical management of the lone bone fracture in bovine calves.

ORT-41

SURGICAL MANAGEMENT OF HUMERUS FRACTURES BY ORIF TECHNIQUE USING K-NAIL IN SIX CATTLE CALVES

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Humerus fractures in cattle calves are challenging to manage due to their size, weight-bearing nature, and limited postoperative immobilization options. The present study reports the successful management of humeral fractures in six cattle calves using the open reduction and

internal fixation (ORIF) technique with intramedullary K-nail fixation. All calves presented with varying degrees of lameness, swelling, and inability to bear weight on the affected limb. Out of six cases 4 were female calves and two were male calves. Age of the calves was between 2 months to 6 months; body weight was between 60-150kg. all the cases underwent pre-operative clinical and radiographic examination to plan surgery. Surgical stabilization was performed under intravenous inj. Xylazine HCl @ 0.05mg/kg and inj. Ketamine @ 3 mg/kg anaesthesia following standard aseptic procedures. Postoperative care included antibiotic therapy, anti-inflammatory medication, and controlled activity. Clinical and radiographic evaluations were conducted to assess fracture healing and limb function. All six cases showed satisfactory fracture alignment, progressive callus formation, and successful bone union within the expected healing period. Functional limb use was gradually restored, and no major postoperative complications were observed. The results of this study indicate that ORIF using K-nail fixation is a reliable, economical, and effective technique for the treatment of humerus fractures in cattle calves, leading to good clinical outcomes and early return to normal function.

ORT-42

SURGICAL MANAGEMENT OF LATERAL PATELLAR LUXATION IN DOGS BY TROCHLEAR BLOCK RECESSON AND TIBIAL TUBEROSITY TRANSPOSITION (TTT)

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The primary cause of patellar luxation in canines is a shallow or absent trochlear groove; and a loose or weak patellar ligament. The Articulation of patella within the trochlear groove exerts a physiologic pressure on the articular cartilage that retards cartilage growth. The continued pressure by the patella is responsible for the development of normal depth of the trochlear groove. A nine month old Indian spitz was presented to VCC, DUVASU, Mathura with a history of abnormal contracture in the both hind limbs which started at eight weeks of age and was progressively worsened. Physical and radiographic examination confirmed lateral patellar luxation in both hind limbs which was leading to this abnormal contracture. The surgery was conducted in two stages: in stage 1 the right limb was corrected followed by correction of left limb after four weeks in stage 2. The surgical procedure included Trochlear Block Recesson i.e. deepening the trochlear groove to restrain the patella in order to maintain integrity of the patellofemoral articulation; and Tibial Tuberosity Transposition(TTT) in which tibial crest was partially ostectomized without transecting distal periosteal attachment and is repositioned medially. The tibial crest was stabilized at its new location with two small K- wires. TTT was performed to realign the mechanical forces of the extensor mechanism. The medial retinaculum was reinforced by a suture placed from the fabella to the parapatellar fibrocartilage. Post operative radiographs clearly depicts the repositioned patella within the trochlear groove. Remarkable straightening of the limb was achieved immediately after surgery and the animal started to bear weight four weeks post surgery. The animal has shown remarkable improvement and is expected to have a full range of motion and strength with physiotherapy and exercise.

ORT-43**EVALUATION OF LOCKING COMPRESSION PLATE WITH OR WITHOUT HYDROXYAPATITE GRANULES AS XENOGRAFT FOR LONG BONE FRACTURE REPAIR IN DOGS**

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The present study evaluated the clinical, functional, radiographic and biochemical outcome of locking compression plate (LCP) fixation with or without bovine hydroxyapatite (BHA) granules in the repair of femoral and tibial fractures in dogs. In Group I, fractures were stabilized using an LCP along with BHA granules, while in Group II, fractures were repaired using LCP alone. Anaesthetic or intra operative complications were not seen in either group. Fracture healing was assessed on the 0th, 15th, 30th, 45th and 60th postoperative days by clinical examination, functional limb usage, radiographic evaluation and biochemical analysis. Functional outcome was assessed based on weight bearing, lameness grading and limb usage. Dogs in Group I demonstrated earlier weight bearing and improved functional limb usage compared to Group II. Radiographically, Group I showed early periosteal reaction and extensive bridging callus formation by the 30th day. Homogeneous bone structure and remodelling was incomplete, with persistent fracture gaps indicating delayed resorption of BHA granules. In contrast, Group II dogs exhibited relatively reduced callus formation on initial days however by 60th post-operative day all cases showed homogeneous bone structure, satisfactory cortical remodelling. Biochemical parameters including serum alkaline phosphatase, calcium and phosphorus showed fluctuating trends and remained within normal physiological limits in both groups. A post-operative complication of screw loosening was observed in one case from Group I. It was concluded that LCP fixation is a reliable technique for femoral and tibial fracture repair in dogs. BHA granules were biocompatible and promote earlier callus formation and clinical weight bearing, though it may be associated with delayed radiographic remodelling.

ORT -44**A CLINICAL STUDY ON THE ROLE OF BIOACTIVE BONE COMPOSITE BIOMATERIAL IN HEALING OF FEMUR FRACTURES FIX WITH INTERLOCKING NAILING IN DOGS**

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The present investigation was undertaken in twelve dogs to evaluate the efficacy of bioactive bone composite (BABC) biomaterial in the healing of femoral fractures stabilized using the interlocking nailing technique. The dogs were randomly allocated into two equal groups (A and B), each comprising six animals. In Group A, femoral fractures were stabilized using interlocking nailing alone, whereas in Group B, BABC was implanted at the fracture site following stabilization with interlocking nailing. Fracture healing was evaluated through detailed clinical and radiographic examinations conducted on post-operative days 0, 7, 15, 30, 45, and 60. Most of the affected dogs were non-descript breeds, males, and older than twelve months of age. At presentation, all animals showed severe lameness, marked pain, localized swelling at the fracture site, and minimal to absent weight bearing on the affected limb. The majority of fractures involved the distal diaphyseal region of the femur and were short oblique in nature. Post-operatively, gradual improvement in clinical parameters such as lameness, pain, swelling, and weight bearing was observed in both groups over the study period; however, recovery was comparatively faster and more pronounced in Group B. Radiographic evaluation

revealed early radiopaque hypertrophic callus formation at the fracture site in five dogs of Group B, whereas no appreciable radiopaque callus formation was observed in most of the dogs of Group A even up to the 60th post-operative day. Based on the clinical and radiographic outcomes, it was concluded that the use of bioactive bone composite (BABC) as an adjunct to interlocking nailing enhances early callus formation and accelerates functional recovery, particularly restoration of weight bearing, in dogs with femoral fractures.

ORT-45

STABILIZATION OF DISTAL FEMORAL FRACTURE IN YOUNG CATS USING TITANIUM ELASTIC NAILS (TENS) TECHNIQUE

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The present study included long bone fracture cases in eight cats with the main objective to evaluate the postoperative radiographic and clinical union in distal femur fracture repair using elastic stable intramedullary technique (ESIN) with titanium elastic nailing system (TENS) in juvenile cats. The observations with regard to signalment, history, physiological and hematobiochemical parameters were recorded in each of the cases. Most of the cases were reported in non-descript breeds of cats. Animals with body weight of <5 Kgs and age-group of 5 to 12 months were affected the most, with more incidence in males (82.73%) presented with an average duration of illness of three days. Open reduction with double titanium nailing in cross fashion was employed. Postoperatively, the parameters evaluated were: early weight bearing, radiographic union, fracture union score, and pain-perception score at different intervals. The micromotion produced by TENS at the fracture site led to enormous callus formation evident on radiography and consequently, early weight bearing and satisfactory clinical outcome in all the cases. It was concluded that there exists a positive correlation between the radiographic union and clinical union in long bone fracture repair using TENS technique in young cats. TENS technique is thus recommended as suitable for managing distal femoral fractures in young and growing cats.

ORT-46

GRADE IV PATELLAR LUXATION AND ITS SURGICAL CORRECTION BY TWRS IN DOGS- A REPORT OF 2 CASES

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Two dogs were presented to the VCC, Dept. of Veterinary Surgery and Radiology, PGIVER, Jaipur (RUVAS) with a history of difficulty in walking on hind limbs for varying period i.e. 2 to 4 months. Detailed clinical and orthopaedic examination revealed it as grade IV patellar luxation and it was confirmed by radiography. In both cases it was unilateral and lateral patellar luxation. It was decided to perform TWRS. The dogs were presented with inj. Atropine sulphate @ 0.4 mg/Kg b.wt. Anaesthesia was induced by inj. Xylazine @ 0.1 mg/Kg b.wt., inj. Ketamine hydrochloride @ 5 mg/Kg b.wt. and maintained by 2-3 % isoflurane. Both the dogs were subjected to TWRS. Postoperatively, inj. Ceftriaxone @ 10 mg/Kg body weight and inj. Meloxicam @ 0.2 mg/Kg body weight intramuscularly for 5 and 3 days, respectively were administered. Both the dogs were recovered with uneventful recovery.

ORT-47**SUCCESSFUL SURGICAL FIXATION OF DISTAL RADIUS -ULNA FRACTURE (COLLES FRACTURE) USING PLATE AND PIN COMBINATION: A CASE STUDY OF 8 MUDHOL HOUND DOGS**

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Distal radius and ulna fractures are commonly encountered in dogs following trauma and require stable fixation for optimal functional recovery. This study reports the surgical management and outcome of distal radius–ulna (Colles') fractures in eight Mudhol Hound dogs. Dogs aged between 1 and 6 years were presented with a history of trauma, forelimb lameness, inflammation, and pain on palpation. Radiographic examination confirmed fractures of the distal radius and ulna in all cases. Surgical stabilization was performed using a low-contact dynamic compression plate (LC-DCP) for the radius combined with intramedullary pinning of the ulna. Postoperative evaluation focused on limb function, fracture healing, and complications. Seven out of eight dogs showed uneventful recovery with satisfactory limb function and radiographic healing. One dog developed postoperative complications, which were successfully managed with intensive postoperative care. The study concludes that combined LC-DCP fixation of the radius with intramedullary pinning of the ulna provides effective stabilization and favorable clinical outcomes in distal radius–ulna fractures in Mudhol Hound dogs

ORT-48**A 10 YEARS OF STUDY ON VETERINARY INTRAMEDULLARY INTERLOCKING NAILING TECHNIQUES FOR LONG BONE FRACTURES IN CANINES**

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The study was conducted on fortyeightclinical cases of long bone *viz.*, femur and tibia fractures in dogs over a period of ten years andwas randomly divided into 6 groups.Group I to IV dogs were with femur fractures. Group V and VI dogs were with tibial fractures. Group I and II were treated with stainless steel and titanium dynamic IILN respectively. Group III and IV were treated with stainless steel and titanium static IILN respectively. Group V and Group VI were treated with Intramedullary pinning and modifiedIILN respectively. Fracture healing was studied pre-operative, 0th day, 30th, 60th and 90th post-operative days in all groups based on clinical, physiological, haemato-biochemical and radiological findings. On clinical observations of weight bearing (functional outcome and lameness grading), animals treated with static IILN showed early weight bearing (immediately after operation) when compared with dynamic IILN (3rd post-operative day) respectively.The physiological findings, haemato-biochemical parameters were of little value in assessing the fracture healing.Bony union by excessive periosteal callus and early bone remodeling was characteristic finding in groups I and II where stainless steel and titanium dynamic IILN was used. Bony union by osteosynthesis and early bone remodeling was the characteristic finding in groups III and IV, wherestainless steel and titanium static IILN was used. In Group V and VI the bridging callus was evident in both groupsfrom the 30thto 60th post-operative day.Dynamic IILN technique was found effective for repair of short oblique/transverse/transverse without dentate and static IILN technique for long oblique/spiral/transverse dentate/comminuted long bone fractures in canines. IILN either of static or dynamic was found effective for femoral fractures especially in below 9 months of age puppies depending upon the strength of the bone.

ORT-49**UNILATERAL AND BILATERAL FEMORAL HEAD OSTEOTOMY IN SMALL AND LARGE BREED DOGS: SURGICAL TECHNIQUE AND FUNCTIONAL OUTCOME**

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Femoral Head and Neck Osteotomy (FHO) is a commonly performed salvage procedure for the management of painful hip joint disorders in dogs. The present report evaluates the clinical outcome of unilateral FHO in Labrador Retriever, Golden Retriever and Lhasa Apso dogs, and bilateral FHO in an Alsatian dog. All dogs were presented with a history of hind limb lameness, pain, and restricted hip joint mobility. Radiographic evaluation revealed conditions such as coxofemoral luxation and severe hip dysplasia. Femoral Head and Neck Osteotomy was performed using a standard craniolateral surgical approach under general anesthesia. Post-operative management included administration of analgesics and antibiotics along with structured physiotherapy. Functional use of the operated limb was observed in all cases within 3–6 weeks following surgery. No major post-operative complications were recorded. Femoral Head and Neck Osteotomy provided effective pain relief and resulted in acceptable limb function in all dogs, highlighting its usefulness as a reliable salvage procedure for the management of canine hip disorders.

ORT -50**COMPARATIVE STUDY OF LONG BONE FRACTURE MANAGEMENT USING SINGLE INTRAMEDULLARY PINNING AND DYNAMIC K-WIRING IN FELINE**

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With increase in cat population the incidences of fractures have also increased due to the trauma from automobile accidents, falling from heights (unsecured windows, balconies of apartments) and dog bite. Twelve such cats of either sexes weighing 2 to 6 kgs, presented with long bone fractures at VCC,KNPVC, Shirwal were included in this study. They were randomly divided into 2 equal groups of 6 each. Group I cats were subjected to single intramedullary pinning for fixation of fracture whereas in group II cats Dynamic K-Wiring was performed to immobilize the fracture under sedation with Xylazine hcl@ 1mg/kg Im, Midazolam @ 0.2mg/kg and Ketamine Hcl @8mg/kg and maintenance with Propofol @ 4mg/kg IV. Amoxicillin sulbactam@15mg/kg PO b.i.d for 5 days and Meloxicam@0.2mg/kg PO b.i.d for 3 days were administered post-operatively. Fracture assessment scores, radiographic fracture union, bone formation scores, weight bearing and lameness scores on 0th, 15th day, 30th day and 60th day post-op determined the fracture healing process.

ORT-51**CLINICAL EVALUATION OF STRING OF PEARLS PLATE WITH AND WITHOUT INTRAMEDULLARY PINNING FOR FIXATION OF LONG BONE FRACTURE IN DOGS**

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The present study was conducted to clinically evaluate the String of Pearls (SOP) locking plate with and without intramedullary (IM) pinning for fixation of long bone fractures in dogs. During a period of six months, 67 dogs with fractures were presented, of which 52.24%

were young and 47.76% were adults. Male dogs (71.87%) were more commonly affected than females (28.13%). Non-descript dogs showed the highest incidence of fractures (50%), followed by German Shepherd (6%), Labrador Retriever (6%) and other breeds (5%). Automobile accidents were the major etiological factor (62.50%), followed by fall from height (21.88%), animal attacks (6.25%) and other causes (9.37%). Femur fractures were most common (43.75%), followed by tibia-fibula (31.25%), radius-ulna (18.75%) and humerus (6.25%). Twelve adult dogs were randomly divided into two groups (n=6). Group I was treated with SOP plate alone, while Group II received SOP plate with IM pinning. Mean rectal temperature showed no significant intergroup difference ($p>0.05$). Heart rate varied significantly within groups over time ($p<0.05$). Exudation scores decreased significantly in both groups with non-significant intergroup difference. Weight-bearing and posture scores improved significantly, with earlier functional recovery observed in Group II at day 28 postoperatively ($p<0.05$). Radiographic scores decreased significantly over time with non-significant intergroup differences. Implant-related complications were observed only in Group I. Overall, SOP plate fixation combined with IM pinning provided better stability and earlier functional recovery.

ORT-52

SURGICAL MANAGEMENT OF LONG BONE FRACTURE BY USING DIFFERENT FIXATION TECHNIQUES IN FOUR CATS

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Four cats of different sex were presented to the Department of Veterinary Surgery and Radiology, with history of non-weight bearing lameness from hind limb after trauma. Clinical examination revealed swelling, pain and crepitation at tibial region of hind limb. Radiographic examination confirmed distal diaphyseal/physeal fracture of tibia & fibula in two cases while mid diaphyseal tibia fracture in remaining cases. The affected limb was preoperatively stabilized by Robert Jones bandaging and the analgesic Meloxicam @ 0.2 mg/kg b.wt. was administered for pain management. The distal diaphyseal/physeal fractured tibia was surgically stabilized under general anaesthesia with trans-articular external skeletal fixation (ESF) technique by using trans-cortical pins and bilateral connecting bars of 2 mm after contouring according to the shape of hock joint which was held with mini clamps. Mid diaphyseal fractured tibia was surgically stabilized with intramedullary K-wire (2mm) in normograde manner. In immediate post-operative radiographs, complete fracture reduction and alignment of fracture fragments was evident in all four cases. Post-operatively antibiotic Ceftriaxone @ 10 mg/kg body weight, analgesics Meloxicam @ 0.2mg/kg body weight was administered & oral calcium and mineral supplements were given and the ESF assembly was kept covered with bandage while in case of IMP Robert Jones bandage was applied. The ESF assembly was removed at 60th postoperative day after radiographic healing and normal limb functioning was evident. It can be concluded that bilateral uniplanar transarticular ESF for juxta-articular distal tibial fractures and IMP for diaphyseal tibial fractures are effective stabilization technique for cats.

ORT-53

UNIPLANAR BILATERAL EXTERNAL SKELETAL FIXATION USING EPOXY PUTTY FOR THE MANAGEMENT OF LONG BONE FRACTURE IN GOATS

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The study was conducted in six goats affected with long bone fractures during the period from November 2024 to August 2025. The objectives were to evaluate the efficacy of uniplanar bilateral external skeletal fixation (ESF) using epoxy putty connecting bars for fracture management and to assess the associated haematological and serum biochemical

changes during fracture healing. Goats were selected irrespective of age, sex, breed and body weight. All animals underwent detailed clinical and orthopaedic examination, followed by radiographic confirmation of fracture. Fractures involved the hindlimb in four goats (metatarsus) and the forelimb in two goats (metacarpus). All goats were treated with uniplanar bilateral ESF using epoxy putty connecting bars and centrally threaded transfixation pins under general anaesthesia. Clinical, radiographic, haematological and serum biochemical evaluations were carried out preoperatively and postoperatively at the second, fourth, sixth and eighth weeks. Postoperative radiographs revealed good alignment and apposition in all goats except one, with adequate implant stability throughout the observation period. Periosteal callus formation was evident by the second postoperative week, while endosteal callus formation commenced by the sixth week in most cases. Physiological and haematological parameters remained within normal limits. All goats regained weight bearing by the second postoperative week, with excellent functional outcome in all but one case that developed a secondary fracture. Implants were removed by the eighth week in all cases except one, where early union allowed removal by the sixth week. The study concluded that epoxy putty ESF provided excellent stability, was economical, technically feasible and a reliable alternative to conventional ESF systems in small ruminants.

ORT- 54

EVALUATION OF STEM CELL SEEDED 3D PRINTED POROUS TITANIUM SCAFFOLDS FOR BONE TISSUE ENGINEERING

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High-energy traumatic fractures may result in large, critical-sized bone defects in the appendicular skeleton that lack spontaneous healing potential, necessitating the use of custom-designed bone grafts or substitute materials. This study was conducted in three phases to evaluate the osteogenic potential of 3D-printed titanium scaffolds. Phase I involved preparation and characterization of rabbit bone marrow–derived mesenchymal stem cell (BM-MSC)–seeded scaffolds. Phase II assessed in vivo ectopic bone formation and Phase III evaluated in vivo osteogenesis in an experimental segmental bone defect model. Porous 3D-printed Ti6Al4V scaffolds, with and without surface modification, were fabricated and characterized using scanning electron microscopy for microstructure, pore size, and surface architecture. Elemental and phase composition were analyzed by X-ray photoelectron spectroscopy and X-ray diffraction, respectively, and compressive strength was determined through mechanical testing. Rabbit BM-MSCs were isolated from iliac crest bone marrow, cultured, and characterized at passage three for tri-lineage differentiation potential. For ectopic osteoinduction, rabbits received scaffold discs with or without BMP-2 (2 µg/disc), followed by radiographic, CT, and histological evaluation. For orthotopic osteogenesis, a 10-mm segmental defect was created in the radial diaphysis of rabbits and treated with the experimental scaffolds. Animals were evaluated at 45 and 90 days post-implantation using histology, micro-CT, SEM, and mechanical testing. The results demonstrated that 3D porous Ti6Al4V scaffolds are biocompatible and support stem cell attachment and proliferation, with enhanced performance following surface modification. BMP-2-loaded, BM-MSC-seeded surface-modified scaffolds showed ectopic osteoinduction. BM-MSC-seeded surface-modified Ti6Al4V implants exhibited superior osseointegration and new bone formation, indicating their suitability for reconstruction of major load-bearing bone defects.

ORT-55**MANAGEMENT OF DISTAL FEMUR FRACTURE IN 21 DOGS**

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Twenty-one distal femur fractures were managed using modified rush pinning. The body weight of patients ranged from 4.6 to 30 kgs and in all cases a pair of 1.5mm rush pins of various lengths was used. Postoperatively, 14 cases were presented for follow-up at variable intervals. Overall, the healing was considered satisfactory in 13 and unsatisfactory in 1 at final reappraisal day (FRD). On FRD, none of the patients had inflammation at the fracture site; pain was absent in 13 and mild in 1; muscle atrophy of the affected limb was moderate in 1, mild in 1 and nil in 12. The weight bearing scores improved from a mean score of 0.5 on the day of presentation to 9.5 on FRD. The mean initial full weight bearing day was 7.14 ± 0.44 with a range of 5-11. Stage 1 and 2 of fracture healing was observed in 91.6% of the cases showing varying stages of bridging callus formation.

ORT -56**CLINICAL ASSESSMENT OF POSITIVE PROFILE, END-THREADED, INTRAMEDULLARY PINNING IN CANINE AND FELINE LONG BONE FRACTURES: A CASE STUDY**

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The present case study evaluates the clinical efficacy of positive profile end-threaded intramedullary pinning for the management of long bone fractures in small animals. A total of eight clinical cases comprising four dogs and four cats with long bone fractures were included in the study. The affected bones were the humerus, femur, and tibia. Fracture configuration included short oblique (n=2), long oblique (n=2), comminuted (n=2), transverse (n=1), and segmental (n=1) fractures. All cases were managed under general anaesthesia through open reduction and internal fixation using positive profile end-threaded intramedullary pins of different diameters, followed by postoperative immobilisation with a modified Robert Jones bandage. Clinical and radiographic evaluations revealed that the fixation technique provided adequate resistance to axial compression, bending, and rotational forces, resulting in satisfactory fracture stabilization, early weight-bearing, and timely radiographic union in the majority of the cases. In one case, pin migration was observed but did not adversely affect the final clinical outcome. The use of positive profile end-threaded intramedullary pins effectively withstood physiological loads acting on the bone and is a reliable, economical, and effective method for achieving favorable healing in selected long bone fractures of small animals.

ORT-57**SUCCESSFUL MANAGEMENT OF MANDIBULAR FRACTURE IN CAMELS USING INTERDENTAL WIRING AND EXTERNAL SKELETAL FIXATION TECHNIQUE: A STUDY OF FIVE CASES**

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Mandibular fractures in camels are clinically significant conditions frequently encountered following trauma, animal fights, iatrogenic injuries, and dental interventions. The present case study describes the clinical management of mandibular fractures in five camels using interdental wiring and external skeletal fixation (ESF) techniques. All the cases were

presented with history of mandibular fracture; animal fighting was the major etiology followed by traumatic injury. Five male camels aged between 5 -15 years. On clinical examination all camels manifested Swelling of the lower jaw, pain on palpation of the mandible, crepitus (grating sound or sensation) on jaw manipulation, abnormal mobility of the mandible, visible deformity or misalignment of the jaw, dropped jaw and profuse salivation. Pre-operative radiographs were obtained for diagnosis and surgical planning. Prior to surgery all cases were administered with inj. Meloxicam @ 0.3mg/kg, I/M for analgesia and were subjected to preoperative fasting for 48 hours. Surgical procedure was performed in sternal recumbency under Inj. xylazine HCl (0.3 mg/kg BW IM) and Inj. Ketamine HCl (1 mg/kg BW IV) anaesthesia protocol. In four cases, fracture was stabilized by interdental wiring using 2.5mm copper wire and in one case stabilization was performed with External skeletal fixation technique using 3.5 mm Steinman pins and connecting bar. Postoperatively, all animals administered with broad-spectrum antibiotics days and inj. Meloxicam @ 0.2 mg/kg, intramuscularly for five and three days respectively. Postoperative care included flushing of the oral cavity and surgical site with dilute potassium permanganate (KMnO₄) solution. Uneventful healing was observed in all cases, with satisfactory fracture stabilization, restoration of normal occlusion, and progressive improvement in feed intake. The findings indicate that interdental wiring is an economical and effective technique for uncomplicated mandibular fractures in camels, whereas external skeletal fixation provides superior stability in complex and post-extraction fractures.

ORT-58

CLINICAL AND RADIOGRAPHIC OUTCOMES OF PARA-OSSEOUS CERCLAGE CLAMP STABILIZATION IN TIBIAL FRACTURES IN CANINE

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The present study was conducted to evaluate the clinical and radiographic outcomes of tibial diaphyseal fracture repair using the para-osseous clamp–cerclage stabilization (PCCS) technique in dogs in six juvenile dogs aged 4 to 9 months, weighing between 6.8 and 12.5 kg, with diaphyseal fractures of the tibia were presented to the Veterinary Clinical Complex, Department of Veterinary Surgery and Radiology, VCC, Bikaner. Automobile accident was the major etiology followed by hit injury and fallen from height. Pre-operatively all dogs were subjected to clinical, haemato-biochemical, neurological, and radiographic evaluation. Fractures were stabilized by ORIF using extra cortical PCCS constructs fabricated with 2 mm Kirschner wires and secured using 20-gauge simple twist cerclage wires, with hemi-cerclages applied where required. The major clamp was placed medially, with a shorter minor clamp positioned orthogonally on the cranial aspect to provide resistance to axial, bending, and rotational forces. Postoperative clinical assessment revealed progressive and statistically significant improvement in lameness, pain, and limb function over the six-week observation period ($P < 0.001$). Radiographic evaluation using the modified Radiographic Union Score for Tibial fractures (mRUST) demonstrated a significant increase in scores over time ($P < 0.001$), with near-complete to complete fracture union achieved in all dogs by eight weeks. Postoperative complications were minimal and limited to one mechanically related case. The study concludes that PCCS is a feasible and effective technique for the surgical management of tibial diaphyseal fractures in small-sized dogs

ORT 59**SUPRACUTANEOUS APPLICATION OF NEWLY DESIGNED LIMITED CONTACT LOCKING COMPRESSION PLATE FOR LONG BONE FRACTURE IN BOVINE**

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A study involving six clinical cases of long bone fractures in bovine evaluated the efficacy of a newly designed 5 mm supracutaneous Limited Contact Locking Compression Plate (SC-LC-LCP). Fracture stabilization was performed using supracutaneous plate fixation under intramuscular XBK anaesthesia comprising xylazine (0.05 mg/kg), butorphanol (0.01 mg/kg), and ketamine (2 mg/kg) in a 1:2:3 ratio at 1 mL per 100 kg, supplemented with intravenous lignocaine hydrochloride (2 mg/kg bolus) and maintained by continuous rate infusion at 50 µg/kg/min. The plate was applied laterally in metacarpal and metatarsal fractures and medially in radius-ulna and tibial fractures using a 5 mm LC-LCP with dual combi-holes and 60–100 mm head-locking self-tapping cortical screws, with three to four bicortical screws placed in both fracture fragments. The construct was covered with povidone-iodine-soaked gauze and secured with a modified Robert Jones bandage until implant removal on the 60th postoperative day. Postoperative management included antibiotics for seven days, analgesics for three days, and regular dressing of screw tracts. Clinical evaluation on days 0, 30, and 60 assessed lameness, weight bearing, pain, and limb girth. Biomechanical testing demonstrated that the SC-LC-LCP construct withstood axial compression adequate for bovine weighing up to 400 kg, while three-point bending failure occurred at approximately 50 kg, indicating acceptable bending tolerance.

ORT-60**CIRCULAR EXTERNAL FIXATION OF DISTAL TIBIAL FRACTURE IN CATTLE**

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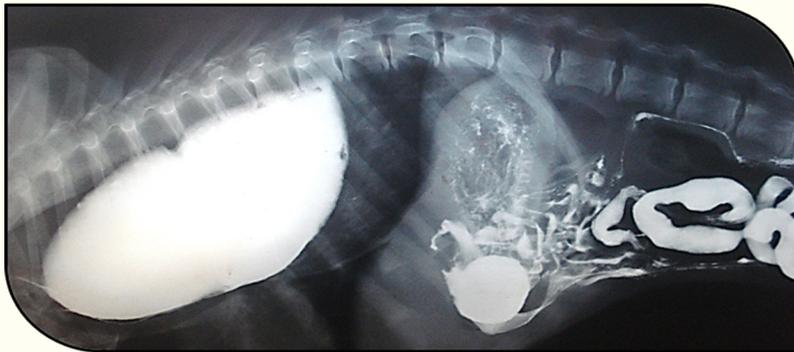
Two cattle aged 3-4 years were presented to the Veterinary Clinical Complex (VCC), Jabalpur, with non-weight bearing lameness of the left hind limb, marked swelling and an open wound near the hock joint. Both animals had a history of prior treatment by a local veterinarian using fibercast immobilization along with antibiotics and anti-inflammatory drugs. Radiographic examination revealed distal tibial fractures in both the cases. After thorough clinical and radiographic evaluation, both cases were managed surgically using circular external skeletal fixation (Ilizarov technique). The procedures were performed under epidural anaesthesia. Following adequate debridement and stabilization of fracture fragments, the circular fixator was applied to achieve rigid fixation while allowing controlled micromotion conducive to bone healing. Post-operative management included regular wound dressing, systemic antibiotics and anti-inflammatory therapy. Progressive clinical improvement was observed in both the cattles. Remarkably, both animals started bearing weight on the affected limb within one month of surgery, indicating satisfactory fracture stabilization and resolution of infection. This report highlights the successful management of compound distal tibial fractures in cattles using circular external skeletal fixation.

ORT-61**SURGICAL MANAGEMENT OF COMPOUND FRACTURE WITH EPOXY
PIN FIXATION**

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Compound fracture of long bones like tibia and lower limb bones are common in cattle and needs intensive care with control of infection. Three calves approx 50-70 kg body weight with compound mid diaphyseal fracture of tibia, while one cattle weighing about 400 kg were referred to veterinary Clinical Complex ,Jabalpur with proximal diaphyseal fracture of metacarpal ,was confirmed on radiography. All the three calves with tibial fracture and cattle with metacarpal fracture were subjected with epoxy pin fixation as bilateral linear fixator, under mild sedation with IVRA as local anesthesia. Analgesic and broad spectrum antibiotics were administered post operatively for 3 and 14 days respectively. All the four animals resume slight weight bearing within one week and complete weight bearing on 60-65 days post fixation. Therefore it is concluded that compound fracture of long bone can be successfully handled with epoxy pin fixation along with proper postoperative care.



Radiology & Imaging Session



DECODING VETERINARY COMPUTED TOMOGRAPHY: ENHANCING DIAGNOSTIC ACCURACY AND SURGICAL PLANNING IN MODERN PRACTICE

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Radiography and ultrasonography are the most widely used diagnostic modalities in veterinary practice. In the recent years Computed tomography (CT) is rapidly becoming an integral part in diagnostic imaging modality in veterinary medicine that utilizes x-rays and powerful computers to construct cross-sectional images of patient. CT has been used primarily to image the brain but of now it is use has significantly broadened the scope of diagnostics of all regions of body by providing detailed, three-dimensional images, which enable veterinarians to diagnose and treat conditions with unprecedented accuracy and confidence. As veterinary practices continue to adopt this advanced technology, CT is quickly becoming the new standard of care in many areas.

The advantage of CT over conventional radiograph and ultrasound is that its ability to eliminate superimposition of organs and more importantly it enhances image quality by limiting the scattered radiation. More over to compete with the resolution and versatility of MRI in spiral CT since the reduced scanning time there is no motion artifact, resulting in improved lesion detection, reduced partial volume artifact due to reconstructing smaller intervals, optimized intravenous contrast obtained during peak enhancement, and multi planar images which result in higher quality reconstruction, because there are no gaps in data. With this, combined with a reduction in scanner rotation time, vessels with very small diameters are clearly visualized. There is improved spatial resolution along the length of the body allowing for high quality secondary reconstructions or 3-D visualization techniques.

Multi slice CT (MSCT) allows for simultaneous acquisition of 4, 8, 16, 32, 64 slices and now days still higher version of 128, 160, 256, 320 and 640 slice CT machines are available. Higher the slice number reduced scanning time, reduced radiation exposure, excellent image resolution, the higher version machines 128 and above are used for cardiac and angiography imaging since it will provide high spatial resolution. 16 slice machine are highly suitable for a veterinary clinic that can be used for general studies which may cover the whole body, time reduction and excellent resolution. If aveterinarians is planning for emergency CT unit higher version of 64 slice CT machine is better choice.

In the current, terminology used in Veterinary CT to define CT image anatomical planes is quite different compared to that of human CT: transversal instead of axial, dorsal instead of coronal, lateral instead of sagittal. Positioning for CT plays a crucial role, for studying the skull, thorax and the abdomen; sternal-abdominal recumbency with the forelimbs and hind limbs pulled forward and backward is usually adopted, for the exclusive study of cranium the same recumbency is used but the forelimbs are pulled caudally along the thorax. Especially in tumors staging, the sternal-abdominal positioning minimizes the occurrence of ground-glass opacities due to the atelectasis in the depending lung portions, while it is more pronounced when in dorsal recumbency. For the study of the vertebral column the dorsal recumbency is routinely adopted to avoid the movement artifacts to that anatomical tract and in case of traumatized patient they can be positioned in lateral recumbency, especially in traumatized animals. Other particular positioning has been proposed for the study of the vertebral column (positional or dynamic CT), the elbow joints and the hip joints.

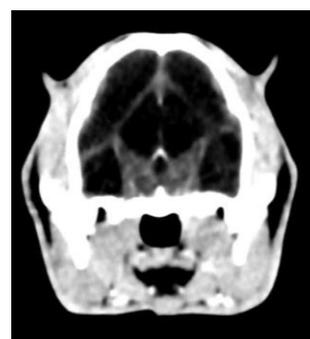
Common applications include the nasal cavity, skull, brain, spine, thorax and extra-thoracic structures, abdominal organs, and the musculoskeletal system. CT is more specific for intracranial, spinal and thoracic lesions. Although the significance in soft tissue tumors is useful

for categorization of malignant and non-malignant tumors by its perfusion capacity using contrast studies. More over CT has an ability to detect and differentiate tissue densities over wider range of tissue using the Hounsfield Unit (HU) wherein the air is about -1000 HU, water ranges between -100 to 100 HU and above 2000 mineral and metal density. Fat measuring about -130 to -70, fluids 0 to 30 and muscle and soft tissue measuring about 40 to 60- HU. Also CT has the ability to view images using various "windows" which include the width of the window and the level of the window that allows adjustment of the image to maximize detail of a particular area.

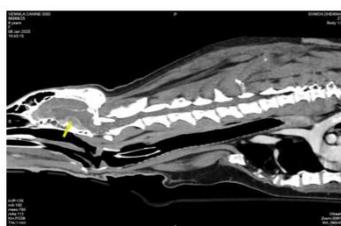
For contrast enhancement intravascular non-ionic iodinated contrast media which are highly hydrophilic, resulting in low chemo toxicity are formulated in solutions iso-osmolar to the body fluids. Intravenous contrast agent is used for arterial opacification and parenchymal enhancement and for spinal CT for myelographic procedure. Iohexol a monomeric is given intravenously @ 2.0 to 2.5ml depending on the concentration (300/350 iodine/ ml) for routine procedures and Iodixanol isomeric for angiography and renal patient as well as CT myelography.

Computed tomography is a valuable imaging modality for the lesions involving the skull that includes tumors of nasal cavity and sinuses, aspergilliosis, maxillary tumors, otitis media/ bulla, periorbital tumors, tumors of brain like meningioma/ glioma/ choroid plexus / pituitary, intracranial hemorrhage, hydrocephalus, fractures of skull, oral tumors, mandibular tumors, dental affections. CT is predominantly used in oro-maxillary tumors for the prognostic and surgical planning. CT is used to differentiate acute hemorrhage of brain as it will be more intense due to presence of hemoglobin whereas during clot resorption it appears less intense.

CT contrast of neck is used for diagnosis of lymphadenopathy and salivary glands affections. Thyroid gland tumors and hypertrophy, neck tumors, lymphoma, carotid body tumors, esophageal dilation and tracheal collapse. CT is used in brachycephalic breeds for the diagnosis of air way obstruction syndrome (BAOS).



Ventriculomegaly



Extra axial Brain tumor

CT is used in thoracic evaluation of pulmonary and mediastinal masses, including lymphadenopathy and considered the most sensitive method for detection of pulmonary metastases. Pulmonary nodules up to size of 2-4 mm can be visualized, solitary nodules of 4mm and above and ground glass nodules greater than 20 mm were considered more significant.

Lymphomas, sternal/ tracheal bronchial lymphadenopathy can be diagnosed significantly.

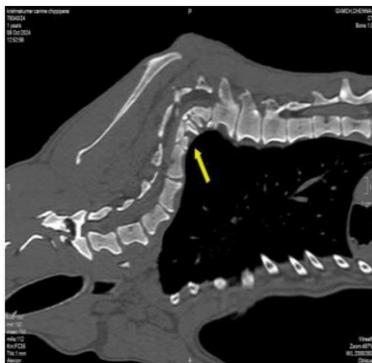
Thoracic lymphatic drainage and thoracic duct can be visualized. Intra thoracic lesions that includes pneumothorax, plural effusion, PRAA, Peritoneo pericardial diaphragmatic hernia (PPDH), diaphragmatic hernia and thoracic foreign bodies. Esophageal dilatation, esophageal diverticulum and esophageal tumors can be diagnosed.

Contrast CT is considerable value when evaluating abdominal organs exclusively for tumors of liver, splenic lesions, adrenal gland tumors, pancreatic tumor, duodenal/ pyloric tumors and gall stones and liver perfusion contrast study. It's also used for the involvement of lymph nodes of abdomen (mesenteric/MILN/sacral) distant metastasis.



Thyroid gland tumor

Dynamic contrast studies is used for the diagnosis of portocaval shunts in dogs and cats. CT is very sensitive in detecting and characterizing ectopic ureters and renal perfusion studies. CT is also used for evaluation of ovarian tumors, vaginal tumors, bladder, prostatic involvements, retained testicles and intra abdominal mesenteric mass. CT guided biopsies are also being used for diagnosis of tumors.



Hemi vertebra

Other major application of CT in small animals of spine and skeletal disorders. Spinal imaging is used for the diagnosis of fractures of vertebral body, IVDD, discospondylosis, spondylosis deformans and spinal malformation like block vertebra, spina bifida, hemivertebra. Contrast myelography is used to evaluate spinal lesions like intra medullary, extramedullary, disc herniation and bone tumors. CT is also useful in evaluation of bone tumors as well as soft tissue masses of the extremities. The extent of the mass can be assessed and at times the CT appearance of the mass. Periosteal bone destruction, osteophytes formation, joint erosion (OCD) and cartilage erosion. CT is also used for the pre operative planning for correction of angular deformity and also for planning pelvis fracture stabilization.

In canine oncology computed tomography is being used for radiotherapy planning once the cancer has been identified mostly of inoperable status. CT images provides details of tumor volume like body contour, outline, density, location and extent of volume and organs at risk there by accurate patient dose deliverable to the patient. CT provides accurate information on the delineation of target volume surrounding tissue with respect to body contour.

In recent days, CT images are used for 3D image construction for custom made implants designs via 3D printing for making prosthetic implants, bone plates, screws etc. The combination of 3D medical modelling and augmented actuality training is transforming surgical training by making it more accessible, less costly, and more realistic than traditional training on cadavers. 3D-printed anatomical representations boost the surgical procedure's clarity and a surgeon can utilize 3D visualization technology to define and observe a tumor or a bone fracture and the surrounding structures before operating. CT images are also used for preparing simulation models by using different slice thickness to create artificial bone for bone transplants and segmental defects. The simulation model, derived from a CAD model generated from CT scans, were been considered for conservative management.

Hence incorporating CT technology into a veterinary practice can significantly enhance diagnostic capabilities and treatment delivery. While the initial investment may seem substantial, the long-term benefits, including improved diagnostic accuracy, expanded service offerings, and enhanced patient care, make it a worthwhile addition.

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RI- 01**RADIOGRAPHIC AND ULTRASONOGRAPHIC BASED MORPHOMETRIC ANALYSIS OF ORGANOMEGALY IN CANINE CANCER PATIENTS**

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Organomegaly, particularly hepatomegaly, splenomegaly and lymphadenopathy, is commonly encountered in canine oncology. The present study was conducted in the dept. of Veterinary Surgery & Radiology, CVSc&AH, OUAT from 2024-2025 on 49 dogs from across all breed, age and sex. The clinical, haematological and biochemical parameters along with radiographic and ultrasonographic imaging data of the liver, spleen, kidneys and prostate were recorded and analysed. Radiographic and ultrasonographic morphometry provided crucial insights into metastatic burden and disease staging, correlating organomegaly with tumor types and survival outcomes. The organs affected with metastatic growth were found to be relatively larger in size as compared to that of healthy animals. The liver and spleen were identified as primary sites of metastasis due to their vascular and filtration functions, while the kidneys and prostate exhibited secondary involvement in specific cancers. Imaging revealed patterns of hepatomegaly, splenomegaly, renomegaly and prostatomegaly, aiding in early detection and staging of metastases. Ultrasonography proved particularly effective for real-time assessment of structural changes and radiography provided complementary quantitative data. Morphometric findings were significant in differentiating benign from malignant growths, evaluating therapeutic efficacy and predicting overall survival time. This research emphasizes the importance of imaging-based morphometric evaluations in advancing diagnostic accuracy, improving therapeutic planning and enhancing the prognosis and quality of life for dogs diagnosed with cancer.

RI - 02**COMPARATIVE EVALUATION OF HAEMATO-BIOCHEMICAL TESTS, RADIOGRAPHY AND ULTRASONOGRAPHY IN CANINE ABDOMINAL DISORDERS**

Santosh Kunderagi, D. Dilipkumar, **Manjunath Patil** and B. Bhagavantappa

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The present study was carried on 18 clinical cases of dogs of either sex, aged 1 month to 12 years and weighing 3 to 25 kg. They were subjected to systemic evaluation for diagnosis of the abdominal disease condition, including determination of haemato-biochemical parameters and diagnostic imaging. With the help of this modulates, abdominal affections were diagnosed as intussusception, pyometra, cystitis and prostate hyperplasia. In intussusception, plain radiography revealed dilated gas and fluid filled intestinal loops proximal to the site of intussusception in four cases. Whereas, two cases showed dilated gas and fluid filled intestinal loops and it was not possible to confirm to diagnose the cases as intussusception by radiography alone. Intussusception had characteristic sonographic appearance like alternative hypo and hyper echoic concentric rings in transverse scan. For intussusception ultrasonography was very much useful diagnostic tool, when compared to plain radiography. The plain radiography was more useful than haemato-biochemical parameters. For uterine disorders both plain radiography and ultrasonography were useful diagnostic tools than haemato-biochemical parameters. Haemato-biochemical observations may be used as an aid to diagnosis the pyometra in bitch. Ultrasonography was more effective in diagnosis of cystitis and prostatic hyperplasia than plain radiography and haemato-biochemical parameters. In present study ultrasonography was found to be more effective diagnostic tool, for diagnosis of canine abdominal disorders than other diagnostic technique like plain radiography.

RI-03**DIAGNOSIS OF MUSCULOSKELETAL DISORDERS USING RADIOGRAPHY AND C-ARM IN DOGS AND GOATS**

Kendesh, D. Dilipkumar, **Manjunath Patil** and B. Bhagavantappa

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The study was conducted on twenty cases of dogs and goats each over a period of two years and was randomly divided into 4 groups. Group I consist of radiography of 10 dogs, group II consist of C-arm of 10 dogs, group III consist of radiography of 10 goats and group IV consist of C-arm of 10 goats. Physiological parameters and blood was collected for the estimation of the enzymes and were recorded at 0th day pre-operative, immediate post-operative and 30th day post-operative. Both the dogs and goats were subjected to radiography and C-arm at 0 day pre-operative, immediate post-operative and 30th day post-operative. The physiological parameters *viz.*, respiratory rate, heart rate and rectal temperature remained within normal physiological limits suggesting the injuries occurred in these animals did not produce alarming changes in these parameters. Significant hypercalcaemia, hyperphosphataemia and increase in serum alkaline phosphatase levels were observed on 30th post-operative day whereas; changes in ALT and AST were non-significant in both dogs as well as small ruminants. On radiography and C-arm comparison in group I and II dogs; radiographic technique showed superior performance in 17 instances whereas, C-arm technique revealed a superior performance at 11 instances. Similarly, on radiography and C-arm comparison in group III and IV goats; C-arm technique showed superior performance in 12 instances whereas, radiographic technique revealed superior performance on 4 instances. In conclusion, radiography was superior to the C-arm in dogs, whereas, in goats C-arm was superior to the radiography.

RI-04**DIAGNOSIS OF SOFT TISSUE AFFECTIONS IN DOGS USING COMPUTED TOMOGRAPHY**

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Computed Tomography(CT) in dogs provides high resolution cross-sectional imaging that allow detailed evaluation of soft tissues, bones and internal organs. Soft tissue affections in dogs involves wide range of respiratory, cardiovascular, gastrointestinal, hepatic and urogenital disorders often present with overlapping and non- specific clinical signs. The present study conducted on 40 dogs aged four months to 12 years presented with suspected thoracic and abdominal disorders using Computed tomography(CT) presented with common clinical signs such as inappetence, coughing, respiratory distress, vomition, abdominal distension weight loss. Computed tomography was done under general anaesthesia. Different conditions like oesophageal foreign body obstruction, oesophageal tumor, achalasia cardia, megaesophagus, pulmonary metastasis, pleural effusion, abdominal lymphoma, chronic liver diseases, hepatocellular carcinoma, gastrointestinal stromal tumors, testicular tumors, uroliths and nephroliths were diagnosed. CT was more useful modality as it results in high-detail anatomical image with excellent soft tissue contrast of the thoraco-abdomen, facilitating the characterization and localization of the soft tissue lesions. The precision provided by the CT facilitate the planning, surgical and medical management and to establish the prognosis.

RI-05**ROLE OF COMPUTED TOMOGRAPHY IN THE DIAGNOSIS OF CANINE SPINAL AFFECTIONS**

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The canine spine, or vertebral column, forms the main axial support of the body and protects the spinal cord while allowing controlled movement. Computed tomography (CT) is the imaging modality of choice for evaluating spinal affections in dogs due to its superior spatial resolution and rapid image acquisition. Non-descript male dogs, aged within 3 years were most commonly affected with spinal affections. Automobile accident being the major cause. 34 dogs irrespective age, sex and breed with history and clinical signs suggesting spinal affections were subjected to comprehensive neurological examination followed by computed tomographic evaluation. Inj. Butorphanol @0.2mg/kg BW-IV, Inj. Diazepam @ 0.5mg/kg BW-IV and Inj. Ketamine @ 5mg/kg BW IV were employed for restraining the animal for computed tomography evaluation. Among 34 dogs affected with spinal affections, 22 cases were of vertebral fracture and luxation's, nine cases of spondylosis deformans, two cases of disc calcification and a case of DISH. Computed tomography scans, provided very high-resolution, cross-sectional images that allow detailed visualization of both bone as well as soft tissue structures, making them very useful for assessing various spinal conditions such as intervertebral disc calcifications, DISH and spondylosis deformans.

RI-06**CLINICAL MANAGEMENT OF ACQUIRED MYASTHENIA GRAVIS IN DOGS**

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The present case study describes therapeutic management of myasthenia gravis in dogs presented to Department of Veterinary Surgery and Radiology, CVSC&AH. Myasthenia gravis is a neuromuscular disorder occurs spontaneously in young and adult dogs with clinical manifestation of muscle weakness, fatigue, limb tremor, reluctance to exercise, crouched stance, occasional regurgitation and vomiting as in present cases. Routine hematobiochemical estimation was nonremarkable in all these cases with minor variation in sodium and potassium level due to chronic nature of vomiting and dehydration. Thoracic radiograph and positive contrast with Barium meal clearly identified megaesophagus condition in all these three labrador dogs. From the clinical manifestation and radiography Myasthenia gravis was confirmed in all these cases. As per the established treatment protocol an oral anticholinergic drug (Pyridostigmine Bromide (Mestinon 60mg tablet) @ 2mg/kg body weight twice daily at 12hr interval) was administered daily till the animal is adjusted to it and the animal recovers. Supportive immunosuppressive drug like corticosteroid in low doses prednisone (0.5mg/kg body weight administered at every other day). Supportive therapy with hepatoprotectant Silymarin and Omega-3 for brain activation is done in all these patients. Elevated feeding habit, feeding semisolid diet instead of liquid diet, lifestyle habit and constant monitoring to prevent aspiration pneumonia increases survivability in these patients.

RI-07**EPIDUROGRAPHY – A VALUABLE TOOL IN DIAGNOSIS OF LUMBAR SPINAL CORD COMPRESSION IN DOGS**

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This prospective study evaluated the diagnostic utility of epidurography for assessing spinal cord injury (SCI) in dogs presenting with thoracolumbar neurological deficits. Sixteen dogs exhibiting clinical signs suggestive of thoracolumbar SCI were enrolled and underwent comprehensive physical, orthopaedic, and neurological examinations. Lesion localization was achieved through assessment of spinal reflexes and the extent of neurological responses elicited by specific stimuli. All animals were subjected to both survey radiography and epidurographic examination, and findings from each modality were interpreted and compared. Epidurography successfully identified multiple spinal lesions, which appeared as filling defects at various levels of the spinal cord, and proved particularly valuable in confirming spinal cord compression, especially within the lumbar region. The technique also complemented and enhanced the interpretation of lesions detected on plain radiographs. Epidurography offered superior visualization of space-occupying lesions affecting the epidural space and spinal cord, thereby improving diagnostic accuracy. Overall, the findings indicate that epidurography is a minimally invasive, low-risk diagnostic modality that plays a significant role in the identification and confirmation of spinal cord lesions in dogs, particularly in the lumbar spinal region, and serves as a valuable adjunct to conventional radiographic evaluation.

RI-08**MRI STUDIES IN DOGS WITH SPINAL INJURIES TREATED BY RAPAMYCIN OR HYPERICUMPERFORATUM**

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The study was conducted in 10 dogs suffering from SCI (spinal cord injury) diagnosed after clinical examination, Neurological examination, radiography, infra-red thermal Imaging and MRI. These animals were randomly divided into two groups, having five dogs each. The parameters studied included Signalment, history, clinical examination, neurological examination, Hematological, Biochemical (liver function test, kidney function test, electrolytes and other relevant biochemical parameters), oxidative stress (Tac and Mda), CSF examination (gross, microscopic and total protein) radiography and MRI scans to study the pre-treatment and after treatment status of the affected dogs at 0th, 7th, 14th, 28th and 42nd day of starting treatment. Group 1 received Rapamycin at a dosage of 0.1 mg/kg body weight orally once daily for five days, while Group 2 was administered *Hypericum perforatum* 200cc orally twice daily for five days along with supportive therapy in both groups. MRI was highly effective in the diagnostic evaluation of spinal cord and paraspinal soft tissue pathologies. Rapamycin and *Hypericum perforatum* are effective in conservative treatment of acute spinal pathologies of inflammatory nature in dogs.

RI-09**STAGE-WISE ECHOCARDIOGRAPHIC EVALUATION OF PRECLINICAL AND CLINICAL DILATED CARDIOMYOPATHY WITH FOCUS ON ESTABLISHING CORRELATION BETWEEN RADIOGRAPHIC, ELECTROCARDIOGRAPHIC AND ECHOCARDIOGRAPHIC INDICES OF LEFT HEART ENLARGEMENT IN DOGS WITH CLINICAL DILATED CARDIOMYOPATHY**

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Forty-two dogs without clinical manifestations screened for preclinical dilated cardiomyopathy (pDCM) with consideration to breed, sex and age underwent thoracic radiographic, electrocardiographic, and echocardiographic examination, identifying seven pDCM cases. Fourteen dogs with clinical signs were similarly evaluated and classified as clinical DCM. Affected dogs (N=21) were categorized into stages B2 (n=7), C (n=7), and D (n=7) of DCM. Dogs with pDCM were asymptomatic, while dogs with clinical DCM showed exercise intolerance, weight loss (69.2%), followed by coughing, dyspnea, lethargy (57.1%). Radiographic changes were insignificant in pDCM but showed cardiomegaly (100%) in clinical DCM, often accompanied by left atrial enlargement and pulmonary oedema. Sinus tachycardia (42.8%) was the most common electrocardiographic abnormality in clinical DCM, followed by atrial fibrillation and ST-coving (35.7%). Radiographic indices (VHS, VLAS) and electrocardiographic measurements were significantly higher ($P<0.05$) in clinical versus preclinical stage, while stages C and D differed non-significantly ($P>0.05$). Echocardiography revealed ventricular dilation, reduced systolic function and advanced diastolic dysfunction in clinical DCM, with indexed volumetric parameters (ESVI, EDVI) demonstrating stage-wise significance. Strong correlations were observed between VHS and FAC ($r=-0.962$, $P<0.01$), SI ($r=-0.812$, $P<0.01$), ESVI ($r=0.711$, $P<0.05$) and EDVI ($r=0.770$, $P<0.05$) and between VLAS and LA/Ao-2D ($r=0.689$, $P<0.05$). Electrocardiographic measures correlated with structural indices, notably P-wave amplitude with VLAS ($r=0.844$, $P<0.01$) and QRS duration with VHS ($r=0.840$, $P<0.01$). Overall, disease progression from preclinical DCM to clinical DCM was marked by increasing radiographic cardiomegaly, arrhythmias, and impaired cardiac function, underscoring the diagnostic value of combined imaging (radiography and echocardiography) and electrocardiography in staging DCM.

RI-10**RADIOGRAPHIC AND COMPUTED TOMOGRAPHIC IMAGING OF PULMONARY METASTASIS OF MAMMARY TUMOURS IN DOGS**

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The present study was conducted in 12 dogs presented to the Department of Veterinary Surgery and Radiology, VCRI, Namakkal with history of mammary tumour. The dogs were chemically restrained for CT procedures employing Inj. Dexmedetomidine @ dose rate 5 μ g per kg body weight iv and Inj. Butorphanol @ dose rate of 0.2 mg per kg body weight iv. Six dogs with pulmonary metastasis were classified as group I and six dogs without pulmonary metastasis as group II. Three views of radiography and one view of CT were taken in all the dogs. When metastasis were encountered the diameter of the nodules was found by means of measuring tool from an image analysis software package. After comprehensive haemato-biochemical assessment, the dogs were subjected to elective mammary tumor resection and the representative tissue samples were collected for histopathological characterization of tumours.

RI -11**COMPUTED TOMOGRAPHY AS AN ADVANCED DIAGNOSTIC MODALITY FOR THE EVALUATION AND SURGICAL MANAGEMENT OF SPLENIC TUMOURS IN DOGS**

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Splenic tumours are frequently encountered abdominal neoplasms in dogs and often present with vague, non-specific clinical signs, making accurate diagnosis and surgical planning challenging. Advanced imaging techniques such as computed tomography (CT) offer superior anatomical resolution and lesion characterization compared to conventional diagnostic modalities. The present case series evaluated the role of CT in the diagnosis and surgical management of splenic tumours in six canine patients of different age, sex, breed and body weight. Three dogs presented with clinical signs including abdominal distension, lethargy, anorexia, and episodic weakness. Initial diagnostic evaluation comprised haematology, abdominal radiography, and ultrasonography, which indicated splenic pathology but were insufficient to accurately determine lesion extent, vascular involvement, and metastatic spread. Subsequently, contrast-enhanced abdominal CT was performed to assess splenic mass characteristics, vascular architecture, evidence of haemorrhage or rupture, and metastatic involvement of adjacent organs. CT imaging revealed well-defined splenic masses with heterogeneous enhancement patterns and displacement of surrounding abdominal structures. The detailed anatomical information provided by CT enabled accurate preoperative planning and decision-making. Based on CT findings, all dogs underwent elective or emergency splenectomy using standard surgical techniques. Postoperative recovery was uneventful in all cases, and histopathological examination confirmed splenic neoplasia. This study concluded that computed tomography is a valuable advanced diagnostic modality for comprehensive evaluation, staging, and surgical planning of splenic tumours in dogs, contributing to improved perioperative management and clinical outcomes.

RI -12**DIAGNOSTIC UTILITY OF COMPUTED TOMOGRAPHIC MYELOGRAPHY IN CANINE SPINAL DISORDERS: A RETROSPECTIVE ANALYSIS OF 30 CASES**

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Computed tomography (CT) myelography is a valuable advanced diagnostic imaging modality for the evaluation of spinal disorders in dogs, particularly in cases where conventional radiography provides limited information. The present retrospective study was conducted at the Small animal orthopaedic unit, Madras Veterinary College Teaching Hospital, Chennai, to assess the diagnostic utility of CT myelography in dogs presented with spinal and neurological disorders. Medical records and CT myelographic images of 30 dogs exhibiting neurological signs such as paraplegia, ataxia, paresis, quadriplegia, hemiplegia, and urinary incontinence were reviewed over a period of two years (2023-2025). CT myelography was performed following standard anesthetic protocols, wherein a non-ionic iodinated contrast medium was aseptically injected into the subarachnoid space via lumbar puncture. Helical CT scans were obtained immediately after contrast administration, and transverse, sagittal, and three-dimensional reconstructed images were evaluated for spinal cord compression, deviation, contrast column interruption, and vertebral abnormalities. Based on CT myelographic findings, the spinal pathologies identified included Hansen type I intervertebral disc herniation (n = 3),

disco-spondylitis (n = 6), degenerative myelopathy (n = 2), spondylosis deformans (n = 4), compression fractures (n = 10), intervertebral disc herniation (n = 1), hemivertebrae (n = 1), disc calcification (n = 1), narrowing of the vertebral canal (n = 1), and sacrococcygeal osteomyelitis (n = 1). CT myelography enabled precise localization of lesions, accurate assessment of the degree and nature of spinal cord compression, and detailed visualization of vertebral and soft tissue abnormalities. The findings of this study highlight the high sensitivity and clinical utility of CT myelography in diagnosing complex spinal disorders, guiding therapeutic decision-making, and providing prognostic information in canine patients.

RI -13

RADIOGRAPHIC EVALUATION OF LOWER UROGENITAL TRACT DISEASES IN SIXTEEN MALE CATS AND TWENTY-FOUR MALE DOGS

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Survey Radiographs of abdomen and pelvis in 314 cases of which 45 were of male cats and 143 of male dogs presented with various urogenital affections to the small animal radiology ward of department of Veterinary Clinical Complex, CVSc, Tirupati, were evaluated for a period of one year, from January to December 2025. Out of these, 16 cats and 24 dogs were radiographically diagnosed with signs of lower urogenital tract disease. Among them, 14 were cases of feline lower urinary tract disease (31.1%). Three cases of urolithiasis (2.09 %); 15 cases of prostatic hyperplasia (10.5 %); one case of traumatic evisceration of urinary bladder; (0.6 %), and one case of perineal hernia (0.6%) were recorded in dogs. Contrast radiography was performed in four cases. The radiographical signs of various conditions are presented and discussed.

RI-14

RADIOLOGICAL AND MICRO-COMPUTED TOMOGRAPHIC EVALUATION OF A COLLAGEN-HYDROXYAPATITE GRAFT IN RABBITS

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Six New Zealand white rabbits (*Oryctolagus cuniculus*) were used in this study. After a 14-day adaptation, all rabbits received CBD. Following sedation with xylazine @ 5 mg/kg IM, anesthesia was induced with ketamine @ 30 mg/kg and midazolam @ 1 mg/kg, then maintained with isoflurane in 100% oxygen. A craniolateral incision was made on the radius, and blunt dissection between the extensor and flexor muscles exposed the bone. A 10 mm segmental defect was created in the mid-shaft of the radius and filled with a collagen hydroxyapatite graft of the same size, secured with Vicryl 2-0. Muscles and skin were sutured with the routine method. Post-operative care included an antibiotic for five days, intramuscular buprenorphine at 0.02 mg/kg every eight hours for three days. Radiographic and microCT evaluations were performed on days 15, 30, and 45 postsurgery. The Lane and Sandhu scores were 1.17 ± 0.17 on the 15th day, 3.50 ± 0.22 on day 30th and 6.17 ± 0.31 on day 45. Results demonstrated progressive ossification and mineralization of the defect on days 15 and 30, with approximately 90% of the defect filled by day 45. A 3D reconstruction of a leg showed the graft with ongoing ossification around it. The transparent vessel view revealed translucent tubular channels crossing the defect along the bone's axis, with a network-like pattern within the callus.

RI-15**EVALUATION OF DARBEPOETIN ALFA INDUCED
NEUROREGENERATION IN A RAT SCIATIC NERVE CRUSH INJURY
USING MRI AND ULTRASOUND**

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Peripheral nerve injuries (PNIs) significantly impair quality of life due to limited regenerative capacity and lack of effective treatments. Darbepoetin alfa, known for supporting red blood cell survival, hematopoiesis and angiogenesis, may promote neuronal regeneration and mitigate muscle atrophy. Twenty-four rats were randomized into three groups (n=8): Sham Control, Saline Control and darbepoetin alfa treated group (Darbepoetin alfa, 5000 IU/kg for three days post-PNI). The level and perfect site of sciatic nerve crush injury and therapeutic response of darbepoetin alfa was evaluated by MRI and USG. The Magnetic Resonance Imaging (MRI) was done just before surgery on day 1 and after surgery on day 21 in Sham control, Saline Control and darbepoetin alfa treated group. The normal sciatic nerve was appeared as a structure with intermediate signal intensity, visualized as a continuous structure with smooth and linear course. Ultrasonographic examination of sciatic nerve was done pre- and post-surgery on day 1, 5, 7 and 21 in Sham control, Saline Control and darbepoetin alfa treated group. There were hypoechoic nerve fascicles, hyperechoic epineurium, smooth well-defined borders and uniform echotexture observed in sciatic nerve just before surgery. Just after surgery on day 1 injury site showed hypoechoic nerve with disrupted fascicle architecture, increased cross-sectional area, irregular or disrupted epineurium with altered echotexture was observed. In darbepoetin treated group, the findings of MRI and USG indicated reduced nerve swelling, improved signal intensity and reduced neuroma formation. Additionally, improved nerve echotexture, hyperechoic epineurium, hypoechoic nerve fascicles, smooth clearly defined nerve borders and uniform echotexture nerve provided valuable insights for the effectiveness of darbepoetin-alfa treatment. In this group enhancement of nerve remyelination and regeneration after crush or compressed injury was seen on day 21 after surgery.

RI-16**UNMASKING CANINE SPIROCERCOSIS: COMPUTED TOMOGRAPHIC
EVALUATION OF OESOPHAGEAL AND AORTIC LESIONS A REVIEW OF
10 CASES**

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Canine spirocercosis is poorly described in veterinary practice as there are limited literature on the clinical signs and diagnostic modalities. The clinical signs exhibited by the dogs with spirocercosis, thoracic radiographic lesions and computed tomographic evaluation may prove to be an early intervention in treatment. Computed tomography (CT) may provide superior cross-sectional anatomical detail, enabling accurate evaluation of thoracic pathologies in dogs. The present study was conducted at the Radiology Unit, Madras Veterinary College Teaching Hospital, Chennai, to describe and analyze the characteristic CT findings of canine spirocercosis in ten dogs presented with clinical signs suggestive of oesophageal disease. *Spirocercalupi* is a parasitic nematode primarily affecting canines, producing pathological changes predominantly involving the oesophagus and thoracic aorta. The common clinical sign exhibited in dogs was wrenching, vomiting, regurgitation, coughing, inappetence, and progressive loss of body weight. Contrast CT studies revealed well-defined to irregular soft-

tissue attenuating oesophageal nodules or granulomas in all five dogs, causing varying degrees of luminal narrowing and oesophageal wall thickening. In addition, focal to diffuse mineralization and calcification of the thoracic aorta were observed in multiple cases, consistent with chronic parasitic migration. These findings were considered characteristic of spirocercosis and correlated well with the observed clinical signs. Endoscopic examination, wherever performed, further supported the CT findings. The study highlights the diagnostic value of CT as a confirmatory imaging modality, complementary to endoscopy, for accurate lesion localization, assessment of disease stage and severity, and identification of associated vascular changes. CT findings play a crucial role in formulating appropriate therapeutic strategies, monitoring disease progression, and providing prognostic information in canine spirocercosis.

RI-17

RETROSPECTIVE STUDY OF FIVE YEARS ON DIAGNOSIS OF ACQUIRED CARDIAC DISEASES IN DOG WITH SPECIAL REFERENCES TOTRANSTHORACIC ECHOCARDIOGRAPHY.

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Cardiac diseases in dogs are a common as in human. It stands as the second major cause of death in senior dogs. Echocardiography is a non-invasive, relatively in expensive and non-hazardous imaging technique that can assist veterinarians in early detection of cardiac diseases. It is a key diagnostic tool for detecting cardiac problems as it is able to provide information about the heart including its size, shape, pumping capacity and extent of tissue damage. Dogs reported to the Veterinary Clinical complex, CVSc, Khanapara with cardiac diseases in last 5 years with effect from January 2021- December 2025 were included in the study. B-mode and M-mode Echocardiography was performed and different parameters like ejection fraction, fraction shortening, LA/AO, EDV, ESV, etc were recorded. The valvular insufficiencies were detected using color Doppler. A total of 208 dogs were found having cardiac disorders in the study with an overall prevalence of 0.3%. the most common acquired cardiac diseases recorded were MMVD, DCM, HCM. Labrador retriever was the most commonly affected breed. Acquired cardiac diseases was found to be more common in older dogs (>7 years). Thus, It can be concluded that, echocardiography plays a crucial role in the diagnosis of acquired cardiac diseases.

RI-18

CLINICAL, RADIOGRAPHIC AND ULTRASONOGRAPHIC FINDINGS OF INTUSSUSCEPTION WITH OR WITHOUT LINEAR FOREIGN BODY IN 35 DOGS

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The study evaluated the diagnostic utility of Radiography, Ultrasonography and Doppler ultrasound, alongside surgical findings in 35 dogs presented with suspected intussusception. Dogs, predominantly aged under 12 months (28/35), underwent thorough clinical examination. These dogs had history of vomiting, diarrhoea, haemorrhagic enteritis to dark scanty stools, inappetence to anorexia, cylindrical mass on abdominal palpation, prolapsed mass from rectum (N=10) and previous or concurrent parvoviral infection (N=8). Radiography ruled out radio-opaque linear foreign bodies. Serosal detail was poor in most dogs radiographed. The mean SI:L5 ratio was higher than normal. Ultrasonographic features of intussusception and intussusception with concurrent linear foreign bodies were recorded. Reducibility of the intussuscepted segments was predicted using doppler ultrasound to determine mesenteric blood

flow to the intussusceptum. Exploratory laparotomy was performed in 32 dogs, as 3 dogs collapsed prior to surgical intervention. Radiography complemented initial screening, ultrasonography provided definitive diagnosis and doppler evaluated vascular viability and was found useful in predicting reducibility. Surgical correction yielded variable success, highlighting the need for early intervention. The findings emphasize the critical role of diagnostic imaging in optimizing outcomes for canine intussusception.

RI-19

COMPUTED TOMOGRAPHY - A NOVEL CUTTING EDGE DIAGNOSTIC TOOL IN FELINE URO-GENITAL CONGENITAL ABNORMALITIES

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Feline urogenital abnormalities range from common ailments like Feline Lower Urinary Tract Disease (FLUTD) to rare congenital defects and serious emergencies like uroabdomen, often stemming from shared embryonic origins, with signs including difficult urination, haematuria, requiring prompt diagnosis via imaging/labs and varied treatments from diet changes to surgery. The present study was conducted in 29 cats presented with history of dysuria, pollakiuria, stranguria, haematuria, periuria and anuria to the Teaching Veterinary Clinical Complex, Madras Veterinary College, Chennai. Cats exhibited severe visceral pain on abdominal palpation were subjected to survey radiography to know the root cause. The cats diagnosed with lower urinary tract obstruction were treated by cystocentesis, urinary bladder catheterization along with medical therapy and surgical intervention for uroabdomen cases. The four tom cases which have not been concluded to know the root cause via radiography were further subjected to computed tomography (CT). Under general anaesthesia tom cats were subjected to plain and contrast CT using inj. Iohexol at 1.5 ml per kg I/V. Among the four tom cats one with nephrocalcinosis and three others with congenital anomalies like hypospadias, hermaphroditism and septal defect in bladder with hydronephrosis was confirmed through CT. CT played a pivot role in diagnosing the congenital anomalies in cat. Thus, it was concluded that the key importance of computed tomography as novel cutting-edge technology in veterinary field and its superiority in diagnosing the congenital urogenital anomalies in cat.

RI-20

RADIOGRAPHIC MORPHOMETRY AND COMPUTED TOMOGRAPHIC EVALUATION OF PELVIS FRACTURES IN DOGS

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In present study, among the 15 cases of pelvis fracture and dislocation, ilium fracture was found in 12 cases (21.05%) followed by acetabulum fracture (n=10; 17.54%), pubis fracture (n=9;15.78%), sacroiliac luxation (n=9;15.78%), pelvic symphysis separation (n=8;14.03%), ischium fracture (n=6;10.52%) and sacrum fracture (n=3;5.26%). More than one pelvis bones were fractured in 14 cases, whereas only one case had single pelvis bone (ilium) fracture. Out of 12 cases of ilium fracture, 4 cases were accompanied with fracture of acetabulum while in 4 cases beside ilium and acetabulum fracture, sacroiliac luxation was also found. In two cases there was ilium fracture with sacroiliac luxation, while in 2 cases sacroiliac luxation accompanied with acetabulum fracture. In 3 cases bilateral ilium fracture, 01 case of bilateral acetabulum fracture and 02 cases of bilateral sacroiliac luxation were recorded. Among the 6 cases of ischium fracture bilateral fractures were observed in 3 cases. Among the 9 cases of pubis fracture, it was bilateral in 3 cases and accompanied pelvic symphysis separation in 8

cases. In all 15 cases of pelvis fracture and dislocation, Pelvis canal diameter Ratio (PCDR) ranged from 0.46-1.39, having median and average value of 0.8 and 0.87 ± 0.07 , respectively. Morphometry revealed pelvis canal narrowing in total 10 cases. Computed tomography was found more accurate in diagnosing particularly the extent of the damage to the pelvis bone and for those affection where a conclusive diagnosis could not be obtained by radiography due to superimposition. The Pelvis canal diameter ratio (PCDR) is also an important parameter while evaluating the cases of pelvis canal narrowing.

RI-21

CONTRAST RADIOGRAPHIC EVALUATION FOR SURGICAL MANAGEMENT OF LOWER URINARY TRACT AFFECTIONS IN DOGS

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Lower urinary tract affections (LUTAs) are frequently encountered in canine clinical practice and often require precise diagnostic localization for effective surgical management. The present study was undertaken to evaluate the importance of plain and contrast radiographic techniques in the diagnosis and surgical decision-making of lower urinary tract disorders in dogs. Out of 634 canine cases presented to the Veterinary Clinical Complex, Mhow during the study period, 16 dogs (2.52%) were diagnosed with LUTAs and subjected to detailed clinical, radiographic, laboratory and surgical evaluation. Urolithiasis was observed the most prevalent condition (68.75%), followed by chronic cystitis and prostatic enlargement (12.50% each), while urinary bladder tumour and urethral stricture accounted for 6.25% each. Survey radiography served as an effective initial screening tool for detecting radiopaque calculi and bladder distension. However, contrast radiographic techniques, including negative, positive and double-contrast cystography and urethrography, significantly enhanced diagnostic accuracy by revealing bladder wall thickening, intraluminal growths, urethral strictures, bladder neck involvement and secondary bladder changes not evident on plain radiographs. These findings directly influenced the selection of appropriate surgical modalities. Cystotomy, either alone or in combination with urethral procedures, was the most frequently performed surgery, while retrohydropropulsion and urethrotomy were selectively employed based on the anatomical location of calculi. Postoperative clinical improvement was supported by favourable trends in urine analysis, haematological and biochemical parameters. The study concludes that survey and contrast radiography plays a pivotal role in accurate lesion localization and rational surgical planning, thereby improving clinical outcomes in dogs affected with lower urinary tract affections.

RI-22

ULTRASONOGRAPHIC DIAGNOSIS OF ABDOMINAL DISORDERS IN CLINICAL CASES OF DOGS

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The present study was conducted on 240 dogs presented at the Department of Surgery and Radiology, CVSc, Khanapara, with the history and clinical signs suggestive of abdominal affections. An abdominal ultrasound was performed to identify affected organs and diagnose the conditions. The study revealed the highest affections of the urinary system (31.7%), followed by

splenic disorder (18.3%), hepatobiliary disorder (13.3%), genital system (6.7%), digestive system (3.3%), and of mixed affections (16.7%). Among the 240 dogs, 24 (10%) didn't have ultrasonographically detectable affections. The urinary system showed the highest involvement of the urinary bladder, with cystitis/cystolith/cystic sludge and cystic tumour, followed by the kidneys, with bilateral interstitial nephritis, CKD, and renal tumour. Splenic affections showed splenomegaly, splenic abscess, and splenic tumour. The hepatobiliary affections showed hepatomegaly, cirrhosis, cholelithiasis, and liver tumour. The genital system showed the highest occurrence of pyometra and ovarian cysts in females, followed by prostatomegaly and intra-abdominal testicles in males. The digestive system involvement included intussusception, gastritis, and foreign bodies.

RI-23

EARLY DETECTION OF HORN CANCER IN CATTLE BY USING INFRARED THERMOGRAPHY

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Infrared thermography offers a non-invasive method to detect pathological thermal alterations by converting surface heat into color-coded images (Thermogram) that reflect underlying metabolic and vascular changes. This study evaluated its diagnostic utility for early detection of horn cancer and its integration with surgical management and histopathology. Thirty-four cases of first-degree horn cancer (31 bullocks, 3 cows) from TVCC and area around, Junagadh, Gujarat, during 2024 were examined. Gir and Kankrej breeds accounted for the highest incidence (47.06% each), with castrated males predominantly affected (91.18%). Thermography consistently demonstrated elevated temperatures in affected horns (34.8–40.6 °C; mean 37.24 ± 0.22 °C) compared to contralateral healthy horns (mean 36.04 ± 0.28 °C; paired difference 1.20 ± 0.16 °C; $p < 0.0001$), with temperature differences ranging from 0.3–5.7 °C. Rainbow palette thermograms highlighted bright white hotspots in affected horns, indicating neoplastic or inflammatory activity, while healthy horns exhibited lower temperature zones (red-yellow). Most cases involved animals aged between 6–10 years (52.94%), with the left horn more frequently affected (67.65%). Clinical signs included head shaking, horn rubbing, unilateral nasal discharge, and lacrimation. Surgical amputation followed by histopathology confirmed horn cancer with different pathological conditions of horn. These findings establish infrared thermography as a rapid, reliable, and field-applicable diagnostic tool for early diagnosis of horn cancer, enabling timely surgical intervention and improved clinical outcomes in cattle

RI-24

COMPUTED TOMOGRAPHY AS AN ADJUNCT DIAGNOSTIC TOOL IN CANINE HIP DYSPLASIA

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Canine hip dysplasia (CHD) is a multifactorial developmental orthopaedic disorder characterized by hip joint laxity and progressive osteoarthritis, leading to pain and lameness in affected dogs. The present study was undertaken to assess and grade hip dysplasia in dogs, with special emphasis on the role of computed tomography (CT) as an adjunct to conventional radiography for objective morphometric evaluation of the hip joint. Based on history and confirmation by sedated radiographic examination, 15 dogs diagnosed with hip dysplasia were subjected to CT assessment. Age-wise distribution revealed a higher incidence in dogs aged 3–6

years (53.33%), with males (73.33%) more frequently affected than females (26.67%). Labrador Retrievers constituted the majority of cases (66.67%). The most common clinical signs included lameness, exercise intolerance, and difficulty in jumping. Bilateral hip dysplasia (53.33%) was more prevalent than unilateral involvement. Radiographic grading using the FCI scheme showed moderate hip dysplasia in 33.33% of cases, severe in 30%, and mild in 13.33%. Computed tomography enabled detailed evaluation of the femoral head and acetabulum through measurement of percentage femoral head coverage, centre edge angle, acetabular index, and osteophyte score. Pearson's correlation analysis revealed a significant positive correlation ($p < 0.01$) between Norberg's angle and CT parameters, while a negative correlation was observed with osteophyte score. The study concluded that progressive decreases in Norberg's angle, femoral head coverage, centre edge angle, and acetabular index, along with increased osteophyte formation, correspond with increasing severity of hip dysplasia and can be reliably used for morphological grading.

RI-25

RADIOGRAPHY: AN ESSENTIAL IMAGING MODALITY FOR DIAGNOSING GIT AFFECTIONS IN CANINES

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The study included 26 dogs presented with a history of anorexia, persistent vomiting of varying duration, partial or complete cessation of faeces and not responding to general medicinal treatment. After routine clinical examination, all the animals were subjected to plain radiography. Out of 26 dogs, plain radiography was enough to confirm the diagnosis of g.i.t. affections in 21 dogs. However, in remaining 5 dogs, contrast radiography was also required to arrive at the final diagnosis. On plain radiography, presence of radiopaque foreign bodies, ratio of small intestine luminal diameter to mid vertebral diameter of 5th lumbar vertebrae (SI/L5) greater than 1.6, bunch of grapes like appearance of small intestine and double bubble appearance were some of the abnormal radiographic findings in g.i.t. disorders. In contrast radiography, the inability of barium to reach up to rectum even after 24 hours of administration confirmed obstruction in cases of stenosis and radiolucent foreign body obstruction. Surgical interventions viz. gastrotomy, enterotomy, enterectomy, gastropexy etc. were performed in the affected cases with favourable clinical outcome. The study highlights the importance of plain and contrast radiography in making confirmatory diagnosis so that the surgery can be performed at the earliest to improve the clinical outcome.

RI-26

COMPUTED TOMOGRAPHIC ASSESSMENT OF THORACIC LYMPH NODES IN DOGS WITH SPACE OCCUPYING LESIONS IN THORAX

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The present study was done to assess qualitative and quantitative indices of thoracic lymph nodes in dogs using contrast enhanced computed tomographic examination. The study was undertaken with the following objective: to evaluate thoracic lymph node indices of healthy dogs and dogs having space occupying lesions of thorax using computed tomography. The dogs were divided into two groups. G1 served as control group containing 8 dogs and G2 included 8 dogs with space occupying thoracic lesions with changes in thoracic lymph nodes. Computed tomographic examination identified reactive lymph nodes which showed characteristics like ill-

defined margins, enlargement, necrotic centre and heterogenous attenuation in dogs with space occupying lesions of thorax. Post contrast attenuation of thoracic lymph nodes showed an increasing or decreasing trend of attenuation than normal corresponding to enlargement of respective lymph node or degenerative changes. Dogs with space occupying thoracic lesion showed a significant ($p<0.05$) increase in long and short axis diameters of sternal and tracheobronchial lymph nodes indicating significant enlargement. Sternal, tracheobronchial and cranial mediastinal lymph nodes in dogs were reliably identified using thoracic computed tomographic examination and the use of contrast agent further enhanced their delineation, allowing their differentiation from adjacent soft tissue structures.

RI-27

THE CONTINENCE CURE: A MULTIMODAL DIAGNOSTIC AND SURGICAL APPROACH TO CANINE ECTOPIC URETER

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Congenital urinary incontinence due to ectopic ureter (EU) remains a diagnostic and surgical challenge in veterinary practice. This presentation highlights the critical role of advanced multimodal imaging in achieving precise anatomical localization and successful surgical correction in two canine patients. Two female dogs were presented to the Department of Veterinary Surgery and Radiology, Madras Veterinary College, with a history of lifelong, non-responsive urinary dribbling. Clinical evaluation and conventional radiography provided initial suspicion, but definitive diagnosis was achieved through a combined imaging approach. Contrast-enhanced Computed Tomography (CECT) and CT Urography were pivotal, providing high-resolution 3D reconstructions that clearly identified the intramural and extramural paths of the aberrant ureters, bypassing the urinary bladder trigone. Both dogs underwent ureteroneocystostomy, where the ectopic ureters were meticulously spatulated and re-implanted into the bladder apex. The CECT findings allowed for a tailored surgical roadmap, minimizing intraoperative exploration time. Post-operative recovery was uneventful, with both patients achieving immediate and complete urinary continence. These cases underscore that while conventional contrast studies are useful, CT Urography is the gold standard for navigating complex urogenital anomalies. The synergy between precise diagnostic imaging and refined surgical technique (ureteroneocystostomy) offers a definitive cure for EU, drastically improving the quality of life for both the patient.

RI-28

INNOVATIONS IN ACTION: IMAGE-GUIDED TRANSLATIONAL PRECLINICAL INTERVENTIONS IN MODERN VETERINARY SURGERY AND CRITICAL CARE

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Recent advances in veterinary surgery increasingly parallel innovations in human interventional and critical care, enabling minimally invasive diagnosis and management of complex conditions. The present work highlights the clinical translational relevance of a series of advanced preclinical procedures and devices evaluated in large animal models, including swine, sheep, and beagle dogs. All studies were conducted following approval from the CPCSEA and in accordance with institutional ethical guidelines. The evaluated procedures include thoracic aortic endovascular aneurysm repair (TAA), laparoscopic-assisted ileostomy, transcatheter atrial septal defect (ASD) creation and occluder deployment, vascular embolization using plugs and coils, extracorporeal membrane oxygenation (ECMO) using a

centrifugal pump system, topical hemostatic powders for uncontrolled hemorrhage, and hepatoportal venous catheterization. Endovascular stent graft deployment in the thoracic aorta demonstrates feasibility for managing aortic aneurysms, traumatic aortic injuries, and focal aortic diseases in veterinary patients. Laparoscopic ileostomy provides effective temporary fecal diversion in severe intestinal pathology and postoperative protection of distal anastomoses. Transcatheter ASD creation and occluder implantation reflect established and emerging therapeutic options for congenital cardiac defects and palliative management of pulmonary hypertension. Vascular plug and coil embolization enables precise, minimally invasive control of hemorrhage, treatment of portosystemic shunts, and management of vascular anomalies. ECMO illustrates the potential for temporary cardiopulmonary support in severe cardiac or respiratory failure. Evaluation of topical hemostatic agents confirms their effectiveness in rapid control of life-threatening arterial bleeding. Hepatoportal catheterization facilitates direct assessment of portal hemodynamics and targeted hepatic diagnostics. Collectively, these procedures emphasize the translational value of preclinical models in expanding minimally invasive, interventional, and critical care capabilities within modern veterinary practice.

RI-29

RADIOLOGICAL STAGING AND MANAGEMENT OF THE PERIODONTAL DISEASES IN CANINES

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Dental diseases are very prevalent in pet animals among which periodontal diseases are very common, by two years age 80% of the pets will be having one or the other form of dental disease. Periodontal disease is characterized by attachment loss and gingival recession. A total of 24 clinical cases of dogs were included in the study which were presented to the Department of Veterinary Surgery and Radiology, NTR College of Veterinary science, gannavaram with a history of various symptoms related to different dental affections. Signalment and history was collected, general physical examination was done followed by complete oral cavity examination both in conscious and anesthetised patient to record the clinical signs. Dental radiography was done to record the percentage of attachment loss, which is the loss of gum surrounding and across the tooth and this was calculated by measuring the alveolar margin from the cemento enamel junction relative to root length. Periodontal staging was done based on the attachment loss and this staging helped in the treatment plans like chlorhexidine lavage, home care practices (tooth brushing, addition of dental treats, chews and prophylactic antibiotic therapy), dental scaling and tooth extraction procedures.

RI-30

RADIOLOGICAL SIGNS ASSOCIATED WITH PERI AND ENDODONTAL DISEASES IN DOGS

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Dental disorders are of major clinical importance in dogs. By the age of two years every individual will be affected with some form of the dental affections of which periodontal and endodontal diseases are the commonly observed. The present study was conducted on 24 clinical cases that were presented to the department of Veterinary Surgery and Radiology, NTR College of Veterinary science, gannavaram on dogs of either sex above one year of age, with various symptoms like halitosis, salivation, purulent discharge, anorexia, gingivitis, tooth mobility which are clinically evident only after the progression of the disease. In this study all the dogs were screened for the clinical signs associated with the dental disease

by performing complete oral cavity examination both in conscious and anaesthetised animal to assess the gingival health, presence of calculus and structure of teeth. Dental radiography was taken for diagnosing the disease, various radiological signs associated with peri and endodontal diseases and to establish the plan of treatment.

RI-31

RADIOGRAPHIC EVALUATION OF THORACO-ABDOMINAL DISORDERS IN LARGE RUMINANTS: A REVIEW OF 120 CASES

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The present clinical study was carried out on clinical cases of cattle and buffaloes presented to the Veterinary Clinical Complex (VCC) with a history suggestive of thoraco-abdominal disorders during the year 2024–25. All these animals were screened for radiological evaluation to rule out the pathological lesions in lateral recumbency by using computed radiography (800mA). Out of 120 animals examined; three cases of esophageal obstruction (2.5%), one case of reticular abscess (0.83%), five cases of extra-reticular foreign body (4.16%), six cases of diaphragmatic hernia (5.00%), nine cases of traumatic pericarditis (7.5%), four cases of pleural effusion (3.33%), 24 cases of pneumonia (20%), and 68 cases of reticular foreign bodies (56.66%) were recorded. Cases of esophageal obstruction showed the presence of a foreign body at the cardia in two animals after passing a stomach tube, characterized by an irregularly shaped radio-opaque foreign body. A radio-lucent structure within the intra-reticular area was indicative of a reticular abscess. Loss of diaphragmatic contour and herniation of reticulum with or without radio-opaque foreign bodies, along with mild cardiac displacement, were indicative of diaphragmatic hernia. Animals with extra-reticular foreign bodies showed the presence of reticulo-phrenic adhesions along with radio-opaque metallic foreign bodies. Traumatic pericarditis cases showed presence of metallic foreign body with cardiac temponade. In pleural effusion, pleural density was prominent. Cases of pneumonia showed loss of normal lung parenchymal appearance with an irregular bronchial pattern. Majority of animals with potential reticular foreign bodies showed intra-reticular radio-opaque foreign bodies. To conclude, the plain radiographic evaluation of various thoraco-abdominal disorders in large ruminants remains gold standard imaging technique, aiding in accurate diagnosis and guiding appropriate therapeutic interventions.

RI – 32

COMPUTED TOMOGRAPHIC ASSESSMENT OF SPACE OCCUPYING HEPATIC LESIONS IN DOGS

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The present study was undertaken to determine the incidence of hepatic affections in dogs and to evaluate non-contrast and contrast-enhanced computed tomographic (CT) indices in dogs with hepatic space-occupying lesions (SOL). Dogs presented to the Veterinary Clinical Complex during a six-month period from June to November 2025 were assessed using history, clinical examination, hematobiochemical analysis, ultrasonography and confirmatory computed tomography. The overall incidence of hepatic affections was 2.19%, with chronic hepatitis being most common (0.98%), followed by acute hepatitis (0.66%), hepatic SOL (0.30%) and hepatobiliary disorders (0.24%). Hepatic affections occurred mainly in dogs aged one to eight years, whereas hepatic SOL were more frequent in dogs above eight years of age (60%), with higher occurrence in females (53.33%) and Labrador retrievers (60%). Inferential statistical

analysis was applied to quantitative CT parameters. A strong positive correlation between body weight and liver volume was observed in normal dogs, while only a very weak correlation was noted in dogs with hepatic SOL. Liver volume differed significantly between normal dogs and those with hepatic SOL ($p < 0.05$). Hepatic vascular parameters, including pre- and post-contrast attenuation values of the aorta, portal vein and caudal vena cava, along with the portal vein-to-aorta diameter ratio, did not differ significantly between groups. Paired t-test analysis demonstrated significant post-contrast enhancement of hepatic lesions ($p < 0.05$) with heterogeneous enhancement patterns. Qualitative CT assessment revealed predominantly hypoattenuating, ill-defined lesions, commonly involving the right lateral lobe. Histopathological evaluation of selected cases corroborated the imaging-based diagnosis in affected canine patients.

RI – 33

RADIOSCOPIC STUDY OF DEGENERATIVE SKELETAL DISEASES IN DOGS

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Radiographic imaging continues to be the gold standard for the diagnosis, characterization and clinical assessment of orthopaedic disorders in dogs, with particular relevance to degenerative skeletal ailment. The present investigation was designed to evaluate the radiographic characteristics and epidemiological patterns of common skeletal affections in canines presented to the Veterinary Clinical Complex (VCC), College of Veterinary Science & Animal Husbandry, Mhow, Indore (M.P.). During the study period from Jan 2024 to October 2024, a total of 3,129 dogs were examined, of which 206 cases exhibiting clinical manifestations indicative of skeletal involvement were selected for comprehensive assessment. Each case underwent systematic clinical evaluation with irrespective of age, sex and breed, followed by acquisition of high-quality skeletal radiographs using standardized positioning and exposure protocols to ensure optimal diagnostic accuracy. The spectrum of degenerative skeletal disorders encountered in the present study predominantly comprised hip dysplasia, osteoarthritis, degenerative joint disease, spondylosis deformans and intervertebral disc disease. Radiographic evaluation consistently revealed characteristic degenerative alterations, including coxofemoral joint subluxation, reduced acetabular depth, flattening and morphological remodelling of the femoral head and irregularity of articular margins. Additional findings included periarticular osteophyte and enthesophyte proliferation, increased subchondral bone density indicative of sclerosis (eburnation) and radiographic evidence suggestive of synovial effusion. The findings of this study underscore the critical importance of radiographic imaging in the early detection, objective grading, and therapeutic planning of degenerative skeletal disorders in dogs.

RI-34

STUDY ON NON-CARDIAC THORACIC INDICES IN CATS

Diwakar Mishra, Apra Shahi, Babita Das, Shobha Jawre, Randhir Singh, Apoorva
Mishra, Rakesh Barhaiya and **Om Rajak**

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The present study investigated the incidence of non-cardiac thoracic diseases in cats and compared radiographic and computed tomographic (CT) thoracic indices between Indian domestic cats and Persian cats presented to the Veterinary Clinical Complex, Jabalpur, from July to December 2025. A total of 584 cats were examined, of which 31 (5.30%) were diagnosed with respiratory tract affections. Upper respiratory tract (URT) diseases predominated

(80.64%), while lower respiratory tract (LRT) affections accounted for 19.35% of cases. Adult cats aged 1–6 years males and Persian cats were more frequently affected. Coughing, nasal discharge, and sneezing were the most common clinical signs, reflecting predominant URT involvement. Radiographic and CT-based morphometric evaluations were performed in clinically healthy Indian domestic and Persian cats to establish reference thoracic indices. Tracheal diameter-to third rib ratio, lung length, lung width, bronchial wall thickness, pulmonary vasculature ratios, and lung attenuation values were assessed. No statistically significant breed-wise differences were observed for most parameters, although Persian cats showed slightly higher tracheal ratios, while Indian domestic cats exhibited marginally larger lung dimensions. Computed tomography consistently provided more accurate and lower linear measurements than radiography due to elimination of superimposition and superior spatial resolution. CT also enabled precise characterization of LRT conditions such as pulmonary congestion, consolidation, and bronchitis through objective attenuation and airway measurements. The findings emphasize that while radiography remains a useful first-line screening tool, CT offers superior diagnostic accuracy and reliable morphometric reference values for feline thoracic evaluation, supporting its role in advanced respiratory diagnostics.

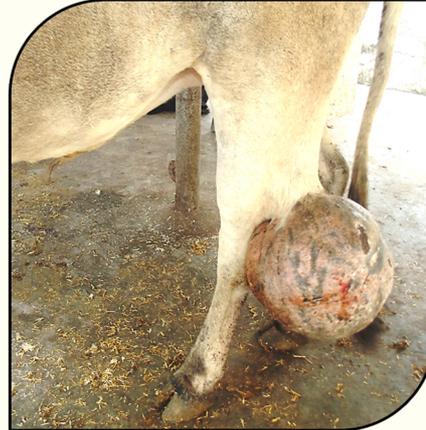
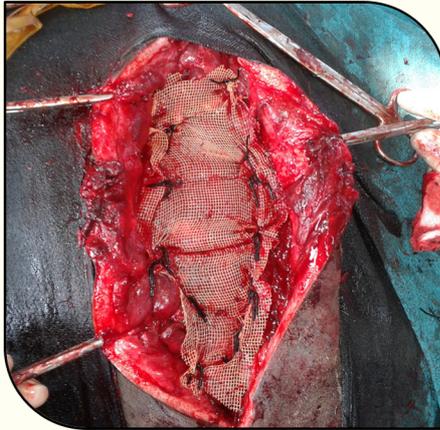
RI-35

ULTRASONOGRAPHIC CHARACTERISATION AND ECHOBIO-METRIC INDICES OF MAMMARY GLAND IN CATTLE

Jitender Singh, Deepti Sharma, Adarsh Kumar, **Shreya Thakur**, Deepti Bodh, SP Tyagi, Amit Kumar, Rohit Kumar

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The present study was conducted at the department and the Jersey Cattle Breeding Farm, Palampur, Himachal Pradesh, to evaluate the mammary gland using Ultrasonography. Both B-mode Ultrasonography of the mammary gland and Doppler Ultrasonography of the mammary artery were performed in two phases: standardization and clinical application, involving 15 healthy and 42 mammary gland affections in Jersey & Jersey crossbred cattle. Animals in their first, second, and third parity were included specifically. B-mode ultrasonography was used to assess the echotexture of the udder parenchyma, teat wall layers, supramammary lymph nodes, and related biometrical parameters. Doppler ultrasonography was performed to evaluate the mammary artery by measuring the resistive index (RI) and pulsatility index (PI) in both healthy and diseased cattle, along with assessment of the milk vein diameter. Overall, mammary gland affections resulted in marked alterations in udder parenchymal echotexture compared to healthy cattle, with significant changes observed in supramammary lymph node size and mammary artery RI and PI.



Ruminant Surgery Session



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RS-01**HOSPITAL OCCURRENCE OF HEAD AND NECK AFFECTIONS IN BOVINES****Goriya Yarmiben Mukeshbhai** and Vandana Sangwan*Department of Veterinary Surgery and Radiology, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab*

The present study was aimed to evaluate the occurrence of head and neck affections in bovines presented to the referral hospital in a period of one year. A total of 175 bovines (78 buffaloes and 97 cattle) were presented. The cases were further categorized by the anatomical site of affection (head, neck, eye, oral cavity, horn, and ear). Out of the total cattle and buffaloes presented to the hospital in that year the incidence of head and neck affections in cattle was 1.35% and that of buffalo was 1.08%. The majority of presentations involved the head region (85.14%), while neck disorders represented a smaller proportion (14.86%). The cattle had more of head affections (maximum of nasal and oral cavity and eye) while the buffalo had neck affections. The oral and nasal affections were dominated by actinomycosis and mandibular/maxillary growths and odontomas. Eye affections in cattle were largely tumorous (63.63%), whereas the buffaloes were mainly presented for traumatic eye injuries (41.67%). Cattle exhibited horn cancer in 50% of cases, while buffaloes were more prone to horn fractures and sinusitis. Ear disorders included tumors and canal affections, more often in buffaloes. Neck affections were more prominent in buffaloes, with esophageal obstruction, diverticulum, and foreign bodies forming 60% of cases, while cattle commonly showed esophageal diverticulum and torticollis. Seasonal variation in affections was not observed. In conclusion, cattle represent higher hospital occurrence of head and neck affections than buffaloes with head affections presented more than neck. Cattle had more tumorous cases in head region, while buffaloes had more traumatic.

RS-02**SURGICAL AMPUTATION OF THE HORN IN CATTLE****Benudhar Mahanand, Jayakrushna Das, Anjan Kumar Sahoo, Dhirendra Kumar Behera***Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Odisha University of Agriculture and Technology (OUAT), Bhubaneswar, Odisha*

Surgical amputation of the horn was performed in four adult cattle presented with fully developed horns affected with horn cancer or horn injury. The animals were clinically evaluated prior to surgery and found to be fit for the procedure. All cattle were adequately restrained and sedated, and regional anesthesia was achieved using a cornual nerve block to ensure effective pain control. Circular incision was given at the base of horn. Skin flap was created by undermining skin. Hemorrhage was controlled through a combination of digital pressure, ligation and application of liquid nitrogen. The skin was apposed with horizontal mattress pattern using polyamide suture No.1. Postoperative management included administration of analgesics, antibiotics, and fly control measures. Animals were monitored for complications such as excessive bleeding, infection, sinusitis, or delayed wound healing. Healing progressed satisfactorily in all four cases, with no major postoperative complications observed during the follow-up period. The outcomes of these cases highlight that surgical horn amputation in adult cattle, when performed under proper restraint, adequate anesthesia, and appropriate postoperative care, can be a safe and effective procedure. Early intervention, strict adherence to aseptic technique, and effective pain management are critical to improving animal welfare and ensuring favorable surgical outcomes.

RS-03**SURGICAL MANAGEMENT OF UROLITHIASIS IN BULLOCK BY PERINEAL URETHROSTOMY**

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Urolithiasis is a common and economically significant urinary disorder in male bovines, often resulting in urethral obstruction and requiring surgical intervention. This paper reports the surgical management of obstructive urolithiasis in three bullocks using perineal urethrostomy. The animals were presented with clinical signs of dysuria, abdominal discomfort, and reduced urine output. Based on clinical examination, a diagnosis of obstructive urolithiasis was established, and surgical correction was undertaken after appropriate stabilization. The bullock was restrained in lateral recumbency and local anesthesia was administered at the surgical site. Following aseptic preparation of the perineal region, a perineal urethrostomy was performed. The urethra was exposed through blunt dissection and incised longitudinally proximal to the site of obstruction, allowing evacuation of urine and calculi. The urethral mucosa was sutured to the skin to establish a permanent urinary stoma and ensure unobstructed urine flow. Hemorrhage was minimal and effectively controlled. Postoperative management included administration of antibiotics, anti-inflammatory drugs, and supportive therapy. The animal was closely monitored for urine flow, wound healing, and any potential complications such as infection or stricture formation. Recovery was uneventful, with satisfactory urine passage through the urethrostomy site. These cases highlight perineal urethrostomy as an effective and practical surgical option for relieving urethral obstruction in bullocks with urolithiasis.

RS-04**EVALUATION OF BUBALINE TENDON GRAFTS FOR HEALING OF TENDON GAP DEFECTS IN CLINICAL CASES OF TENDON SHORTENING**

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The present work focused on managing tendon shortening using xenogenic decellularized tendon grafts of bubaline origin. Achilles tendon explants collected from the slaughterhouse were processed through a combined chemical, physical, and enzymatic decellularization protocol. Initially, the tendons were washed with 5% SDS on a horizontal shaker for 24 hours, followed by UV irradiation for final sterilization. The extent of decellularization was evaluated using haematoxylin and eosin staining, Masson's trichrome staining, DNA quantification, Scanning Electron Microscopy (SEM), biomechanical analysis (Young's modulus, ultimate tensile strength, resilience, and percentage elongation), and biochemical assays for total protein and GAGs. The assessments revealed a marked reduction in cellular content, as confirmed by histological staining, DNA quantification, and SEM. SEM findings also showed decreased fiber diameter and increased porosity and pore size in decellularized grafts compared with native tendons. Biomechanically, the decellularized tendons demonstrated significantly lower Young's modulus, ultimate tensile strength, and resilience, while percentage elongation was increased. For in vivo evaluation, these grafts were used to repair tendon gap defects in clinical cases of tendon injuries, flexural deformities, and extensor tendon damage in young cattle and buffalo. Mild to moderate pain, swelling, and exudation were observed from day 0 to day 15, with minimal exudation indicating non-reactive and non-toxic graft behaviour. Normal weight bearing was restored by day 30 after splint removal in all treated animals. Ultrasonography in one case confirmed graft vascularization and restoration of

paratenon continuity. Overall, the study demonstrates that this decellularization protocol produces an acellular, biocompatible, structurally preserved, ready-to-use tendon scaffold suitable for tendon tissue engineering and repair of tendon gap defects.

RS-05

CLINICAL EFFICACY OF *Euphorbia Hirta* AND *Balanites Aegyptica* OINTMENTS ON WOUND HEALING IN GOATS

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The present study was undertaken to evaluate the wound healing efficacy of selected medicinal herbs in goats with lacerated wounds presented at the Teaching Veterinary Clinical Complex and Berari Goat and Deccani Sheep Research and Training Centre, Borganon Manju. A total of twelve clinical cases of lacerated wounds in goats were selected and randomly divided into two treatment groups, each consisting of six animals, irrespective of age, sex, breed, body weight, wound type, and location. Group A was treated topically with 10% (w/w) *Euphorbia hirta* whole plant ethanolic extract ointment, while Group B received 10% (w/w) *Balanites aegyptiaca* leaf ethanolic extract ointment. Clinico-physiological parameters were recorded on day 0, 4, 7, and 14. Haematological and biochemical parameters were assessed at the same intervals. Histochemical examination of wound tissue was conducted on day zero and after complete healing. The quality of wound healing was evaluated based on the percentage of wound contraction. The mean wound contraction percentage was higher in Group A (68.81%) compared to Group B (59.08%), indicating superior healing with *Euphorbia hirta*. No adverse effects were observed on rectal temperature, heart rate, or respiration rate in either group. Clinical observations such as reduction in swelling, exudation, pain, pus formation, and irritation supported effective wound healing in both groups, with better outcomes in Group A. Histochemical findings revealed abundant, well-organized collagen fibers and complete epithelisation in Group A compared to Group B. Haematological values remained within normal physiological limits, except for a significant increase in neutrophil and lymphocyte counts, while biochemical parameters showed minimal deviation. It is concluded that 10% (w/w) *Euphorbia hirta* ethanolic extract ointment is more effective than *Balanites aegyptiaca* ointment for wound management in goats.

RS-06

MANAGEMENT OF TORTICOLLIS USING INNOVATIVE FABRICATED METALLIC BRACE IN CATTLE

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This study evaluates the clinical efficacy of a fabricated metallic neck brace for managing torticollis in three large animals presented to the VCC, Tirupati. The subjects included an eight-year-old Ongole bullock, a pleuriparous Jersey-HF crossbred cow, and a pleuriparous Punganur cow. All the three animals were presented with lateral deviation of neck from one week after the administration of medications through intra muscular or intra venous route for a persistent period. Physical examination of the presented animals revealed contraction of neck muscles and inability to flex the muscles laterally. A fabricated metallic brace was designed, manufactured and applied for two weeks for correcting the posture of the neck. The animals showed gradual improvement in the posture of the neck by the end of second week. The animals were able to flex the neck normally by the end of third week. Timely sapplication of

metallic brace aided in the effective relaxation of contracted muscles and improved the neck posture, thereby reducing the risk of permanent neck deformity. The favourable clinical outcomes observed in these cases support the use of the metallic brace as an effective intervention for the management of torticollis in large animals.

RS-07

SURGICAL MANAGEMENT AND THERAPEUTIC OUTCOME OF FOREIGN BODY INDUCED RUMINO-OMASAL IMPACTION IN LARGE AND SMALL RUMINANTS

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The current study was conducted on ten large and small ruminants presented to the Veterinary Clinical Complex, Tirupati, including nine cattle and one goat. Clinical symptoms exhibited by all animals include varying degrees of anorexia, complete absence of rumination, and cessation of defecation. Following preoperative stabilization, the animals were subjected to exploratory rumenotomy under local anaesthesia using an inverted L-block with 2% lignocaine. Surgical exploration of the ruminal contents revealed penetrating foreign body in two animals and non-penetrating foreign materials in the remaining eight animals. The ruminal contents were evacuated and in cases with omasal impaction, the omasal contents were diluted with tap water through reticulo-omasal orifice and impaction was relieved. Post-operative management consisted of intravenous fluid therapy, systemic antibiotics, and analgesics, supplemented by cud transplantation to facilitate the restoration of ruminal microflora. All animals exhibited a successful recovery with a total resolution of anorexia and restoration of normal physiological functions within week post-treatment. The ingestion of indigestible foreign bodies remains a significant cause of ruminal impaction in bovines, leading to severe gastrointestinal dysfunction and economic loss. This study details the detrimental systemic effects that foreign bodies exerted on the animal's health and demonstrates the favourable clinical outcome and immediate recovery achievable through timely surgical correction and appropriate post-operative care.

RS-08

DIAGNOSIS AND SUCCESSFUL SURGICAL MANAGEMENT OF INTUSSUSCEPTION- A REVIEW OF 8 CASES

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Intussusception is an intestinal condition in which one segment of the intestine telescopes into another, resulting in obstruction. Eight cows with a history of reduced appetite, decreased milk yield, and absence of feces for 1–3 days were presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Hassan. All animals underwent clinical, hematobiochemical, and ultrasonographic examinations. Clinically, the cows showed slight dehydration, normal to subnormal temperature, and normal heart and respiratory rates. Per-rectal examination revealed a sausage-shaped intestinal mass cranio-ventral to the pelvic inlet in three animals, empty rectum with mucus in three, mucus with scanty feces in two, and mucus mixed with digested blood in three cases. Hematological findings showed leukocytosis. Transabdominal and per-rectal ultrasonography revealed distended intestinal loops with increased motility in all cases. A characteristic “Bull’s Eye” appearance with variable

echogenicity, indicative of intussusception, was noted in four animals. Pre-surgical stabilization included intravenous fluids, potassium chloride, analgesics, and antibiotics. Right flank laparotomy was performed under standing sedation using Xylazine-Butorphanol-Ketamine (XBK) and proximal paravertebral lignocaine anesthesia. During surgery, the intussuscepted segments were identified and resected, followed by end-to-end anastomosis using chromic catgut no. 2-0 in a simple continuous pattern, ensuring patency and absence of leakage. The peritoneum and muscle layers were sutured using chromic catgut no. 2 in a Ford interlocking pattern; subcutaneous tissue was closed with simple continuous sutures, and skin was closed with monofilament polyamide no. 2 in a cross-mattress pattern. Postoperative treatment included streptopenicillin for five days, flunixin-meglumine for two days, potassium chloride, intravenous fluids, and regular wound dressing. All cows passed feces within 18 hours and resumed feed and water within 24 hours. Milk yield improved within 8–10 days, sutures were removed by day 12–15, and all animals recovered uneventfully, returning to normal production within 3–4 weeks.

RS-09

SURGICAL MANAGEMENT OF TRAUMATIC TEAT INJURIES USING TISSUE ADHESIVE AND SILK PROTEIN- SILVER BASED NANOPARTICLES IN BOVINE

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The present study was conducted in 18 cattle presented with traumatic teat injuries to the Department of Veterinary Surgery and Radiology, VCRI, Namakkal from November 2024 to October 2025. Anamnesis and clinical parameters including age, breed, number of calving, stage of lactation, etiology, wound characteristics, udder and teat morphometry were recorded. The qualitative examination of milk (colour, consistency, pH and California Mastitis Test), quantitative examination (somatic cell count) and ultrasonographic examination (teat wall thickness and length of the wound) were evaluated on the day of presentation and on tenth postoperative day. Selected animals were divided randomly into three groups (I, II and III) each consisting of six animals. Group I animals were treated with conventional suturing technique using polydioxanone 3-0 for inner layers and polyamide 2-0 for teat skin. Group II animals were treated with suturing of inner layers using polydioxanone 3-0 and N- Butyl- 2- cyanoacrylate tissue adhesive teat skin. Group III animals were treated with suturing of inner layers using polydioxanone 3-0 and application of silk protein and silverbased nanoparticles over the sutured teat layers and N- Butyl- 2- cyanoacrylate tissue adhesive for skin. The study revealed that milk parameters, ultrasonographic examination showed marked improvement in group III animals when compared to group II and I. The incidence of postoperative complications was lowest in Group III animals.

RS-10**SURGICAL MANAGEMENT OF UROLITHIASIS BY MINIMALLY INVASIVE PERCUTANEOUS TUBE CYSTOSTOMY THROUGH ISCHIORECTAL FOSSA IN BOVINES**

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Bovines with a history of not passing urine from 5 days and animals were dull and depressed presented to the Department of Veterinary Surgery and Radiology, Veterinary College Hassan. Upon per rectal examination distended urinary bladder and straining was noticed. Haemato-biochemical examination revealed elevated PCV, TLC, BUN and Creatinine. Ultrasonographic examination revealed distended anechoic urinary bladder and urethra with hyperechoic sand like particles. The cases were tentatively diagnosed as obstructive urolithiasis. Minimally invasive percutaneous tube cystostomy is performed using 20 FG Pigtail catheter under sedation and lower epidural anaesthesia. Postoperatively animals were treated with antibiotics, analgesics and Ammonium Chloride @200mg/ Kg body weight per-orally as urinary acidifier. Catheter was blocked intermittently to check the patency of urethra 3 days post operatively and the catheter is blocked continuously from day 5 once the steady stream of urine comes from the prepuccial orifice. Catheter was removed on 7th day post operatively. The animals were showed uneventful recovery. Owner was advised to feed the ammonium chloride per orally for another one month.

RS-11**COMPARATIVE EVALUATION OF PLATELET-RICH PLASMA (PRP) AND DIMETHYL SULFOXIDE (DMSO) ON SURGICAL OUTCOMES IN BOVINE TRAUMATIC RETICULO-PERICARDITIS**

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This study aimed to compare the therapeutic efficacy of autologous Platelet-Rich Plasma (PRP) and Dimethyl Sulfoxide (DMSO) on surgical recovery outcomes in bovines affected with traumatic reticulo-pericarditis (TRP). Eighteen clinical cases of cattle and buffaloes diagnosed with TRP via ultrasonography were randomly divided into three groups-A, B, and C—each comprising six animals. All animals underwent pericardiostomy to facilitate drainage of pericardial effusion. Group A received intrapericardial infiltration with normal saline (control), Group B with autologous PRP, and Group C with DMSO, administered once daily for three consecutive days. Clinical parameters, including rectal temperature, respiration rate, and heart rate, were recorded on days 0 and 5 post-treatment, along with ultrasonographic assessment of pericardial effusion and reticular motility. Characteristic clinical signs observed included anorexia, dehydration, brisket edema, and jugular distension, consistent with right-sided cardiac failure. Hemato-biochemical and cardiac biomarker analyses (cTnI and NT-proBNP) indicated anemia, leukocytosis, and myocardial injury. Oxidative stress markers such as malondialdehyde (MDA), superoxide dismutase (SOD), reduced glutathione (GSH), and total antioxidant capacity (TAC) revealed increased oxidative stress in affected animals. Anaerobic culture of pericardial fluid confirmed bacterial infection in some cases. Comparative evaluation demonstrated that PRP infiltration yielded better clinical recovery, improved antioxidant status, and reduced cardiac biomarker levels compared to DMSO. The study concludes that PRP offers

superior cardioprotective and regenerative potential in managing bovine TRP. Preventive measures, including avoiding ingestion of metallic foreign bodies through contaminated feed, remain crucial for disease control and improved prognosis.

RS-12

CLINICAL OUTCOME OF POST-SCROTAL URETHROSTOMY IN BULLS WITH URINARY RETENTION

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The present study details the surgical management of two bulls with irreparable urethral compromise through post-scrotal urethrostomy. In the first case, a bull previously treated for gangrenous paraphimosis via distal penile amputation re-presented four months later with ventral abdominal edema and a severe urethral stricture at the surgical site. Second case involved a bull presented with complete anuria for five days following a fifteen-day history of urine dribbling. Clinical examination revealed characteristic whitish powdery deposits on the preputial hair and subcutaneous infiltration of urine in the preputial region, indicating obstructive urolithiasis. Attempts to dislodge the uroliths were unsuccessful. Both animals underwent post-scrotal urethrostomy under sedation and local infiltration. A midline incision was made in the post-scrotal region, and blunt dissection was used to exteriorize the penile tissue. A urethral incision was made to expose the mucosa, which was then sutured to the skin using a non-absorbable suture in a simple interrupted pattern. Antibiotics and analgesics were administered postoperatively for five and three days respectively. Both bulls achieved successful recovery with immediate restoration of urinary flow. These cases demonstrate that post-scrotal urethrostomy is an effective salvage procedure for managing both chronic traumatic strictures and refractory obstructive urolithiasis, providing a viable long-term solution for maintaining animal health.

RS-13

SURGICAL MANAGEMENT OF UNUSUAL TUMOURS IN BOVINES

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Neoplastic growths in bovines, though relatively uncommon, can cause significant discomfort, functional impairment, and economic loss if not managed appropriately. The present report describes the successful surgical management of tumours in two bovine cases: a cow presented with a large proliferative mass involving the right ear, and a cow presented with an extensive tumour located on the left flank region above paralumbar fossa. Both animals were clinically examined, and the tumours were characterized by their size, location, consistency, and associated tissue involvement. Surgical excision was performed under appropriate restraint and anaesthesia following standard aseptic protocols. In the cow, complete excision of the ear tumour was achieved with careful ligation of blood vessels to control haemorrhage, while preserving surrounding healthy tissues. In second case, wide surgical excision of the flank tumour was carried out, ensuring removal of all abnormal tissue margins. The tissue samples were sent for histopathological examination. Postoperative management included antibiotic therapy, anti-inflammatory drugs, regular wound dressing, and close monitoring for complications. Healing was uneventful in both cases, with satisfactory recovery and no recurrence observed during the follow-up period. These cases highlight that timely diagnosis and complete surgical excision remain effective treatment options for localized tumours in bovines, leading to favourable clinical outcomes and improved animal welfare.

RS-14**SURGICAL MANAGEMENT OF OBSTRUCTIVE UROLITHIASIS IN A SIX BUFFALO CALVES****J.V. Vadalia, R.K. Gosai, F.A. Asodiya and A.N. Patel***Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, KU, Anand, Gujarat*

Obstructive urolithiasis due to formation of calculi in the urinary tract is a common problem among the bovine calves particularly during winter seasons. Male calves are affected more than the female calves. Surgical management by tube cystostomy using Foley's catheter in conjunction with medicinal management and per oral feeding of ammonium chloride is treatment of choice. Six buffalo calves aged between 3-9 months old presented at Department of Veterinary Surgery and Radiology, CoVSAH, KU, Anand with the history of reduced water intake, anuria, stranguria and distended abdomen. Clinical observations combined with radiographic and ultrasonographic examination diagnosed the obstructive urolithiasis. All the calves were managed surgically by tube cystostomy. The post-operative antibiotics and anti-inflammatory drugs were administered for 5 days in all the calves. The surgical wound healed without any complications. Owner was advised to feed ammonium chloride salt per orally and all the calves recovered uneventfully.

RS-15**SURGICAL MANAGEMENT OF AURAL HAEMATOMA IN 2 GOATS****Chudasama, M.J., Raygaur, B.K., Patel, T.P., Suthar, D.N., Raulji, V.S., Asari, V.H.***M.V.Sc. scholar, Department of Veterinary Surgery and Radiology, College of Veterinary Science & Animal Husbandry, Kamdhenu University, Rajpur (Nava), Himmatnagar, Dist. Sabarkantha, Gujarat (India)*

A goat was presented with history of swollen right ear flap for past 7 days. Clinical examination revealed soft swelling noticed on concave side of right ear. It was diagnosed as aural haematoma and decided for surgical drainage. The animal was anaesthetized using regional nerve block and a longitudinal incision was made on the concave surface of the ear pinna. After draining the serosanguineous fluid, the cavity was thoroughly irrigated with Povidone iodine solution. The pinna was dressed with Povidone iodine and through-and-through mattress sutures placed parallel to longitudinal axis of ear using 1 number monofilament polyamide non absorbable suture material to avoid dead space. The loss cotton bandage was applied to ear pinna to reduce the risk of post-operative infection. Post-operatively, Amoxicillin Sulbactam and Meloxicam were given for five and three days respectively. The animal made an uneventful recovery after 14 days and suture are removed.

RS-16**KERATOGENOUS FLAP METHOD IN MANAGEMENT OF HORN FRACTURE IN BUFFALOES****S.A. Chaudhary, P.T. Sutaria, A.M. Patel, J.M. Patel, J.B. Patel, Aekta Vyas, Sunil Kapdi, P.B. Patel**
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A study on 36 buffaloes evaluated keratogenous flap and modified skin flap techniques for horn fracture management. Animals were divided into Group I (keratogenous flap; fractures between base and middle third, N=18) and Group II (modified skin flap; fractures from base to tip, N=18). Surgeries were performed under xylazine sedation and local anaesthesia. Mean operative time was significantly ($P < 0.05$) lower in Group I (34.22 ± 1.70 min) than Group II (44.39 ± 1.38 min). Postoperative wound dehiscence occurred in three cases in each group. Group I showed corium hardening by 29.56 ± 1.34 days and complete horn regrowth by $8.89 \pm$

0.35 weeks, whereas Group II showed satisfactory epithelialisation within 5–7 days without horn regeneration. Total pain index decreased significantly in Group I but non-significantly in Group II. Physiological and haematological parameters fluctuated within normal limits. Infighting (55.5%) was the major cause of fracture, commonly involving the right horn (58.3%) and lower third region (61.1%). Purulent discharge was observed in 63.7% cases. Bacterial isolates mainly included *Staphylococci* and *E. coli*, with highest antibiotic sensitivity to Gentamicin and maximum resistance to Penicillin-G. The keratogenous flap method was superior for surgical efficiency, pain control, and horn regrowth, while the modified skin flap provided satisfactory wound healing without horn regeneration.

RS-17

SURGICAL MANAGEMENT OF PERINEAL HERNIA IN MEHSANA BUFFALOES

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Three Mehsana buffaloes presented with a history of unilateral perineal swelling accompanied by dysuria and tenesmus, with normal defecation, were diagnosed with perineal hernia based on clinical examination. The clinical examination revealed soft, painless, and reducible swellings located lateral to the vulvar lips. All buffaloes were in good body condition, and physiological parameters were within normal ranges. Ultrasonographic examination revealed hypoechoic or anechoic content enclosed into hyperechoic hernial sac. Based on history, clinical findings, and ultrasonographic examination, cases were diagnosed as a perineal hernia. Surgery was performed in a standing position under epidural anaesthesia along with local infiltration. A linear skin incision was made lateral to the vulva over the perineal swelling. Following dissection of the underlying fascia, the hernial ring was identified, and the herniated content, consisting of retroperitoneal fat and urinary bladder, was carefully reduced to its normal anatomical position. Perineal herniorrhaphy was performed using No. 5 polyester suture material, followed by routine closure of fascia and subcutaneous tissues using polyglactin No. 2 suture material. Skin was closed using No. 2 nylon suture material in a horizontal mattress pattern. Postoperative management included administration of antibiotics and non-steroidal anti-inflammatory drugs for five days, along with regular antiseptic wound dressing. All buffaloes showed satisfactory postoperative recovery with uneventful healing and no complications.

RS-18

LAPAROSCOPY GUIDED VS CONVENTIONAL METHOD OF DIAPHRAGMATIC HERNIORRHAPHY IN BUFFALOES

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The present study evaluated and compared conventional and laparoscopy-guided diaphragmatic herniorrhaphy in buffaloes affected with diaphragmatic hernia. Twelve buffaloes diagnosed by radiography and confirmed during rumenotomy were randomly divided into two groups, with six animals in each group. All animals were placed in dorsal recumbency with a 30° head-up tilt after achieving a surgical plane of anaesthesia. In both groups, diaphragmatic herniorrhaphy was performed using a post-xiphoid approach. The conventional technique involved a 10 cm elliptical skin incision, blunt dissection of abdominal layers, separation of reticular adhesions, reduction of herniated contents, and assessment of the hernial defect. The diaphragmatic defect was repaired using double-stranded silk in a simple interrupted pattern, with the final suture placed during inspiration. In the laparoscopy-guided group, a 10 mm trocar and cannula were introduced 5 cm away from the main incision, and a 57 cm long, 0-degree

rigid telescope was used to visualize the abdominal cavity. Laparoscopic assistance enabled better identification and careful separation of adhesions, accurate placement of sutures, and clear visualization of the hernial ring. The light source also aided in assessing potential injury to the lungs and pericardium during suturing. In this group, the final suture was placed under assisted lung inflation. Laparoscopy-guided diaphragmatic herniorrhaphy was found to be safe, feasible, and comfortable, providing improved visualization without significantly increasing surgical time. The study highlights the advantages of laparoscopic assistance over the conventional technique in buffaloes.

RS-19

SURGICAL MANAGEMENT OF WATERBELLY CONDITION IN BULL CALVES

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Cystorexis leading to uroperitoneum ie. waterbelly condition is a life-threatening condition characterized by leakage of urine into the peritoneal cavity. Three bull calves aged between 3 to 6 months were presented to the Veterinary Clinical Complex, VCC, NTR CVSc, Gannavaram, with a history of anuria for 4–5 days. Clinical examination revealed a markedly distended abdomen with a water-belly appearance, and ballottement indicated fluid accumulation. Ultrasonography confirmed anechoic fluid in the abdominal cavity, suggestive of uroperitoneum secondary to urinary obstruction caused by urethral calculi. The cases were managed surgically by tube cystotomy. Under paravertebral anesthesia combined with local infiltration of 2% lignocaine hydrochloride, a paramedian laparotomy was performed, which revealed cystorrhesis of the urinary bladder. Following drainage of the accumulated peritoneal urine, a Foley's catheter was introduced through the rupture site into the bladder to provide continuous drainage. Subsequently, cystorrhaphy was carried out using a Lambert suture pattern with polyglactin (size 2-0). The laparotomy incision was closed in two layers: the muscle with an interlocking pattern using catgut (size 2), and the skin with a cross-mattress pattern using polyamide (size 2-0). Post operatively, the calf was treated with Ceftriaxone-Tazobactam for 7 days, Flunixin meglumine for 3 days, and oral ammonium chloride supplementation for one month. The Foley's catheter was removed after one month, coinciding with the complete restoration of normal urination. The calf recovered uneventfully, with abdominal distension subsiding within two weeks and urinary function returning to normal by one month.

RS-20

EVALUATION OF POST-OPERATIVE ILEUS AFTER ENTEROTOMY AND ENTERO ANASTOMOSES IN MECHANICAL INTESTINAL ILEUS IN CATTLE BY USING INTRAVENOUS ADMINISTRATION OF AZITHROMYCIN AND DIFFERENT NON-STEROIDAL ANTI-INFLAMMATORY DRUGS

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The present work was carried out in 12 cattle, randomly divided into 2 groups of 6 animals each presented to the Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal with a history of not voiding the dung. In all the cases, clinical, haematological, biochemical, and ultrasonographic evaluation was done. Higher incidence of intestinal obstruction was observed in females (n=10). The mean (\pm SE), age and body weight of the animals were 4.23 ± 0.45 years and 313.10 ± 7.85 kg respectively. Animals with mechanical intestinal ileus were subjected to the enterotomy and enteroanastomoses under general anaesthesia using intravenous administration of double drip followed by maintenance with isoflurane inhalant anaesthesia as per the standard procedure. Post operatively in both the

groups, Inj. Azithromycin was administered at the dose rate of 1mg/kg i.v and was followed up to 3 days. Group I and group II animals were treated with Inj. Megludyne and Inj. Melonex respectively. In the present study, Azithromycin-Megludyne combination used in group I was found to be effective in reducing the dung voiding time compared to Azithromycin-Melonex combination used in group II animals.

RS-21

EVALUATION OF HEMATO-BIOCHEMICAL AND OXIDATIVE STRESS MARKERS IN BUFFALOES WITH FOREIGN BODY SYNDROME

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The present study was conducted on 51 adult buffaloes presented to the department, which were randomly divided into three groups: Group-I (n=10): Apparently Healthy Animals; Group-II (n=31): Foreign body syndrome without penetration to reticular wall and Group-III (n=10): Foreign body syndrome with penetration to reticular wall. The mean values of varioushemato-biochemical and oxidative stress markers (MDA, SOD, GSH, OSF, catalase, cortisol) were recorded and analysed statistically. There was no significant difference in mean value of haemoglobin, TEC and PCV count between different groups I, II and III. The mean value of TLC was significantly higher in group II and III as compared to group I. The mean neutrophil count increase significantly from group I to group II. The mean lymphocyte count decreased from group I to group II. The mean values of albumin, albumin: globulin ratio (A:G), potassium and chloride were significantly ($p < 0.05$) lower in groups II and III as compared to group I. The mean values of SGOT (AST), GGT, direct bilirubin, indirect bilirubin and total bilirubin were non-significantly higher in groups II and III compared to group I. The mean values of blood urea nitrogen (BUN), alkaline phosphatase (ALP) and magnesium were significantly higher in group II and III as compared to group I. All oxidative stress markers except for catalase were significantly higher in group II and III as compared to group I. Animals sufferings from foreign body syndrome showed systemic toxemia (TLC high), hypoalbuminemia, hypochloremia and hyper-alkaline phosphatasemia. MDA, GSH, SOD, Catalase and OSF were reliable markers for assessment of oxidative stress in buffaloes undergoing rumenotomy.

RS-22

DUAL CATHETER TECHNIQUE FOR HIGH-FLOW URINARY DRAINAGE IN MALE BUFFALO CALVES USING FOLEY'S AND 40 FRENCH GAUGE SELF-RETAINING MALECOT CATHETER

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Urolithiasis is a common and life-threatening surgical emergency in male buffalo calves, particularly under rural and field conditions. Post-operative catheter blockage remains a major cause of surgical failure when conventional Foley's catheters are used alone. This study describes a dual catheter technique combining Foley's catheter for controlled bladder decompression with a 40 French Gauge (FG) self-retaining Malecot/De Pezzer catheter for definitive high-flow urinary drainage. The wide lumen and self-retaining design of the Malecot catheter enabled continuous evacuation of urine along with blood clots, pus, and urinary calculi, effectively preventing catheter occlusion. Field application of this technique resulted in approximately 90% success in non-ruptured bladder cases, with minimal post-operative complications. The dual catheter method offers a simple, economical, and reliable solution for managing obstructive urolithiasis in male buffalo calves under field conditions.

RS-23**EVALUATION OF DECELLULARIZATION EFFICIENCY AND
BIOCOMPATIBILITY OF *SAPINDUS MUKOROSI* FRUIT PERICARP EXTRACT
FOR THE PREPARATION OF CAPRINE OMASUM TISSUE SCAFFOLDS**

Shubham Asthana, Vipin Kumar Yadav, Anil Kumar Gangwar, Sangeeta Devi Khangembam,
Yogendra Singh, Swapnal Yadav, Akash Kumar Gangwar, Santhulal.S, Rajat Garg

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Decellularized extracellular matrix scaffolds derived from xenogeneic tissues have emerged as promising biomaterials in regenerative medicine due to their structural integrity and biocompatibility. The present study was carried out in the Department of Veterinary Surgery and Radiology, ANDUAT, Kumarganj, Ayodhya, to evaluate the decellularization efficiency and biocompatibility of *Sapindusmukorossi* fruit pericarp extract as a natural, plant based alternative to conventional chemical detergents for the preparation of caprine omasum tissue scaffolds. Fresh caprine omasum was subjected to decellularization using a *Sapindusmukorossi* fruit pericarp extract based protocol. The effectiveness of decellularization was assessed through gross examination, histological evaluation using hematoxylin and eosin staining, detection of residual nuclear material by DAPI staining, and quantitative estimation of DNA content. Preservation of extracellular matrix architecture was further evaluated using scanning electron microscopy and Fourier transform infrared spectroscopy, along with biochemical analysis of collagen content, porosity, and swelling behavior. Biocompatibility of the prepared scaffolds was assessed through in vitro hemocompatibility testing and in vivo subcutaneous implantation, followed by histological evaluation of host tissue response. The *Sapindusmukorossi* based protocol resulted in efficient removal of cellular and nuclear components with residual DNA levels within acceptable limits, while effectively preserving the native ultrastructure and biochemical composition of the extracellular matrix.

RS-24**SURGICAL APPROACH TO ABOMASUM IN CATTLE AND BUFFALOES A
REVIEW OF 52 CASES**

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Right/ left flank laparotomy and paramedian approach are the different approaches mentioned in literatures for approaching abomasum in cattle. These approaches are good for approaching abomasums during left/ right sided displacement of abomasum. But during abomasal impaction approaching abomasum is very challenging from the mentioned approaches. Hence present study was conducted to know different approaches for accessing the abomasum. The study was conducted from 2016 to 2025 in and around southern districts of Karnataka. Left flank laparotomy, abomasotomy and abomasopexy were conducted in cattle affected with left displacement of abomasum. Right flank laparotomy, abomasotomy and abomasopexy were conducted in cattle affected with right displacement of abomasum. Rumenotomy followed by infusion of vegetable oil with 2 liters warm water through reticuloomasal orifice and then passing complete fist in to omasum followed by passing hand in to the abomasum was followed in patients where abomasal impaction was suspected. A total of 52 cattle including 8 with LDA, 12 with RDA, 31 with abomasal impaction and one with chronic abomasitis were treated surgically during the mentioned period. 7 out of 8 cattle with LDA, 9 out of 12 cattle with RDA, 25 out of 31 cattle with abomasal impaction and one with chronic abomasitis were recovered uneventfully. The present study concludes that left flank laparotomy followed by abomasotomy during LDA, right flank laparotomy followed by abomasotomy and abomasopexy during RDA and rumenotomy followed by passing hand in to the abomasum during abomasal impaction/abomasitis are very suitable approaches for approaching abomasum surgically.

RS-25**CHALLENGES CAUSES OF INTESTINAL OBSTRUCTION IN CATTLE AND THEIR MANAGEMENT UNDER FIELD CONDITIONS****Manjunath SP**, Pramodh JK, Bharth Kumar ML, Vishwanatha B and Shreekantheshvara HN*Veterinary Hospital, Nonavinakere, Tumkur district, Karnataka*

Intussusception and caecal dilatation with torsion are the common causes of intestinal obstruction where typical signs like raspberry jam type of defecation in the former and big loops of caecum which can be palpated per rectally in later will be helpful for diagnosing the conditions under field conditions. Some of the other rare causes of intestinal obstruction possess tough challenge to the veterinarians because of lack of specificity in signs. In the present study an attempt is made to report some of the rare and challenging causes of intestinal obstruction which imposed diagnostic challenge to the veterinarian. The present study was conducted at Tumkur, Shivamogga and Davanagere districts of Karnataka from 2024 to 2025. A total of 9 cattle affected with different rare causes of intestinal obstruction including 4 with phytobezoer accumulation, 1 with gut tie, 2 with haemorrhagic bowel syndrome, one with peritonitis and one with mesenteritis were found as different rare causes of intestinal obstruction. Right/left flank laparotomies and removal of phytobezoer during phytobezoer accumulation, right flank laparotomy and surgical correction of the condition were conducted for other cattle with other affections were conducted. 6 out of 9 cattle recovered uneventfully. All the affected cattle imposed tough diagnostic challenge to the veterinarian in diagnosis. Exploratory laparotomy helped to arrive at the definitive diagnosis. The present study concludes that, proper history collection, exploratory laparotomy with systematic approach will be helpful to identify and manage the tough causes of intestinal obstruction under field conditions.

RS-26**CANNULATION-GUIDED CHEMICAL ABLATION FOR TREATMENT OF PAROTID SALIVARY DISORDERS IN BOVINE: A REPORT OF THREE CASES****Vandana Sangwan, Nikita Gupta, Sagar, Goriya Yarmiben Mukeshbhai and Ashwani Kumar***Department of Veterinary Surgery and Radiology, College of Veterinary Science, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana-141004, Punjab, India*

A Jersey cross cow, a Haryana bullock, and a Murrah buffalo, all aged five years, were presented with a history of unilateral facial swelling or salivary fistula at varying anatomical locations. The cow exhibited a large, fluctuating swelling in the parotid region extending ventrally, the bullock had a small localized swelling (8 × 4 cm) along Stenson's duct near its oral opening, and the buffalo was presented with the rupture of Stenson's duct accompanied by a salivary fistula and continuous dribbling of saliva. Aspiration of the swelling in the cow and bullock yielded clear fluid, while clear salivary discharge was evident in the buffalo. In all cases, Stenson's duct was identified either by extending the existing fistula or by making a fresh incision, following which it was cannulated using a No. 9 baby feeding tube. Proper cannulation was confirmed by the appearance of saliva in spurts from the tube. Additionally, a Foley's catheter was placed at the site of swelling in the cow and bullock to facilitate effective drainage. All procedures were performed under local anesthesia, with sedation administered when required. The cow, being advanced pregnant (8 months), was sedated using midazolam (0.02 mg/kg IV). Chemical ablation of the parotid salivary gland was achieved by administering dilute tincture of iodine through the cannulated Stenson's duct for a continuous period of 5–7 days. All animals showed gradual resolution of the clinical signs with mild postoperative complications, primarily transient inflammatory swelling in the parotid region, which subsided within three days of discontinuing iodine instillation. Complete clinical recovery was observed within 15–20

days. Late complications included recurrence in the buffalo after six months and mild salivary dribbling from a fistula at the angle of the mandible in the cow. This report highlights cannulation-guided chemical cauterization of the parotid gland as a safe and effective alternative to blind percutaneous injection; however, recurrence may occur, possibly due to partial regeneration of the parotid gland over time.

RS-27

EVALUATION OF TREATMENT PROTOCOLS FOR BOVINE WARTS IN DAIRY CATTLE WITH EMPHASIS ON EFFICACY AND SAFETY

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Bovine warts (papillomatosis), caused by bovine papillomavirus, result in significant economic losses to the dairy industry due to reduced milk production, pain, and secondary infections. Conventional therapies such as surgical excision and cryotherapy are often impractical under field conditions. Therefore, the present study was conducted in the Dharmapuri district to evaluate the effectiveness and safety of alternative treatment methods for bovine cutaneous papillomatosis in dairy cattle. A total of 21 affected animals were randomly divided into three treatment groups (n = 7). Group T1 received lithium antimony thiomalate (LAT) at 15 ml deep intramuscularly at weekly intervals for six doses or until complete recovery. Group T2 received autoimmunization (AI) at 30 ml deep intramuscularly in two different sites at weekly intervals for two doses. Group T3 received homeopathic treatment (*Thuja occidentalis*) with oral administration of 20 drops per day and topical application twice daily for four weeks. Animals were monitored for three months at 15-day intervals. Clinical parameters recorded included wart size, number, time to regression, recurrence, and any adverse effects following treatment. Mean regression of warts was highest in Group T1 (92.4%), followed by Group T2 (85.6%) and Group T3 (71.2%). The average healing time was 36 days in T1, 42 days in T2, and 49 days in T3. Recurrence rate was lowest in T1 (9.5%). No serious adverse reactions were observed in any treatment group, indicating that all protocols were safe and well tolerated. Lithium antimony thiomalate produced faster wart regression and lower recurrence, while autoimmunization was effective but required repeated dosing. The homeopathic treatment showed moderate response under field conditions. The study concludes that lithium antimony thiomalate is a safe, effective, and field-friendly approach for managing bovine warts in dairy cattle.

RS-28

DIAGNOSIS AND SURGICAL MANAGEMENT OF DIAPHRAGMATIC HERNIA IN TWELVE BUFFALOES

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Twelve buffaloes confirmed with diaphragmatic hernia (DH) were subjected to detailed diagnostic evaluation and surgical management at the Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Kamdhenu University, Himmatnagar (Gujarat). Diagnosis was based on clinical signs, auscultatory findings, radiography and ultrasonography. Radiographic examination yielded a diagnostic accuracy of 58.33%, while ultrasonography showed higher accuracy (83.33%) by revealing cranial displacement of the reticulum, altered reticular motility and reduced reticulo-pericardial distance. Surgical correction was undertaken using a two-stage technique consisting of left flank laparo-rumenotomy followed by post-xiphoid trans-abdominal herniorrhaphy under sedation and local infiltration analgesia. Metallic foreign bodies were recovered in six cases. Single

hernial rings were observed in all animals, predominantly located on the right ventral diaphragm with sizes ranging from 8 to 20 cm. The hernial ring was repaired using a continuous lockstitch pattern with non-absorbable fishnet suture. The overall survival rate was 75% with satisfactory postoperative recovery in surviving animals. Ultrasonography is a reliable diagnostic tool and a two-stage surgical approach provides effective management of diaphragmatic hernia in buffaloes with good survival outcomes.

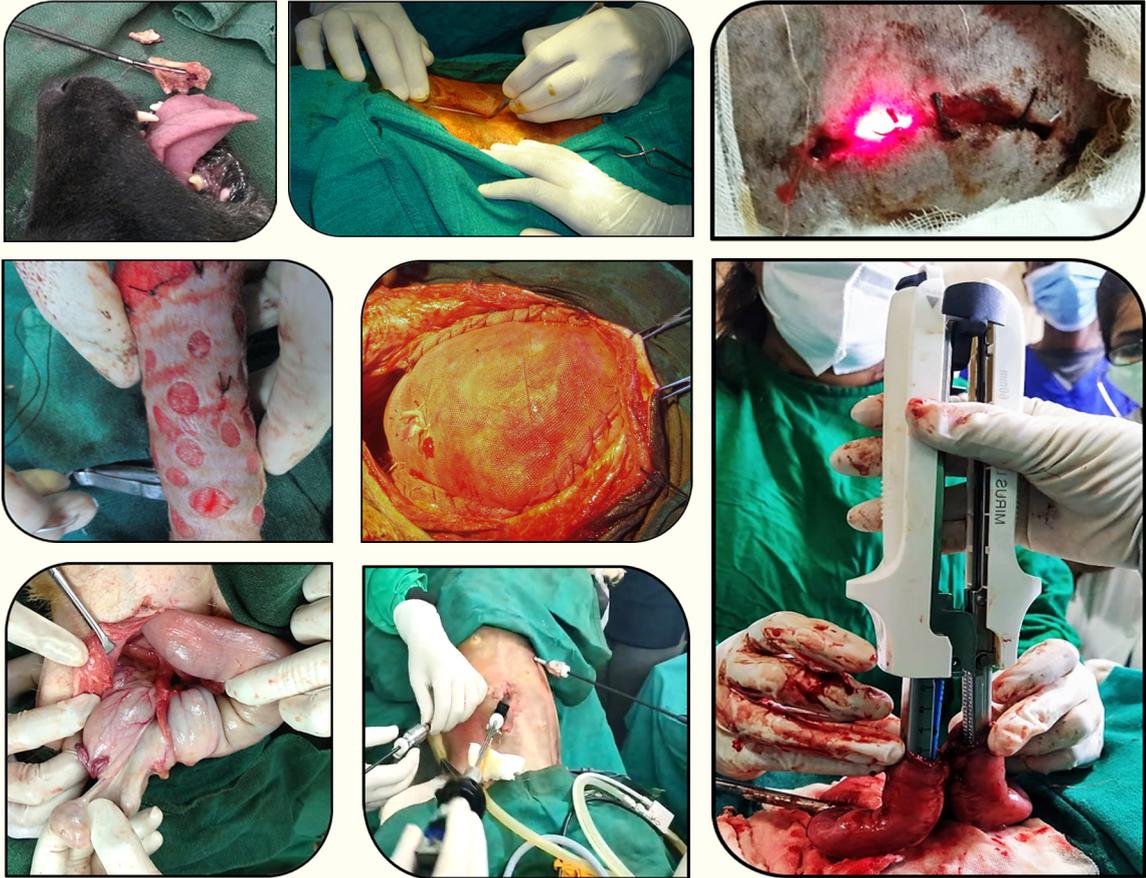
RS-29

ONE-STAGE DIAPHRAGMATIC HERNIORRHAPHY IN BUFFALOES: A RETROSPECTIVE REVIEW OF 18 CASES

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Diaphragmatic hernia (DH) is a common surgical disorder in buffaloes and is traditionally managed by a two-stage surgical technique involving rumenotomy followed by diaphragmatic herniorrhaphy through a separate incision. This conventional approach increases surgical stress, anesthetic exposure, cost, and the risk of complications. The present study describes a single-stage, single-incision diaphragmatic herniorrhaphy performed through a left flank paracostal approach in a standing buffalo, along with a retrospective analysis of 18 cases operated over a period of two years. Out of 18 animals, 14 (77.77%) survived, while 4 (22.22%) died, including 2 intra-operative deaths (11.11%) and 2 post-operative deaths (11.11%). The findings indicate that single-stage standing diaphragmatic herniorrhaphy through a flank approach is a feasible, economical, and field-applicable alternative to the conventional two-stage technique, even in advanced pregnancy.



Small Animal Surgery Session



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SAS 01**CLINICAL MANAGEMENT OF CANINE UROLITHIASIS: COMBINING MEDICAL DISSOLUTION AND SURGICAL INTERVENTION**

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In dogs, urinary stones can progress from silent formation to obstructive crises, highlighting the need for integrated medical and surgical strategies. The present clinical study conducted at Veterinary Clinical Complex, CVSc, AVFU, Khanapara documented the surgico-medical management of 12 dogs presented with signs suggestive of urolithiasis, with emphasis on medical management, operative decision-making, perioperative outcomes, and complications encountered during treatment. Dogs were evaluated using diagnostic imaging modalities including radiography, contrast radiography, and ultrasonography to aid in treatment. Initial medical management was attempted in selected cases; however, surgical intervention was undertaken in non-responsive cases or those presenting with obstruction. Surgical procedures included cystotomy and retrograde urohydropulsion, performed as per standard protocols. Urinalysis and hematobiochemical investigations were used as adjuncts for perioperative assessment. Surgical intervention resulted in successful resolution of obstruction in the majority of cases. One notable postoperative complication involved self-mutilation of urinary catheter by the patient, necessitating an additional corrective surgical procedure and another dog with postoperative deterioration following urolith removal via cystotomy. During the course of the study, certain cases initially suspected to be urolithiasis were subsequently diagnosed as lower urinary tract conditions mimicking obstruction, underscoring the importance of thorough physical examination prior to surgery. This study emphasizes a combined medical and surgical approach for the management of canine urolithiasis, with initial attempts at medical dissolution followed by surgical intervention where indicated. Such an approach allows effective resolution of urinary obstruction while optimizing treatment outcomes, with ancillary diagnostic findings and perioperative observations serving to support clinical decision-making.

SAS 02**ADRENALECTOMY IN DOGS**

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Adrenal tumours account for approximately 1–2% of all canine tumours and are diagnosed either following development of clinical signs or incidentally during abdominal imaging. These neoplasms are broadly classified into functional adrenocortical tumours, pheochromocytomas, and non-functional tumours. Adrenalectomy is the mainstay treatment of choice and is recommended for functional tumours, pheochromocytomas, masses showing vascular invasion or those increasing rapidly in size. Radiation therapy can be considered for unresectable tumors. Pre-operative assessment includes CBC, biochemical testing, Computer Tomography to evaluate involvement of the caudal vena cava (CVC) and metastatic spread. Adrenalectomy is generally regarded as a high-risk procedure due to the proximity to major blood vessels; however, many patients may do well when the surgery is carefully planned and performed by an experienced surgical team with appropriate peri and post-operative monitoring. Several surgical approaches are available, including ventral midline, flank, mini-flank/intercostal, laproscopic and retroperitoneal approaches. This abstract describes the surgical approach for adrenal tumors. Ventral midline would be by far the most common surgical approach. Abdominal organs are carefully retracted to identify the kidney, renal artery and vein, aorta, CVC, and adrenal gland. The adrenal and phrenicoabdominal vasculature are ligated or

clipped, with right-sided adrenalectomy being more challenging due to proximity to the CVC. The gland is then carefully dissected and removed, and the abdominal wall is closed in layers with the skin sutured. Perioperative considerations include blood pressure control, haemorrhage management, cortisol-related hypotension, and prevention of postoperative hypoadrenocorticism. Prognosis varies by tumor type but outcomes may be favourable with treatment.

SAS 03

SURGICAL MANAGEMENT OF OPEN PYOMETRA IN FEMALE DOGS

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In present study, Five female dogs aged 8 to 12 years of different breeds were presented to veterinary clinical complex PGIVER, Jaipur with history of emesis, restlessness, inappetance and vaginal discharge. Clinical examination revealed white-yellowish purulent vaginal discharge with an unpleasant odour. Ultrasonographic findings revealed thickened uterine walls with irregular edges and small anechoic areas. Open pyometra was diagnosed on the basis of history, clinical examination and ultrasonographic findings. It was decided to conduct ovariectomy. Blood profile revealed low haemoglobin in two cases which was later attained along with neutrophilia (resolved later). Ovariectomy was performed through midline laparotomy under general anaesthesia premedicated with atropine sulphate @ 0.02 mg/kg b.wt. i/m, butorphanol @ 0.1 mg/kg b.wt/m and xylazine hcl @ 1.0 mg/kg b.wt/m respectively and induced with ketamine hcl @ 5 mg/kg b.wt/m and maintained on isoflurane. Post operatively, the dogs were medicated with intravenous fluid therapy along with ceftriaxone @ 25 mg/kg b.wt. i/v and meloxicam @ 0.2 mg/kg b.wt. for 5 and 3 days respectively, with regular dressing of suture line. The sutures were removed 7 days post operatively and the dogs showed uneventful recovery by 14 days, postoperatively.

SAS 04

PRESCROTAL VERSUS CASTRATION WITH SCROTAL ABLATION IN DOGS: CLINICAL OBSERVATION

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Castration is a common surgical procedure in veterinary practice, with multiple techniques employed to achieve effective sterilization while minimizing complications. This comparative study evaluates two castration methods—castration with ablation and prescrotal castration—with respect to surgical efficiency, postoperative complications, healing time, and overall outcomes. Animals were randomly allocated into two groups, ten for prescrotal castration and five for castration with scrotal ablation technique under standardized anesthetic and aseptic conditions. Parameters assessed included duration of surgery, intraoperative hemorrhage, postoperative pain and swelling, wound healing, and incidence of complications such as infection or scrotal edema. Castration with ablation demonstrated reduced postoperative swelling and faster wound healing due to complete removal of scrotal tissue, whereas prescrotal castration was associated with shorter operative time and less tissue dissection. Both techniques were effective in achieving castration with no significant long-term adverse effects. However, castration with ablation showed advantages in cases where scrotal pathology or excessive scrotal tissue was present, while prescrotal castration proved to be a simpler and less invasive approach suitable for routine procedures. The study concludes that selection of castration technique should be guided by clinical condition, surgeon expertise, and desired postoperative outcomes.

SAS 05**PREVALENCE, EPIDEMIOLOGICAL RISK FACTORS AND CLINICAL EVALUATION OF PYOMETRA IN BITCHES PRESENTED AT TVCC, DURG****Alok Kumar Jaiswal, M.O. Kalim, S.K. Tiwari, Vikash Kumar Meshram and Prakhar Jaiswal***Department of Veterinary Surgery and Radiology College of Veterinary Science and A.H. Anjora (DSVCKV) Durg (C.G.)*

The present study was conducted at the Teaching Veterinary Clinical Complex (TVCC), Durg, from March to October 2025 to determine the prevalence and epidemiological characteristics of pyometra in bitches. During the study period, a total of 950 gynaecological cases were presented, out of which 84 bitches were diagnosed with pyometra, indicating an overall prevalence of 8.84%. Age-wise analysis revealed that pyometra was most frequently observed in bitches aged 6–9 years (69.04%), followed by 9–12 years (14.28%) and 3–6 years (10.7%). No cases were recorded in bitches below one year of age. Breed-wise prevalence showed a higher occurrence in Labrador Retrievers (38.09%), followed by German Shepherds (20.24%), Pomeranians (14.28%) and Golden Retrievers (9.52%). Parity-wise distribution indicated that nulliparous bitches were most commonly affected (51.19%), followed by primiparous (34.52%) and pluriparous bitches (14.28%). A history of pseudopregnancy was recorded in only 8.34% of the affected animals, whereas the majority (91.66%) were non-pseudopregnant. Evaluation of feeding habits revealed a higher prevalence in bitches maintained on non-vegetarian and mixed diets. Clinically, anorexia and lethargy (83.33%) were the most common signs, followed by vaginal discharge (79.77%), vomiting (69.05%), polyuria and polydipsia (65.47%) and abdominal distension (64.29%). Systemic inflammatory response syndrome (SIRS) was observed in 44.04% of cases. The study highlights that pyometra is a commonly encountered reproductive disorder in middle-aged to older bitches with marked systemic and clinical manifestations, emphasizing the importance of early recognition and prompt clinical attention for effective disease management.

SAS 06**CLINICO-SURGICAL MANAGEMENT OF CANINE MAMMARY TUMOURS- A REPORT OF SIX CASES****M.O. Kalim, S.K. Tiwari, Alok Kumar Jaiswal, Vikash Kumar Meshram and Prakhar Jaiswal,***Department of Veterinary Surgery and Radiology College of Veterinary Science and A.H. Anjora (DSVCKV) Durg (C.G.)*

The present study reports the clinical and surgical management of six cases of canine mammary tumours presented at a private Pet Care Clinic, Durg (Chhattisgarh). The affected animals were predominantly middle-aged to older intact female dogs. Clinically, the cases were presented with solitary or multiple mammary gland masses of varying size, consistency and anatomical location along the mammary chain, with a higher involvement of caudal mammary glands. Some cases also exhibited ulceration of the tumour mass and enlargement of regional lymph nodes. After appropriate preoperative stabilization, all animals were premedicated with atropine sulphate and xylazine. General anaesthesia was subsequently induced and maintained using ketamine. The animals were operated as per standard surgical techniques. Based on the size, number and extent of tumour involvement, suitable surgical techniques such as simple mastectomy and unilateral mastectomy were performed. Postoperatively all animals were managed with routine supportive therapy including antibiotics, analgesics and regular antiseptic dressing. The postoperative recovery was uneventful in all the cases, with satisfactory wound healing. The study concludes that early detection and timely surgical intervention are crucial for the successful management of canine mammary tumours.

SAS 07**PARTIAL CYSTECTOMY FOR SURGICAL MANAGEMENT IN 3 CASES OF CANINE PAPILLARY UROTHELIAL CARCINOMA**

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Transitional cell carcinoma (TCC) is the most common and aggressive carcinoma affecting the urinary bladder of dogs also known as urothelial carcinoma. Tumors may invade the deeper layer of the bladder wall including the muscular layers. As the cancer enlarges in the bladder, it can obstruct the flow of urine from the kidney to the bladder or from the bladder to the outside of the body. Three male dogs were presented to the Teaching Veterinary Clinical Complex, Bihar Veterinary College. The chief complaints were hematuria and stranguria. They were not responding to medicinal treatments. Further diagnosis was done by ultrasonography. It was found to be high grade urothelial cell carcinoma in biopsy. Considering the extent of bleeding, partial cystectomy was performed in all the three cases. The animals were urinating normally after 7 days of surgery and urinary incontinence wasn't noticed. Reoccurrence wasn't detected on ultrasonography three months after surgery, and the bladder wall was regenerated to adequate capacity and function in two cases except for one. After one year all the animals were found to be alive and wasn't having any urinary discomfort. It was concluded that partial cystectomy provides relatively good urinary function, a low complication rate, and potential for improved outcome.

SAS 08**COMPARATIVE EVALUATION OF CHEMOTHERAPEUTIC PROTOCOL FOR CUTANEOUS CARCINOMAS IN DOGS**

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The present study compared the efficacy of doxorubicin hydrochloride and pegylated liposomal doxorubicin, each combined with carboplatin, for treating cutaneous carcinomas in dogs. Dogs presented to the Veterinary Clinical Complex over a six-month period (July–December 2025) were evaluated through history, clinical examination, hematobiochemical analysis, radiography, ultrasonography and computed tomography. The overall tumor incidence was 2.75%, of which cutaneous tumors accounted for 1.87%. Twenty-two cases of cutaneous carcinoma were recorded, indicating a population occurrence of 0.44%. Twelve dogs were selected for chemotherapy, with six receiving doxorubicin hydrochloride (G1) and six receiving pegylated liposomal doxorubicin (G2), both in combination with carboplatin. Most affected dogs were middle-aged (6–10 years; 72.73%), predominantly males (63.64%), with Indian Mongrels and Labrador Retrievers being commonly represented. Tumors frequently involved the abdominal region and were often presented after more than six months of onset. Grossly, most masses were spherical, firm and covered by intact skin, suggesting moderate aggressiveness. Thoracic radiography and abdominal ultrasonography were used to assess metastasis, while computed tomography aided evaluation of tumor and lymph node characteristics. Both treatment groups showed comparable clinical improvement and acceptable tolerance. Hematobiochemical parameters did not differ significantly between groups throughout therapy. Gastrointestinal disturbances, especially diarrhoea, were the most common adverse effects. Mortality was low, with two deaths in G1 and three in G2. A non-significant progressive rise in CK-MB levels suggested potential cardiotoxicity. Post-third-cycle echocardiography indicated early dilated cardiomyopathy in 8.3% of G1 and 16.67% of G2 cases. Overall, both protocols were effective with safety.

SAS 09**HEPATOCELLULAR CARCINOMA AND PARTIAL LIVER LOBECTOMY IN CANINE PATIENTS**

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The case study represents various diseases pertaining to liver such as liver cyst, liver abscess, liver cirrhosis and liver tumor diagnosed through B mode abdominal ultrasonography and radiography. Dog breeds involved are mostly Labrador, Rottweiler, St Bernard, and German shepherd. Hematobiochemical estimation in these animals were routinely carried out with excessively higher value for liver enzymes (AST, ALT, ALP). In German Shepherd, specifically the tumor on its medial lobe was very large covering half of the abdomen which was radiographically visible as large round mass in the lower abdomen. B mode ultrasonography showed a large hypoechoic cavitory structure on liver surface with engorged hepatic vein. Planned surgical procedure was carried out with animal under general anesthesia and anterior midventral celiotomy. The tumor was found to be covering the surgical field. The tumor was exteriorized taking utmost care to outside of the abdomen and the distal portion was first sutured in mattress manner with Vicryl No-1 through and through the liver surface. Part of the liver was excised with minimal bleeding and whole abdomen was flushed with normal saline (0.9%), Metrogl (100ml) injection. Then, surgical site was closed routine manner and animal recovered from anesthesia. Postoperative management and wound dressing were carried out with supportive liver protectant (Sylimarin), antibiotics (Ceftriaxone 20mg/kg body wt for 7 days) till the animal recovered successfully. Owner was advised for chemotherapy but unable to carry out due to financial constraint. Metastasis to pancreas and lungs was found 3 months after surgery. Partial liver lobectomy has been proved conclusively for a disease-free survival time of three to six months in companion animals.

SAS 10**SURGICAL MANAGEMENT OF OROPHARYNGEAL, ESOPHAGEAL AND GASTROINTESTINAL FOREIGN BODIES IN TWO CATS AND NINE DOGS**

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Eleven cases of oropharyngeal, esophageal and gastrointestinal foreign bodies were presented to the small animal surgical ward of department of veterinary clinical complex, of which two were esophageal foreign bodies one each in a cat (wish bone) and a dog (fish hook) four pharyngeal foreign bodies of which one was a cat (flat bone) and three dogs (chicken bones and a sewing needle); four gastrointestinal foreign bodies in dogs (steel scrub, bike key, sewing needle and a toy); and a pharyngeal (open safety pin) and gastric foreign body (hair clip) in one dog. As the condition warranted immediate intervention, all the cases were subject to general anaesthesia under standard protocols. Foreign body retrieval was done per os in four cases; via neck incision in one case; esophagotomy in one case; and via gastrotomy in four cases. In one dog, pharyngeal foreign body was removed per os and gastric foreign body through standard gastrotomy procedures. Postoperative care included administration of systemic analgesic in cases of oropharyngeal foreign bodies; systemic antibiotics, systemic analgesics, and intravenous fluid therapy in cases of laparotomy. Uneventful recovery was recorded in all eleven cases.

SAS 11**EVALUATION OF SOL–GEL AND GREEN SYNTHESIZED HONEY COATED ZINCOXIDE NANOPARTICLES FOR ENHANCED WOUND HEALING IN CANINES**

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The present study was conducted to evaluate the wound healing potential of zinc oxide nanoparticles (ZnO-NPs) synthesized through sol–gel and green synthesis methods in open wound in dogs. Characterization of both prepared nanoparticles done by using Field Emission Scanning Electron Microscopy (FESEM), Fourier Transform Infrared Spectroscopy (FTIR), Ultraviolet–Visible (UV–Vis) spectroscopy and X-ray Diffraction (XRD) to study their size, shape and structural properties. The XRD analysis confirmed the hexagonal wurtzite crystalline structure of the ZnO nanoparticles, while FESEM revealed their predominantly spherical morphology. FTIR analysis indicated the presence of bio-molecular capping on the nanoparticles surface. ZnO nanoparticles exhibited strong antibacterial, anti-inflammatory and wound-healing properties, while honey showed potent antimicrobial and tissue-regenerative effects, together enhancing the wound healing process. In open wound healing, honey-coated zinc oxide showed better healing compare to sol-zinc oxide and mupirocin, indicating that ZnO-NPs based treatments are more effective for open wound management.

SAS 12**BIODRESSING AS AN EFFECTIVE ALTERNATIVE TO SURGICAL MANAGEMENT OF COMPLICATED WOUND**

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Biodressing is the use of biologically derived substances in the management of complicated wounds. The study was attempted in five dogs of different breeds and one cat. Among five dogs, four were presented with a history of surgical wound dehiscence, one with the interconnected maggot wound on the dorsal shoulder area between scapular blades. A Cat with the chronic ulcerating wound on the right stifle joint. Anamnesis revealed repeated administration of anaesthetic in cases of torn sutures. The cat was previously treated by local veterinarian but the condition had worsened. Clinical examination in four cases revealed edema, partial to complete separation of wound edges, mild necrotic tissues confirming surgical wound dehiscence. As the cases showed limited improvement, Biodressing was chosen as an alternative approach. PLACENTREX ointment was applied along the edges twice daily in surgical wound dehiscence. The dog with the maggot wound and the cat with chronic ulcerating wound was treated with silver nanoparticle spray (PINPOINT spray). Prior to that, cleaning and debridement of the wounds were done followed by the application of fly repellent spray at three-hour interval. Antibiotics, antihistaminic and anti-inflammatory drug was followed for a period of time. In advice, a strict clean and dry confinement was advised and also to provide a balanced diet. All the cases achieved complete wound healing within approximately one to one-and-a-half months without complications. The study suggests that Biodressing can be successfully used for the management of surgical wound dehiscence, chronic ulcerating wound and chronic maggot wounds without surgical intervention.

SAS 13**SURGICAL CORRECTION OF DIAPHRAGMATIC HERNIA IN DOGS**Raghunath. M, Bharathi. S, Devarathnam. J, **Gowsiya Kowsar. SK** and Preethika. M*Department of Veterinary Surgery and Radiology, Tirupati*

The present report highlights the clinical presentation, radiographic findings, surgical correction and post-operative outcome of diaphragmatic hernia in dogs. The first case was presented with the history of inguinal swelling following an automobile accident with severe respiratory distress. The second case had chronic history of inappetence, vomitions, tachypnoea and going down in condition. Lateral thorax and lateral abdomen radiographic examination revealed discontinuity of the diaphragmatic line with herniation of abdominal organs into the thoracic cavity masking the cardiac silhouette, barium meal contrast study confirmed diaphragmatic hernia. Both cases were operated under general anaesthesia with Intermittent Positive Pressure Ventilation (IPPV) through a post-xiphoid-midventral cranial abdominal approach. Extensive herniation with severe diaphragmatic discontinuity resulted in intraoperative collapse due to compromised pulmonary function in the first case. In the second case, all the herniated abdominal viscera were successfully repositioned into abdomen and the mid-dorsal diaphragmatic rent was closed with PGA No. 0 suture material. The rebreathing bag was used for Intermittent Positive Pressure Ventilation (IPPV) and negative pressure in thorax was created by hyperinflation of lungs before the last suture application. Post-operatively, the animal showed normal respirations, food intake and recovered uneventfully. The report illustrates the variable clinical presentation and surgical challenges associated with diaphragmatic hernia in dogs.

SAS 14**SYMPTOMS, DIAGNOSIS AND SUCCESSFUL TREATMENT OF EXTRA-GENITAL TRANSMISSIBLE VENEREAL GRANULOMA IN THREE INDIAN MONGREL DOGS**S. Bharathi, M. Raghunath J. Devarathnam, N. DhanaLakshmi, A. Nasreen, N. **Aishwarya** and M. Bhavyasree*Department of Veterinary Surgery and Radiology, Tirupati.*

This present study describes incidence of extra-genital TVT in dogs, involving mammary gland, skin and hard palate which were presented to Dept. of VCC, CVSc, Tirupati. In the first case a non-descript, four years old, female dog weighing 18kgs was presented with multiple subcutaneous masses all over the body along with multiple ulcerated hard masses ventrally near the region of mammary glands. Radiographic examination of thorax and abdomen lateral views revealed soft tissue masses in cranial lung lobe and soft tissue density in the abdominal region. The second case involved a two-year old, male, spitz dog weighing 8.5 kgs presented with ulcerative masses at the rostral and caudal hard palate. The third case involves one and half year old, male, non-descript dog weighing 10kgs was presented with both genital mass on penis and extra genital masses on either side of penis. Cytological examination of masses in all three cases revealed very high cellularity with discrete round cells showing anaplasia and characteristic punctate vacuoles in cytoplasm which was suggestive of extra-genital TVT. All the animals were treated with weekly intravenous vincristine sulphate at a standard therapeutic dose. Marked regression of tumor masses was observed after successive cycles without recurrence. These case reports demonstrates therapeutic response of vincristine on extra-genital TVT.

SAS 15**CLINICAL EFFECTS OF CARBON DIOXIDE PNEUMOPERITONEUM ON CARDIAC FUNCTION IN DOGS UNDERGOING LAPAROSCOPIC OVARIOHYSTERECTOMY**

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The present clinical study was conducted to evaluate the effects of carbon dioxide (CO₂) pneumoperitoneum on cardiac function in dogs undergoing laparoscopic ovariohysterectomy (LOVH). Twelve healthy female mongrel dogs presented for elective LOVH were included in the study. Sedation was achieved using butorphanol tartrate (0.5 mg/kg BW IV), followed by induction with propofol (4 mg/kg BW IV, titrated to effect) and maintenance with 2.5% isoflurane inhalation anaesthesia. Physiological and anaesthetic parameters, echocardiographic and electrocardiographic indices, and haemato-biochemical parameters were recorded at predetermined intervals. The mean surgical time was 52.25 ± 1.73 minutes. Rectal temperature decreased significantly during anaesthesia and returned to baseline after recovery. Heart rate, pulse rate, and respiratory rate decreased after induction and increased following CO₂ insufflation. Mean arterial pressure decreased significantly after induction and increased after pneumoperitoneum. Echocardiography revealed significant reductions in ejection fraction and cardiac output after induction and following CO₂ insufflation. The study concluded that CO₂ pneumoperitoneum induces transient cardiovascular changes that are clinically well tolerated in healthy dogs.

SAS 16**COMPARATIVE EVALUATION OF OZONATED AUTOHEMOTHERAPY AND OZONE BAGGING FOR THE TREATMENT OF EXTENSIVE NON-HEALING WOUNDS IN DOG**

B. Dayana Priyatharshini, N. Arul Jothi, N. Gurunathan, S. Tina Roshini, R. Kumar, V.M. Vivek Srinivas and M. Vigneshwari

RIVER, Puducherry

Twenty-four dogs presented to the department of veterinary surgery and Radiology, VCC, RIVER with open wounds measuring 5 × 5 cm² and above were randomly divided into three groups (n = 8 per group). Group I served as the control and received routine povidone-iodine dressing, Group II was treated with ozone bagging therapy, and Group III underwent ozonated autohemotherapy. Wound healing progression was assessed on days 0, 7, 14, 21, and 28 based on wound colour, tissue characteristics, periwound area, exudate, odour, wound edge, epithelialization, wound contraction and total wound healing percentage. On day 0, all wounds across the three groups showed profuse exudate and foul odour. Complete resolution of exudate and odour was observed by day 21 in Group II and by day 28 in Group III. Enhanced tissue maturation was evident in the ozone-treated groups. Group II exhibited smooth epithelial tissue with well-defined and firm wound edges by day 21, while similar tissue characteristics were observed by day 28 in Group III. Statistically significant differences (p < 0.05) were recorded on day 14 in Group II and on day 21 in Group III. Post-hoc analysis revealed significantly higher epithelialization and wound contraction rates in Groups II and III compared to Group I. The findings of the present study indicate that ozone bagging therapy may be considered an effective therapeutic modality for canine wound management.

SAS 17**OUTCOME-ORIENTED SURGICAL AND POSTOPERATIVE MANAGEMENT OF GASTRIC DILATATION-VOLVULUS IN SIX CANINE PATIENTS**

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Gastric dilatation–volvulus (GDV) is a life-threatening condition in large, deep-chested dogs, involving stomach rotation and gas entrapment. The present study was conducted on six animals with presenting clinical signs of abdominal distension, salivation and restlessness. Initial presentation time varied from six hours to 24 hours. Physical examination revealed tachycardia, respiratory distress, pain on abdominal palpation, bloated abdomen and dehydration. On plain radiography “double bubble sign” was evident in all the cases. Preoperative haemato-biochemical and plasma lactate values were evaluated. Animals were premedicated with butorphanol (0.2 mg/kg IV) and diazepam (0.2 mg/kg IV), induced with propofol (3 mg/kg IV) and maintained on isoflurane. Intraoperatively, just before attempting for de-rotation N-acetylcysteine @150mg / Kg BW IV was injected into the animal as a bolus and was maintained as CRI @ 15mg/Kg/hour IV along with Lidocaine bolus dose of @2 mg/Kg BW IV and CRI dose of 50mcg/Kg/hour IV. Gastric and splenic de-rotation, gastric decompression and gastropexy procedures were done intraoperatively. All the animals were under observation for 3 days postoperatively for the assessment of Ventricular Premature Complexes (VPCs), blood pressure, arterial blood gas analysis and urine output. The favourable outcome in GDV cases relied heavily on time of presentation, plasma lactate values and proper post-operative medical management. This study demonstrated that a treatment protocol integrating surgical management followed by aggressive medical intervention resulted in favourable outcomes in dogs diagnosed with GDV.

SAS 18**THYROIDECTOMY IN DOGS: SURGICAL APPROACH**

Nikhil Sharma, Noopur Desai, Shreya Pandey and Nameeta Nadkarni

The Cancer Vet, Mumbai, India

Thyroid neoplasms in dogs are relatively uncommon but are frequently malignant, with carcinoma being the most common diagnosis. Metastasis to the retropharyngeal and deep cervical lymph nodes (LN) at diagnosis can occur in up to 45% of cases. Surgical excision of the primary tumor and metastatic lymph nodes remains the recommended treatment with documented prolonged survivals. This abstract outlines the surgical approach to canine thyroidectomy. Preoperative evaluation and surgical planning were based on physical examination, computed tomography (CT), and cytological or histopathological assessment. Key factors influencing the surgical approach included tumor size, mobility, and evidence of local invasion or metastatic disease. Based on these parameters, dogs underwent unilateral or bilateral thyroidectomy, with resection of retropharyngeal lymph nodes when indicated. All procedures were performed under general anaesthesia using a ventral cervical approach. Careful blunt and sharp dissection through platysma, aponeurosis of the sternohyoideus and sternothyroideus was done to isolate the affected thyroid gland while preserving adjacent critical structures such as recurrent laryngeal and vagus nerve, parathyroid glands and major cervical blood vessels, including common carotid artery and internal jugular vein. Meticulous ligation of cranial and caudal thyroid artery and vein was performed to ensure effective hemostasis and to minimize intraoperative hemorrhage. Postoperative care emphasized monitoring for hemorrhage, hypocalcemia, hypothyroidism, and respiratory compromise. This approach highlights the importance of detailed preoperative planning, anatomical knowledge, and precise surgical techniques in canine thyroidectomy.

SAS 19**MANAGEMENT OF THORACIC OESOPHAGEAL OBSTRUCTION IN DOGS**

Nagaraju.N, D.R. Manjunatha, **Yashwanth J**, Deepak T, Dhanush, Malthesh K M, Sachin Gowda B.V and Pushpa H

Department of Veterinary Surgery and Radiology, Veterinary College, Hassan.Karnataka Veterinary Animal and Fisheries Sciences University, Bidar.

Thoracic oesophageal obstruction in dogs is a potentially life-threatening emergency. They may cause partial or complete obstruction of the oesophageal lumen. The dogs were presented to the Department of Veterinary Surgery and Radiology, Hassan aged between 2 – 8 months with the history of retching, regurgitation, inappetance, dehydration and restlessness. Physical examination of animals revealed no presence of foreign body in the cervical oesophagus. Plain radiography was taken for all the cases which revealed radio opaque foreign body in thoracic part of the oesophagus in which some of were at terminal part of oesophagus and other were at the mid part of esophagus. Contrast Radiography was done using Iohexol to check for rupture of oesophagus. Computed Tomography imaging was done in some cases to know exact location of foreign body. Endoscopy examination revealed presence of bone foreign body in mucosa of thoracic oesophagus. Out of all the cases, in some cases Non-invasive retrieval of foreign body was done with the help of endoscopy, alligator forcep and Foleys catheter was also used. In some other dogs foreign body was removed through gastrotomy surgery under Isoflurane anaesthesia. Post-operative fluid therapy, antibiotics, antihistamine, and analgesics were administered to all the dogs. All the dogs made an uneventful recovery.

SAS 20**CLINICOPATHOLOGIC CHARACTERISTICS AND OUTCOMES OF LIVER LOBECTOMY IN DOGS: A RETROSPECTIVE CASE SERIES**

Naveen Kumar and Noopur Desai

The Cancer Vet Clinics

Liver tumors account for 1.5% of all canine malignancies with hepatocellular carcinoma being the most common. Surgical resection with liver lobectomy is the treatment of choice, and prolonged survival is feasible with complete resection. This study focuses on clinicopathology and outcomes of dogs undergoing liver lobectomy for malignant hepatic tumors. Medical records of dogs that underwent liver lobectomy between 2024 and 2025 were reviewed. Dogs included in the study had a liver tumor addressed via lobectomy and having complete medical records including histopathologic analysis and information with regard to survival to date. Data collected included signalment, presenting complaints, preoperative biochemical abnormalities, imaging findings, liver lobe(s) resected, surgical details, histopathology, perioperative complications, and outcome. Ten dogs were included in the study. Median age was 10 years (range: 5.9–15 years). In 60% of the patient's hepatic mass was an incidental finding. Hepatocellular carcinoma was the most common diagnosis (n=8), followed by metastatic carcinoma (n=1) and cholangiosarcoma (n=1). Liver lobes resected included the caudate (n=1), left lateral (n=3), left medial (n=4), quadrate (n=2), and right lateral lobes (n=1). Preoperative biochemical abnormalities were noticed in 8 patients. Elevated preoperative clotting time was noticed in one patient. Notably, 30% (3/10) of dogs had concurrent or secondary malignancies. 8 patients were alive during the recent follow-up. No significant perioperative complications were noted. Liver lobectomy is associated with low perioperative morbidity and favorable outcomes in dogs with resectable hepatic tumors supporting it as a safe and effective surgical option in appropriately selected patients.

SAS 21**SUCCESSFUL DIAPHRAGMATIC RECONSTRUCTION IN DOGS: SURGICAL TECHNIQUES AND RESULTS FROM TEN CASES**

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Diaphragmatic hernia represents a common surgical emergency in dogs, often resulting from blunt trauma. Ten dogs were presented with clinical signs of lethargy and respiratory distress. The physical examination revealed dyspnea, tachypnea and muffled heart sounds. Displacement of abdominal organs into the thoracic cavity was evident in all the ten cases on plain radiography. Pre-operatively the animals were stabilized with oxygen supplementation and intravenous administration of Ringer's lactate at 10 ml/kg body weight. Under general anaesthesia, animals were connected to intermittent positive pressure ventilator (IPPV) to maintain adequate oxygenation. The diaphragmatic defect was assessed and diaphragmatic reconstruction (Herniorrhaphy) was done using appropriate suture pattern with absorbable material (Polydioxanone). Negative intra-thoracic pressure was created by removing air from the pleural cavity after closing the defect. Post-operative management included oxygen supplementation, broad-spectrum antibiotics, analgesics, and restricted physical activity. All dogs recovered uneventfully without recurrence of respiratory distress. The study highlights that prompt stabilization, meticulous diaphragmatic suturing under controlled ventilation, and careful postoperative care are key determinants for successful recovery in canine diaphragmatic ruptures.

SAS 22**SUCCESSFUL SURGICAL MANAGEMENT OF DIAPHRAGMATIC HERNIA IN COMPANION ANIMALS: A STUDY OF 9 CASES**

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Department of Veterinary Surgery and Radiology, Mumbai Veterinary College Maharashtra Animal and Fishery Sciences University, Nagpur

Diaphragmatic hernia is a common emergency in small animal practice, most frequently resulting from blunt trauma such as automobile accidents. This retrospective study evaluates nine cases of diaphragmatic hernia, including three dogs and six cats, with assessment of species, breed, age, sex, chronicity, etiology, radiographic findings, site of rupture, herniated organs, anesthetic management, surgical observations, and postoperative outcome. Animals ranged from 1 month to 10 years of age. Traumatic etiology was recorded in eight cases, while one kitten presented with peritoneopericardial diaphragmatic hernia. Dyspnoea was the predominant clinical sign, although two cases were detected incidentally. Radiography was diagnostic in all animals, showing loss of diaphragmatic outline and reduced lung fields; contrast studies confirmed intestinal herniation in selected cases. The liver and gall bladder were the most commonly herniated organs (80%), followed by intestines, omentum, stomach, spleen, and colon. All animals were stabilized prior to surgery and managed with intermittent positive-pressure ventilation intraoperatively. Surgical repair was performed via midline celiotomy with an average duration of 20 minutes. Seven of nine animals survived, yielding a survival rate of 78%. This study enlightens early diagnosis, adequate stabilization, and prompt surgical intervention are essential for favorable outcomes.

SAS 23**CLINICAL STUDIES ON URETHRAL OBSTRUCTION IN CATS WITH SPECIAL REFERENCE TO UROLITH ANALYSIS**

Rupa Mistry, **Shivnithvar Saragini**, Sourav Neti, P.S Parvathamma, S.S Behera and B. Jena

Department of Veterinary Surgery and Radiology, C.V.Sc. and A.H., OUAT, Bhubaneswar

The present study entitled Clinical studies on urethral obstruction in cats with special reference to urolith analysis was conducted at the College of Veterinary Science and Animal Husbandry, Odisha University of Agriculture and Technology, to develop a systematic diagnostic and therapeutic protocol for feline urethral obstruction. Twenty-two clinically affected cats were included. Detailed anamnesis, signalment, and clinical examination were followed by radiography, ultrasonography, hematobiochemical analysis, urinalysis, and appropriate medical or surgical management. Retrieved uroliths were analyzed using scanning electron microscopy coupled with energy-dispersive X-ray spectroscopy. Common clinical signs included anuria, stranguria, haematuria, dehydration, abdominal distension, vomiting, and anorexia. Hematological evaluation revealed mild anaemia, leukocytosis, increased packed cell volume, and elevated blood urea nitrogen and creatinine levels. Urinalysis showed turbid urine with near-neutral pH and normal specific gravity. Crystalluria was detected in 14 cases, with calcium oxalate as the predominant crystal type, followed by struvite and mixed crystals. Young adult male cats were most commonly affected. Imaging revealed bladder distension, radiopaque calculi, bladder wall thickening, intraluminal sludge, cystitis, and urethral wall edema. SEM–EDS showed concordance with conventional microscopy and corrected one misidentified ammonium urate urolith. Most cases responded favourably to medical management and urethral catheterization, while surgical intervention was required only in recurrent or refractory obstructions. The study highlights the diagnostic advantage of integrating SEM–EDS with routine microscopy in feline urolithiasis.

SAS 24**CLINICAL EVALUATION OF CONVENTIONAL VS TIE-UP TECHNIQUE FOR MANAGEMENT OF MAMMARY TUMOURS IN DOG**

Antra Ken, S.B. Akhare, B.K. Bhadane, G.A. Fiske, S.V. Upadhye, K. Gaikwad, M. Jog and P. Potwar

Department of Veterinary Surgery and Radiology, Nagpur Veterinary College, Nagpur, Maharashtra Animal and Fishery Science University,

The present study evaluated a less invasive vascular and lymphatic ligation (Tie-up technique) as an alternative to conventional surgical excision for the management of canine mammary tumours. Twelve clinical cases presented to the Veterinary Clinical Complex, Nagpur Veterinary College, Nagpur, from December 2023 to December 2024 were randomly divided into two equal groups. Group I underwent conventional surgical excision, while Group II was treated using the Tie-up technique involving ligation of the vascular and lymphatic supply to the tumour mass. Tumour regression in Group II was assessed using Vernier caliper measurements and colour Doppler ultrasonography on days 0, 7, 14, 21 and 28. Haematological (Hb, TEC, PCV, TLC, DLC and platelet count) and biochemical parameters (SGPT, SGOT, BUN, serum creatinine, total protein and serum alkaline phosphatase) were evaluated at similar intervals in both groups. Radiographic examination was performed to detect metastasis and excised tissues were subjected to histopathological evaluation. Tumour size regression in Group II was evident by day 7 however, no significant reduction was observed after day 14. Colour Doppler ultrasonography showed a modest reduction in tumour vascularity following ligation. Pain scores were significantly lower in Group II. Most haematological and biochemical parameters remained within normal physiological limits, with significant variations noted in erythrocyte,

neutrophil, total leukocyte and eosinophil counts and a mild elevation in serum alkaline phosphatase. Radiographic evidence of possible metastasis was observed in one case and tubular adenocarcinoma was the most common histopathological diagnosis. Complications included seroma, wound dehiscence and recurrence in Group I, whereas loosening of the ligature was noted in Group II. The study concludes that although the Tie-up technique is less invasive, quicker and associated with reduced postoperative pain, conventional surgical excision remains the preferred method for effective management of canine mammary tumours.

SAS 25

CLINICAL AND DIAGNOSTIC INSIGHTS INTO CANINE INTUSSUSCEPTION WITH SURGICAL MANAGEMENT: FOUR CASE REPORTS

S.S. Behera, B. Jena, B. Mahanand, N. Bhargav, Sourav Neti, S. Saragini, D. Vamshi Krishna and S. Dash

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Intussusception is a common cause of intestinal obstruction in young dogs and requires prompt diagnosis and surgical intervention to reduce morbidity and mortality. The present study reports four clinical cases of canine intussusception presented to a veterinary clinical complex. All dogs exhibited acute gastrointestinal signs including persistent vomiting, anorexia, abdominal pain, lethargy, and absence or reduction of fecal output. Physical examination revealed dehydration and palpable abdominal mass in two cases. Hematological findings were nonspecific but supported dehydration and inflammatory changes. Abdominal radiography suggested intestinal obstruction, while ultrasonography (USG) confirmed the diagnosis in all cases, revealing the characteristic “bull’s eye” appearance on transverse view and a “sandwich” pattern on longitudinal view. Exploratory laparotomy was performed in all dogs. Manual reduction of the intussusception was not successful. Intestinal resection and end-to-end anastomosis were required in due to compromised intestinal viability. Postoperative management included fluid therapy, broad-spectrum antibiotics, analgesics, and gradual reintroduction of feeding. All dogs recovered uneventfully with no recurrence observed during the follow-up period. This case series highlights the importance of ultrasonography as a rapid diagnostic tool and timely surgical management for favorable outcomes in canine intussusception.

SAS 26

MANAGEMENT OF CANINE NEOPLASMS: A COMPARATIVE STUDY OF SURGERY, ADJUVANT CHEMOTHERAPY, AND GOMUTRA ARK SUPPLEMENTATION

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This study investigated the efficacy of surgery alone versus combined modalities in 24 clinical cases of dogs presenting with various cutaneous and subcutaneous tumors, including mammary and genital masses. Initial screening involved comprehensive haemato-biochemical analysis, three-way thoracic radiography, ultrasonography, and computed tomography. Fine needle aspiration cytology of the primary tumor and sentinel lymph nodes was performed for preliminary diagnosis and staging. All tumors were surgically excised under balanced general anesthesia, followed by a 14 day recovery period before suture removal. Excised tissues were subjected to histopathological examination and immunohistochemistry as required. Based on histopathology and owner consent, dogs were randomly assigned to four groups. Group I: Surgery only, Group II: Surgery with gomutra ark, Group III: Surgery followed by adjuvant chemotherapy with 5-fluorouracil @ 150mg/m² and cyclophosphamide @ 100mg/m², weekly

for 4 weeks starting on day 14, and Group IV: Surgery, gomutra ark with adjuvant chemotherapy: 5-fluorouracil and cyclophosphamide, as in Group III. Monitoring included regular haemato-biochemical tests and blood biomarker estimation, specifically thymidine kinase and substance P. Pre-treatment biomarker levels were high, showing a notable decrease by the 45th day follow-up, indicating a positive response to treatment. While all dogs recovered uneventfully post-surgery, tumor recurrence and death were observed in Group I dogs, and one dog in group II died on the 50th day. Dogs in the Group II and Group IV those receiving Gomutra Ark exhibited a better overall response and experienced the least side effects associated with chemotherapy, suggesting a potential effect of the supplement.

SAS 27

SURGICAL MANAGEMENT OF GASTRO-INTESTINAL FOREIGN BODIES IN DOGS AND CATS.

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Dr Amols pet clinic, Andheri West, Mumbai, Maharashtra

Gastrointestinal foreign bodies are very common in dogs. Six dogs & three cats were reported in 1 year at Dr.Amol's pet clinic, Andheri (w), Mumbai. In all the cases, the owners presented the animals immediately following the accidental ingestion of different foreign bodies. This case series describes the history, clinical signs, radiographic findings and surgical management of different gastric foreign bodies in dogs. All the three dogs were active and alert at the time of presentation with mild pain exhibited on palpation of the abdomen. Radiographic examination helped to confirm the presence of foreign bodies in the stomach and intestine. Gastrotomy was performed under general anaesthesia and the foreign bodies (a scrub brush, sewing needle, safety pin, hair band, syringe needle, piece of metal pipe and toy) were removed. Post-operative antibiotic, antacid, analgesic and other supportive medications were routinely administered. All the animals made uneventful recovery after proper post-operative management.

SAS 28

SURGICAL MANAGEMENT OF DIAPHRAGMATIC HERNIA IN ONE DOG AND THREE CATS.

Amol Yamgar, D. U. Lokhande, Kirti Sathe and Charmi Maisheri

Dr Amols pet clinic, Andheri West, Mumbai, Maharashtra

Diaphragmatic rupture is one of the common trauma induced injury occurring in small animals. Three cats and one dog were presented to Dr Amol pet clinic, 3 domestic shorthair. Cat and dog with clinical signs of respiratory distress, lethargic and exercise intolerance. On examination tachypnoea, dyspnea and muffled heart sound were noticed in all the three cats and dog. Age of the cats varied from one month to three years. Radiographic examination revealed the break in the continuity of diaphragm line, abdominal organs were noticed in the thoracic cavity and normal cardiac silhouette was masked by abdominal organ. Based on the above clinical and radiographic examination the cats and dog were diagnosed as diaphragmatic hernia. Diaphragmatic herniorrhaphy under general anaesthesia with positive pressure ventilator. The herniated organs were liver, stomach, intestines, omentum, spleen and parts of large intestine. The site of rupture was on the left ventral portion of the diaphragm in all the three cases and in one case left dorsal portion. All 4 animals recovered well and survived uneventfully. Based on the observation age, amount of organs herniated and time between trauma to surgery determined the prognosis.

SAS 29**SUCCESSFUL SURGICAL MANAGEMENT OF INTESTINAL FIBROSARCOMA WITH INTUSSUSCEPTION IN THREE DOGS**

Krishnendu H S, Yogesh Soni, Vara Sailaja, Noor-ul- Nissa, Bhanu Pratap Singh, Prem Agarwal, Vikash Agarwal, Sruthy S, A C Saxena, A M Pawde and Kiranjeet Singh

Division of Surgery, ICAR- Indian Veterinary Research Institute, Bareilly, UP, India

Intestinal neoplasms in dogs are relatively uncommon and often present with nonspecific clinical signs, leading to delayed diagnosis. This report describes the clinical presentation, ultrasonographic findings, surgical management, and histopathological outcomes of three cases of intestinal fibrosarcoma complicated by intussusception in dogs presented at RVP-TVCC, ICAR-IVRI. All the three dogs were presented with a common history of progressive weight loss, anorexia, and passage of scanty faeces. Clinical examination revealed poor body condition and varying degrees of abdominal discomfort. Abdominal ultrasonography in all the cases demonstrated evidence of intestinal intussusception associated with a focal intraluminal mass, prompting immediate surgical intervention. Exploratory laparotomy confirmed the presence of intussusception, with firm, localized masses acting as lead points. Resection of the involved intestinal segments was performed in all cases, followed by end-to-end intestinal anastomosis using standard surgical techniques. Gross examination of the excised tissues revealed hard, fibrosarcoma of intestinal wall. Postoperative management included fluid therapy, antibiotics, analgesics, and gradual nutritional support. All animals showed uneventful recovery, with return of appetite and tolerance to a light diet by the end of the first postoperative week. This report highlights the importance of ultrasonography in the early identification of intestinal tumours associated with intussusception and emphasises the effectiveness of prompt surgical resection and anastomosis in achieving favourable outcomes.

SAS 30**A CLINICAL STUDY ON SURGICO-THERAPUTIC MANAGEMENT OF MAMMARY TUMOUR IN DOGS**

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Mammary tumours are among the most common neoplasms affecting female dogs and pose a significant clinical challenge due to their high incidence of malignancy, recurrence, and metastatic potential. The present study was conducted to evaluate the prevalence, clinical staging, and surgico-therapeutic management of mammary tumours in dogs using the World Health Organization (WHO)TNM classification system. The study comprised 25 female dogs diagnosed with mammary tumours and presented to the Veterinary Clinical Complex, College of Veterinary Science and A.H., Mhow (M.P.), with an overall prevalence of 1.34%. Among these cases, 17 were malignant and 8 were benign. The affected dogs represented 11 different breeds, with Labrador Retriever, German Shepherd, and non-descript dogs being the most commonly affected. Clinical staging indicated that most cases were classified as Stage III (32%), followed by Stage IV and Stage V (24%) each, with evidence of regional lymph node involvement and thoracic metastasis in several cases. Surgical management strategies included simple mastectomy, unilateral mastectomy, en bloc dissection, radical mastectomy, and lumpectomy, selected based on tumour size, anatomical location, and clinical stage. Histopathological examination revealed that 68% of the tumours were malignant, with carcinoma micropapillary invasive being the most frequently observed type (16%). The findings of this study highlight the importance of systematic TNM staging, appropriate surgical intervention, and histopathological evaluation for accurate diagnosis, effective therapeutic management, and improved prognosis of canine mammary tumours.

SAS 31**SURGICAL MANAGEMENT OF GASTRIC FOREIGN BODY IN TWO DOGS****Chudasama, M. J., Raulji, V. S., Patel, T. P., Suthar, D. N., Asari, V. H. And Dhameliya, D. R.***Department of Veterinary Surgery and Radiology, College of Veterinary Science & Animal Husbandry, Kamdhenu University, Rajpur (Nava), Himmatnagar, Dist. Sabarkantha, Gujarat (India)*

Gastric foreign body obstruction is frequently encountered surgical emergency in dogs, often resulting from ingestion of indigestible materials and leading to acute or chronic gastrointestinal disturbances. The resultant obstruction often leads to intractable vomiting and the consequences can become life-threatening. The present clinical report describes the surgical management of gastric foreign body in two dogs presented with a history of persistent vomiting, anorexia, abdominal discomfort and lethargy. Diagnosis was established based on detailed clinical examination and abdominal radiography and ultrasonography, which revealed the presence of radiopaque foreign material within the stomach and proximal duodenum; ultrasonography revealed a acoustic shadowing in the pylorus part. Both dogs were stabilized preoperatively using fluid therapy and supportive medical management prior to surgery. Exploratory laparotomy followed by gastrotomy and enterotomy was performed under general anaesthesia to retrieve the foreign bodies. The gastric incision was closed using Cushing followed by Lambert inverting suture patterns after thorough lavage. Post-operative care included administration of antibiotics, analgesics, antiemetics and gradual reintroduction of oral feeding. Both animals showed uneventful recovery with resolution of clinical signs and no postoperative complications during the follow-up period except in one dog that showed the progressive hepatitis and jaundice on the 3rd post-operative day which was managed by standard medicinal treatment. The study highlights that early diagnosis and prompt surgical intervention ensure favourable outcomes in dogs affected with gastric foreign bodies, preventing serious complications such as gastric perforation and peritonitis.

SAS 32**TRASFORMATION OF KATHAL (*Artocarpus heterophyllus*) SAP INTO WOUND BIOSEALANT - A NOVEL TURN FROM TRASH TO TREASURE****B. Deuri, B. Gogoi, P. J. Nath, K.K. Sarma, J. Kachari, M.Hazorika, S. Begum, S. Upadhyay and C.K. Singh***Department of Surgery and Radiology, College of Veterinary Science, Khanapara, Guwahati, Assam.*

The objective of the study was to generate a novel biosealant derived from Chitosan-Jackfruit for wound management. The study explores the primary selection of suitable concentrations of Chitosan and Jackfruit to prepare a biosealant based on physicochemical and antimicrobial properties for its clinical application. Eighteen healthy adult rabbits weighing about 2 kg body weight were divided into three equal groups and a 6cm full- thickness incision was created under standard protocol. Wound management was done as per the undertaken protocol viz. Group A (control), Group B (commercial glue) and Group C (Chitosan-Jackfruit derived biosealant). Physiological parameters namely TEC, Monocyte and eosinophil were non-significant variation among the groups. On days 3rd, significant increase of TLC, Neutrophil, Lymphocyte were recorded in Group A whereas, it was non-significant in Groups B and C. Biochemical parameters, showed decreased in total protein and albumin level on day 3rd amongst the all the groups which later returned towards the base value. Alkaline phosphatase values was non-significantly increased upto days 14th in Group A whereas, it was decreased in Groups B and C. ALT and creatinine values were non significantly varied amongst the groups at different time intervals. Gross wound healing was complete in groups on days 14th, whereas, it took 21 days in group A. The histopathological observation in terms of keratinisation and reorganization of collagen fibers further suggest better healing in Group C followed by Groups

B and A respectively. Thus, prepared biosealant with 1:2 concentrations of the Chitosan and Jackfruit which was mild acidic in pH, had viable shear strength, good storage modulus (viscosity) and antimicrobial properties.

SAS 33

DEVELOPMENT OF HONEY LOADED IRON OXIDE NANOPARTICLES COMPOSITE FOR WOUND HEALING IN RATS

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The present study aimed to synthesize, characterize and evaluate honey-loaded iron oxide nanoparticles (HIO-NPs) applied over fixed mesh of polypropylene at the wound site for their potential application in wound healing through a green synthesis approach. The green synthesis method facilitated the formation of iron oxide nanoparticles using honey as a natural reducing and stabilizing agent, resulting in eco-friendly and biocompatible nanomaterials. The synthesized HIO-NPs were characterized using various analytical techniques, including Field Emission Scanning Electron Microscopy (FESEM), Fourier Transform Infrared Spectroscopy (FTIR), Ultraviolet–Visible (UV–Vis) spectroscopy, and X-ray Diffraction (XRD), to assess their morphology, functional groups, optical properties, and crystalline nature. The characterization results confirmed the formation of crystalline iron oxide nanoparticles with effective surface capping by bioactive components of honey. The HIO-NPs demonstrated notable antibacterial, anti-inflammatory and wound-healing properties. In vivo wound healing studies revealed accelerated wound contraction, enhanced epithelialization and improved tissue regeneration in the HIO-NPs–treated group compared to the conventional treatment group using honey. The findings suggest that honey-loaded iron oxide nanoparticles (HIO-NPs) possess significant therapeutic potential and may serve as an effective alternative for the management of wounds, owing to their synergistic antimicrobial and regenerative properties.

SAS 34

USE OF EPIDURAL OZONATED PRP IN THE MANAGEMENT OF PARAPLEGIA IN FOUR FELINE CASES

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A total of four feline cases were presented to the Department of Veterinary Surgery & Radiology, RIVER with a history of urinary incontinence, non-weight bearing lameness on the both hind limb and animals were in lateral recumbency. Haemato-biochemical parameters were also found to be within normal range. On neurological examination deep pain and panniculus reflexes were positive in all the cases but negative for withdrawal, patellar and conscious proprioception reflexes. Radiographical examination revealed no bony lesions in all the cases. Around 2ml of blood was collected from the cephalic vein and autologous platelet rich plasma was prepared by double centrifugation method and ozonized with medical grade ozone (40 µg/mL). Ultrasound guided epidural injection of 0.3-0.5 ml ozonated PRP was carried out on 0th, 7th and 14th day of presentation using 25 G, 90mm length spinal needle in a craniodorsal direction which was followed by therapeutic phonophoresis at 0.5 W/cm² for 5 min. Neurological scoring was recorded before each injection. The animals recovered uneventfully.

SAS 35**TILAPIA FISH SKIN AS A BIOLOGICAL DRESSING FOR FULL-THICKNESS WOUND HEALING IN RABBIT MODEL**

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Wound healing is a complex, multistep biological process involving inflammation, tissue proliferation, extracellular matrix deposition, remodelling and the search for effective, affordable and biocompatible biological dressings remains a priority in veterinary surgery. Tilapia fish skin, due to its collagen-rich structure and favourable biological properties, has emerged as a promising alternative to conventional wound dressings. The present experimental study was designed to comparatively evaluate the wound healing efficacy of tilapia fish skin bandage and bovine collagen particles against a conventional povidone-iodine dressing in eighteen New Zealand White rabbits with experimentally induced full-thickness wounds. The animals were randomly divided into three treatment groups and wound healing progression was assessed at predetermined intervals using gross wound healing parameters, histomorphological examination, histochemical staining and connective tissue biomarker evaluation. The results demonstrated significantly enhanced wound contraction, faster wound size reduction, earlier epithelialization and a shorter time required for complete healing in rabbits treated with tilapia fish skin and bovine collagen particles compared to the conventional dressing group, with the most rapid and complete healing observed in the tilapia fish skin treated group. Histomorphological evaluation revealed improved angiogenesis and an earlier decline in fibroblast proliferation in treated wounds, indicating efficient progression from the proliferative to the remodelling phase of healing. Histochemical analysis further confirmed superior collagen fibre organization, increased fibre density and thickness and earlier elastin fibre deposition in the tilapia fish skin group.

SAS 36**EVALUATION OF SCIATIC NERVE INJURY REGENERATION IN RABBITS BY USING ADIPOSE DERIVED ALLOGENIC MESENCHYMAL STEM CELL AND BIOACTIVE NERVE GEL**

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Nerve injuries often result in prolonged motor and sensory deficits and the exact mechanisms by which stem cell therapy promotes nerve regeneration are not yet fully understood. Moreover, comparative studies evaluating the effects of mesenchymal stem cells and nerve gel in the management of peripheral nerve injuries are limited. The rabbit sciatic nerve crush injury model provides a reliable experimental platform to assess different therapeutic modalities. Present study was undertaken to compare nerve regeneration and functional recovery following treatment with adipose-derived allogenic mesenchymal stem cells (ADMSCs), nerve gel and Conventional treatment. Twelve apparently healthy New Zealand White rabbits were randomly divided into three groups. All animals were subjected to unilateral left sciatic nerve crush injury. Group I served as the control without treatment, Group II received allogenic ADMSC therapy and Group III was treated with nerve gel at the injury site. Sciatic nerve crush injury resulted in severe motor and sensory deficits in the affected hind limb, as evidenced by impaired gait, reduced weight bearing, loss of toe spread reflex, altered pain perception and development of neuropathic complications, particularly in untreated animals. Postoperative complications such as self-mutilation, wound formation, pressure ulcers over the hock joint and contralateral limb lesions observed in the control group. Systemic signs including dullness, depression and reduced feed intake were also noted. The severity and frequency of

complications were highest in Group I, moderate in Group II and completely absent in Group III. Stem cell therapy significantly accelerated functional recovery, showing earlier restoration of motor and sensory functions and reduced neuropathic complications. Nerve gel provided effective neuroprotection and prevented self-mutilation, with moderate functional improvement. Overall, stem cell therapy was superior to gel treatment and both were more effective than control.

SAS 37

CLINICAL STUDY ON LAPAROSCOPIC AND RIGHT FLANK OVARIOHYSTERECTOMY IN DOGS

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The present study was conducted on non-pregnant female dogs of various breeds, ages, and body weights, presented for elective sterilization by two methods; laparoscopic and right flank ovariohysterectomy. The animals were randomly assigned to two groups. Both groups were subjected to the same anesthetic protocol and agents. In both the groups, Physiological parameters; body temperature (°F), heart rate (beats/min), respiratory rate (breaths/min), and blood pressure (mmHg), were recorded at multiple time points. Total surgical duration, recovery period, incision length, and intraoperative complications were also documented. Physiological parameter fluctuations were more pronounced in the conventional approach than in the laparoscopic method. Body temperature exhibited significant variations within and between groups, while respiratory rate, heart rate, and blood pressure differed significantly between groups. Overall, the findings indicate that laparoscopic ovariohysterectomy, despite requiring a longer surgical duration, offers faster recovery, superior intraoperative visualization, minimal scarring, and expedited wound healing compared to the flank approach.

SAS 38

AUTOLOGOUS TUNICA VAGINALIS GRAFT FOR PERINEAL HERNIOPLASTY IN DOGS

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The objective of this research was to evaluate the application of autologous tunica vaginalis graft for repair of perineal hernia in dogs. The present study was carried out in six dogs and were subjected to clinical examination includes digital and rectal palpation to diagnose perineal hernia and confirmed by radiographic and ultrasonographic studies. All dogs were anaesthetized with diazepam, butorphanol, propofol combination for induction and maintained with isoflurane. Bilateral open-closed orchiectomy was performed to harvest tunica vaginalis graft and followed by suturing of tunica vaginalis graft to the surrounding muscles of the hernial defect. Post operative haemato-biochemical analysis revealed increased BUN and creatinine levels preoperatively due to postrenal azotaemia which were decreased after surgical correction. Postoperative pain and inflammation scores initially elevated followed by a steady decrease between 3rd and 5th postoperative day and gradually resolving by 10th to 30th postoperative day. The defaecation score was elevated during early postoperative period and showed gradual improvement by 10th postoperative day. Early postoperative ultrasonography identified small seromas with mild inflammation and early angiogenesis on 5th postoperative day, followed by gradual reduction in seroma by 10th postoperative day and complete resolution with absence of reherniation a normal perineal contour with significant angiogenesis were observed by 30th postoperative day. No hernia recurrence was observed during the follow-up period. **To**

conclude, the autologous tunica vaginalis graft was found to be a simple, safe and cost-effective biomaterial for perineal hernia repair in intact male dogs, offering excellent graft acceptance, minimal surgical site morbidity and satisfactory clinical, radiographic and ultrasonographic outcomes without recurrence.

SAS 39

EFFICACY OF BUBALINE ACHILLIS TENDON COLLAGEN GEL AS REGENERATIVE WOUND MANAGEMENT IN DOGS

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Extensive and complicated wounds present a great challenge to the surgeons. Biomaterials contain natural ECM components and are a promising component of tissue engineering. So, the present study was formulated with an objective of testing the efficacy of bubaline acellular achilles tendon derived collagen gel on contaminated wounds in dogs. The research was conducted on clinical cases of wounds in 12 adult dogs of various breeds. Animals were divided into two groups (I and II), having 6 dogs in each of either sex. Animals of group I were treated with povidone iodine and group II with hydrogel respectively. Wounds of group II revealed significantly early resolution of pain, exudation and swelling, by day 14 and required lesser dressing change. It also had much early wound surface contraction, 50% by day 7 and healing with no scar formation in the wounds treated with hydrogel in contaminated wounds. The gel was found to be soothing and bioactive. The histopathological findings for group II revealed better arranged, highly dense and thicker collagen fibers by day 7. It can thus be concluded from the present study that biologically derived hydrogel carries a great potential for treating contaminated wounds with early and enhanced superior wound healing, suggesting complete skin regeneration with cosmetic appearance preserved.

SAS 40

FLUOROSCOPIC RETRIEVAL OF TRACHEAL OBSTRUCTION IN A DOG

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Foreign body obstruction of the trachea is a life-threatening emergency in dogs specially if it is in thoracic part of trachea and requires prompt intervention. This report describes the successful removal of a bone fragment in a dog using tracheostomy under C-arm fluoroscopic guidance. A canine patient was presented with respiratory distress, coughing, and stridor which was treated at other clinic for respiratory infection. Radiographic examination confirmed the presence of a radiopaque foreign body lodged within the caudal part of cervical trachea. Owing to the size, location, and risk of distal migration of the foreign body, surgical intervention was elected. A temporary tracheostomy was performed under standard anaesthetic protocol and real-time C-arm fluoroscopy was utilized to precisely localize the bone fragment and guide its atraumatic retrieval. The foreign body was successfully removed without complications, and normal airway patency was restored. Postoperative recovery was uneventful, with resolution of respiratory signs and satisfactory healing of the tracheostomy site. This case highlights the clinical utility of C-arm-guided tracheostomy as a safe and effective technique for accurate localization and removal of tracheal foreign bodies in dogs, particularly when conventional endoscopic methods are limited or unavailable.

SAS 41**HAEMOCLIP-ASSISTED THREE-PORT LAPAROSCOPIC OVARIOHYSTERECTOMY IN CANINES**

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Laparoscopic ovariohysterectomy (OHE) is increasingly being adopted in small animal surgery owing to its advantages, including minimal tissue trauma, quicker recovery, and enhanced postoperative comfort. Haemoclip application is commonly employed for vascular ligation; however, detailed evaluation of its effectiveness in a three-port laparoscopic technique in dogs is still limited. The present study was conducted on two adult female dogs, with an average age of 1.5 years, presented to the Department of Veterinary Clinical Complex, LUVAS, Hisar, for elective ovariohysterectomy. A standardized three-port laparoscopic ovariohysterectomy procedure was carried out in both animals under general anesthesia. Haemoclip devices were used to ligate the ovarian pedicles as well as the uterine body. Effective haemostasis was achieved with accurate clip placement, and no significant intraoperative bleeding was encountered. The mean surgical duration remained within the normal range expected for minimally invasive ovariohysterectomy procedures. Postoperative wound healing was uneventful, and no complications related to haemoclip application were observed during the follow-up period. Based on these observations, it can be concluded that haemoclip-assisted three-port laparoscopic ovariohysterectomy is a safe, effective, and minimally invasive method for canine sterilization, providing dependable vascular control, reduced surgical trauma, and rapid postoperative recovery.

SAS 42**DIAGNOSIS AND MANAGEMENT OF OBSTRUCTIVE UROLITHIASIS IN 35 DOGS**

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The study was done on thirty-five cases of obstructive urolithiasis with 94.28 percent of these cases involving male dogs. Most cases of urolithiasis in this study were found in Pomeranian (17.14%) followed by Shih Tzu (14.28). The clinical manifestations encompassed dysuria, anuria, haematuria and vomiting, with a mean age of 6.29 years. Most of the cases were having alkaline urine pH. Leucocyte count was higher in 18 cases, serum blood urea nitrogen (BUN), alkaline phosphatase serum and creatinine levels were elevated in 24, 18 and 6 cases respectively. The diagnosis of the urolithiasis involved the use of radiographic imaging, ultrasonography and urinalysis, with the main type of calculi recognized as struvite (magnesium ammonium phosphate) (n=16) and calcium oxalate (n=5) analyzed via Fourier-transform infrared (FTIR) spectroscopy. The surgical approach predominantly employed was cystotomy in cases where retro-hydropropulsion of uroliths was successful and in some instances urethrostomy was performed (n=4). Subsequent follow-up indicated a recurrence rate of 11.42 percent in patients having struvite uroliths. Average time of reoccurrence was 5.37 months.

SAS 43**CLINICAL OUTCOMES OF CO₂ LASER PHOTOBIMODULATION IN 25 DOGS WITH ORAL AFFECTIONS**

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This clinical study evaluated the exclusive use of a CO₂ laser in treating 25 dogs with various oral pathologies, including gingival hyperplasia, oral neoplasia, and ulcerative stomatitis. Surgical interventions employed higher power settings (6-12W in continuous wave) for precise excision with inherent hemostasis and tissue sterilization. For inflammatory conditions, low-power settings were utilized for photobiomodulation effects. Findings demonstrated significant advantages: superior intraoperative precision, minimal bleeding, effective wound debridement and sterilization, reduced postoperative pain, and accelerated healing. The CO₂ laser proved to be a versatile tool, facilitating both definitive surgery and therapeutic biostimulation within a single platform. This contributed to enhanced clinical outcomes, improved patient comfort, and effective management of diverse oral diseases in canine patients.

SAS 44**TOCERANIB PHOSPHATE: A PRACTICAL APPROACH TO ADDRESS STICKER'S TUMOR IN STRAY DOGS**

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Sticker's tumor (TVT) being highly prevalent among stray dog populations presents significant challenges in treatment, including difficulties in repeated handling, housing, and delivery of injectable chemotherapy, thereby limiting effective treatment and disease control. Accordingly, the present study aimed to compare the clinical efficacy of oral Toceranib phosphate with Vincristine sulfate in the treatment of canine Sticker's tumor in stray dogs. A total of 24 stray dogs diagnosed with Sticker's tumor based on characteristic clinical signs and confirmed by cytological examination were enrolled and divided into two treatment groups. Group I (n = 12) received oral Toceranib phosphate (Tocerapet) at a dosage of one tablet once a day at alternate days while Group II (n = 12) was treated with standard intravenous Vincristine therapy at 10 days interval. Tumor size, regression rate, clinical signs were monitored periodically throughout the period of 60 days. Complete clinical remission was achieved in all dogs in both groups, with minimal handling and without the need for repeated veterinary intervention for drug administration in Group I while dogs in Group II required prolonged housing, management and repeated requirement of intravenous access for completion of the chemotherapy protocol. Overall, oral Toceranib phosphate proved to be equally effective, well-tolerated, and convenient therapeutic option for the management of canine Sticker's tumor in stray dog populations. These findings indicate that Toceranib phosphate may represent a valuable alternative to conventional Vincristine therapy, especially in clinical settings where ease of administration, reduced handling and housing are critical considerations.

SAS 45**INTRAVESICAL THERAPY AND PERINEAL URETHROSTOMY - A RECIPE TO BLOCKED-CATS' RELIEF****Kulkarni N.P.**, Chauhan S.A., Salunke V.M., Mote C.S. and Kadam. S. N.*Department of Veterinary Surgery and Radiology, KNPCVS, Shirwal Maharashtra Animal and Fishery Sciences University, Nagpur*

Feline urologic syndrome (FUS) represents a severe and potentially life-threatening manifestation of feline lower urinary tract disease (FLUTD), commonly characterized by urethral obstruction, hematuria, crystalluria, and varying degrees of azotemia. The condition predominantly affects young to middle-aged male cats, particularly those that are indoor-housed and fed predominantly dry diets. The present clinical study was conducted on 12 tom cats presented with clinical signs consistent with FLUTD at the Teaching Veterinary Clinical Complex, KNP College of Veterinary Sciences, Shirwal, as well as selected private veterinary clinics across Maharashtra. All cats underwent comprehensive clinical examination, hematological evaluation, serum biochemical analysis, and urinalysis prior to treatment, during intervention, and throughout the post-treatment period. On day 0, all cases were presented as emergency urethral obstructions and were initially managed by transurethral catheterization combined with intravesical glycosaminoglycan (GAG) therapy, performed under general anesthesia. The anesthetic protocol included butorphanol (0.1 mg/kg IV) and midazolam (0.1 mg/kg IV) for premedication, followed by propofol (4 mg/kg IV) for induction. Based on the severity of obstruction and recurrence pattern, perineal urethrostomy was performed as a definitive surgical intervention in refractory cases. Post-intervention monitoring was carried out for up to 7 days, with serial urinalysis and renal function assessment. Pre-treatment findings commonly included increased urine specific gravity, proteinuria, hematuria, pyuria, bacteriuria, abundant crystalluria (calcium oxalate, uric acid, and triple phosphate crystals), and significantly elevated blood urea nitrogen and creatinine levels. These abnormalities showed marked improvement following therapeutic intervention, particularly in cats with severe baseline azotemia. The combined use of intravesical GAG therapy and appropriate urosurgical management effectively relieved urethral obstruction, improved urinary and renal parameters, and resulted in a low short-term recurrence rate during the study period.

SAS 46**SURGICAL MANAGEMENT OF GASTRIC DILATATION AND VOLVULUS IN TWO GERMAN SHEPHERD DOGS****Chauhan, K.K** Suthar, D.N., Patel, T.P., Raygaur, B.K. and Sheth, K.M.*Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Kamdhenu University, Rajpur (Nava), Himmatnagar, Dist. Sabarkantha, Gujarat*

Two German Shepherd dogs, aged 5 and 6 years were presented with acute abdominal distension, unproductive retching, aerophagia, restlessness, lateral recumbency, tachycardia, and signs of circulatory compromise. Physical examination and diagnostic imaging including abdominal radiography and ultrasonography and confirmed gastric dilatation with volvulus, characterized by a severe "double bubble" appearance. Both dogs were stabilized preoperatively with aggressive intravenous fluid therapy, gastric decompression via oro-gastric intubation and supportive medical management. Exploratory laparotomy was performed under general anaesthesia using xylazine as a pre-anaesthetic agent, ketamine with midazolam for induction anaesthesia and isoflurane for maintenance anaesthesia. Surgical intervention involved derotation of the stomach, evacuation of gastric contents, assessment of gastric wall viability and prophylactic gastropexy to prevent recurrence. Post-operative management included intensive monitoring, fluid therapy, systemic antibiotics, analgesics, and gradual reintroduction of oral feeding. One dog recovered uneventfully with complete resolution of clinical signs and no recurrence during follow-up; whereas, the second dog succumbed seven days post-surgery, likely due to severity of initial circulatory compromise and gastric wall ischemia.

SAS 47**EVALUATION OF SILVER NANOPARTICLES TREATED NILE TILAPIA FISH (*Oreochromis niloticus*) SKIN AS BIOLOGICAL DRESSING MATERIAL FOR THE TREATMENT OF OPEN WOUNDS IN DOGS**

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Infection-associated inflammation and delayed tissue repair complicate canine open wounds, necessitating biocompatible antimicrobial dressings. This study evaluated Nile tilapia (*Oreochromis niloticus*) fish skin as a biological dressing and compared the wound healing efficacy of Ag-NPs treated tilapia skin with the other two treatment groups. Eighteen dogs with comparable open wounds were randomly allocated into three groups (n = 6). Group I received povidone-iodine with gauze, Group II received Ag-NPs treated tilapia skin every third day, and Group III received povidone-iodine treated tilapia skin at the same interval. Ag-NPs synthesis was confirmed by UV-Vis spectroscopy showing a peak at 419 nm, while FESEM revealed nanoparticles of 44-72 nm size. Total Viable Count of fish skin was $2.76 \times 10^5 \pm 0.03$ CFU/mL before sterilization and nil after sterilization. Group II demonstrated significantly superior wound healing with rapid wound size reduction, early granulation tissue formation, enhanced wound contraction and accelerated epithelialization, achieving closure within 15-21 days. Group III achieved wound closure around 18-24 days, whereas Group I required 36-45 days. The rate of wound healing was highest in Group II (0.124 ± 0.018), followed by Group III (0.096 ± 0.004) and Group I (0.073 ± 0.008). Haemato-biochemical parameters remained within normal limits. Group II showed early and regulated values of serum IL-1, IL-6, VEGF, FGF-1 and bFGF, supported by histopathological evidence of marked fibroplasia, neovascularization and organized collagen deposition as revealed by H&E and Van Gieson's staining. In conclusion, Ag-NPs treated Nile tilapia fish skin is a safe and highly effective biological dressing for open wound management in dogs.

SAS 48**SURGICAL MANAGEMENT OF INTESTINAL OBSTRUCTION IN DOGS – A REPORT OF SIX DISTINCT CASES**

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Intestinal obstruction is a critical surgical emergency in canine practice, requiring rapid diagnosis and prompt intervention to ensure survival and recovery. The present report documents six distinct cases of intestinal obstruction in dogs presented to the Department of Veterinary Surgery and Radiology, Veterinary Clinical Complex (VCC), Mhow. Clinical signs vary depending on type of cases and individual variations are persistent vomiting/intermittent vomiting, anorexia/intermittent anorexia, dehydration and difficulty in defecation or loss of defecation. Diagnostic evaluation was based on history, clinical examination, survey/contrast radiography. Among the six cases, four were due to presence of foreign body obstruction (stone, mango kernel, corn). The fifth case had tumor involving the part of intestine later on confirmed as confirmed histopathologically as adenocarcinoma, while the sixth presented with ileo-ceaco-colic intussusception had severe distension of intestinal loop in radiograph. All dogs were stabilized preoperatively with intravenous fluids, antibiotics and analgesics before undergoing exploratory laparotomy. Enterotomy or resection and anastomosis were performed depending on the extent of intestinal involvement. Endeavour was done to reduce intussuscepted segment but fails. Postoperative management included fluid therapy,

antibiotics, analgesics and gradual dietary reintroduction. Four animals recovered with normalization of appetite, bowel activity and behavior within one week while case of tumour and intussusception will not be able to recover in successive post operative days. The observation underscores the diagnostic value of imaging techniques and highlights the importance of timely surgical intervention in achieving successful outcomes in canine intestinal obstruction

SAS 49

EX VIVO GENERATION OF CANINE iPSC AND ITS CARDIOMYOCYTE DIFFERENTIATION STUDY THROUGH EXPRESSION OF ALPHA MHC AND TNT

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Cardiac regenerative therapies are confronted with the problem to develop cells with the capability to compensate for the loss of cardiomyocyte function in the diseased heart. The mammalian heart exhibits a capacity, albeit limited, to generate new cardiomyocytes. In adults the turnover rate is low around 1% per annum, which declines with age. The α -myosin heavy chain (MHC) is a heart-muscle-specific contractile protein. Troponin T (TnT) isoforms are capable of modulating cardiac contraction. This study described the establishment of conditions for in vitro expression of alpha MHC gene and TnT in cardiac differentiated canine iPSC (ciPSC). In vitro differentiations of canine iPSCs via embryoid bodies (EBs) were produced by 'Hanging Drop' method. These embryoid bodies were cultured in cardiac differentiation media. By following two protocols one is by IMDM differentiation media: FBS – 10%, NEAA(100X) – 0.5%, B-Mercaptoethanol- 100mM, Gentamycin- 5µg/ml supplemented with Azacytidine- 0.5µM. EBs were collected on day 4, 6, 8, 12, 16, 20 and 24 for characterization of cardiomyocytes specific marker expression. For Alpha MHC, total RNA from EBs were extracted by using Trizol method and subsequently cDNA was synthesized. Immunocytochemistry was done for Alpha MHC and TnT. The differentiated cells expressed cardiac specific gene (Alpha MHC) which started from day 4 of differentiation respectively upto day 24. Immunocytochemistry and relative expression of cardiac specific genes revealed that ciPSC have the potential to differentiate into cardiomyocytes which can be used for cardiac tissue regenerative therapies.

SAS 50

INTEGRATED THERAPEUTIC STRATEGIES FOR MANAGING CANINE HIP OSTEOARTHRITIS

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The present clinical study was conducted on 24 clinically and radiographically confirmed canine hip osteoarthritis cases. Dogs were divided into 4 groups (n=6) in which Group 1 received pentosan polysulfate sodium, and oral nutraceuticals for 4 weeks, Group 2 underwent physiotherapeutic management for 4 weeks, Group 3 received a combination of PPS, nutraceuticals, and physiotherapy for 4 weeks and Group 4 was treated with femoral head and neck ostectomy followed by physiotherapy for 4 weeks. Hip osteoarthritis was most common in females (54.2%), dogs aged 6-10 years (62.5%), Labrador Retrievers (62.5%), dogs weighing 31-40 kg (50%), those with a body condition score of 7 (37.5%), and bilateral hip involvement (79.17%). Clinical assessment included radiographic evaluation, pain on palpation, joint motion, weight bearing during standing, and lameness during walking on day 0 and day 28. Scores were highest at presentation but significantly improved after treatment in all groups. The greatest improvement occurred in the combined medicinal and physiotherapy group, followed by the surgical group, alone medicinal group, and alone physiotherapy group. The marked improvement in the combined group highlights the therapeutic effectiveness of PPS, nutraceuticals, and physiotherapy in managing canine hip osteoarthritis. Dogs undergoing

femoral head and neck ostectomy with postoperative physiotherapy showed satisfactory recovery and functional limb use. Alone Medicinal therapy and physiotherapy also produced favourable outcomes, demonstrating their roles in reducing pain, improving mobility, and enhancing quality of life.

SAS 51

EVALUATION OF DIODE LASER FOR EXCISION OF CANINE CUTANEOUS TUMOURS

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LASER (Light Amplification by Stimulated Emission of Radiation) technology, particularly diode lasers of 810 nm and 980 nm wavelengths, is widely used in veterinary surgical practice. The present study was conducted at the Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, Nanaji Deshmukh Veterinary Science University, Jabalpur, Madhya Pradesh, over a six-month period (February–July 2024). The objectives were to study the occurrence of cutaneous tumours in dogs and to evaluate and compare conventional scalpel excision with single- and dual-wavelength diode laser excision. Twelve dogs with cutaneous tumours were randomly divided into three groups (n=4). Group I underwent conventional scalpel excision, Group II diode laser excision at 980 nm and 10 W, and Group III diode laser excision at dual wavelength (810 nm + 980 nm) at 10–12 W. Higher incidence of cutaneous tumours was observed in non-descript dogs, followed by Labrador Retrievers and Spitz, with maximum occurrence in the 9–12-year age group. Females were more frequently affected than males, and the abdomen was the most common tumour location. Incisional quality was superior in the scalpel group, while laser groups showed varying degrees of charring, most pronounced in the dual-wavelength group. Intraoperative bleeding was significantly reduced in laser-treated groups compared to the scalpel group. Surgical time was significantly shorter in laser excisions. Wound healing was faster in the scalpel and 980 nm laser groups, whereas delayed healing and increased scarring were observed with dual-wavelength laser use. Overall, diode laser surgery provided better haemostasis than scalpel excision; however, higher power dual-wavelength laser use resulted in increased tissue damage, delayed healing and greater scar formation.

SAS 52

FROM CHRONIC PAIN TO COMFORT: TOTAL EAR CANAL ABLATION IN CANINE OTITIS

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Total ear canal ablation (TECA) is a definitive surgical procedure indicated for end-stage otitis externa and media unresponsive to prolonged medical management. The present report describes the clinical presentation, surgical management, and outcome of TECA performed in a dog with chronic, recurrent otitis. A 10-year-old lhasa apso and 6-year-old Labrador was presented with a long-standing history of severe unilateral ear discharge, pain, head shaking and head tilt, and marked stenosis of the external ear canal. Clinical examination, otoscopic evaluation and radiographic findings confirmed irreversible pathological changes involving the external and middle ear structures. Following routine preoperative stabilization and antibiotic therapy accordingly with ABST, total ear canal ablation was performed under general anesthesia using inj. butorphanol @ 0.2 mg/kg I/V, inj. diazepam @ 0.25 mg/kg I/V, inj. 3mg/kg propofol I/V and maintained with 2.5% isoflurane. Careful dissection was undertaken in

lateral recumbency to remove the entire diseased ear canal while preserving facial nerve and branches of great auricular artery. Postoperative management included fentanyl patch, tablet amoxicillin 12.5 mg/ kg for 7 days. The dog showed uneventful recovery with complete resolution of pain, discharge, and head shaking. No major complications such as facial nerve paralysis or wound dehiscence were observed during the follow-up period. The outcome of this case highlights TECA as an effective and curative surgical option for dogs with end-stage ear disease, significantly improving animal comfort and quality of life.

SAS 53

ASSESSMENT OF SURGICAL INCISION HEALING USING DIODE LASER AND ELECTROCAUTERY FOR AURAL HAEMATOMA IN DOGS

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This study was aimed to evaluate the incidence of aural haematoma and compare healing outcomes among three treatment modalities: scalpel incision (G1), diode laser (G2) and monopolar electrocautery (G3). Eighteen dogs with aural haematoma were randomly divided into three groups. Parameters including ear pinna thickness, inflammation, exudation, healing duration, cosmetic appearance and complications were analysed. The overall incidence was 0.40%, with non-descript breeds most affected (42.86%), followed by Labradors (19.05%). Male dogs (66.67%) aged 4–6 years were predominantly affected. Healing was earliest in G1 (12±0.82 days), but G2 showed superior cosmetic results with minimal fibrosis and better ear carriage. G3 had the highest inflammation, exudation and complications like suture embedding and scarring. Inflammation subsided by day 21 across all groups. Haematological and biochemical parameters remained within normal range across groups. Diode laser emerged as the most effective technique for managing aural haematoma due to satisfactory healing time, superior cosmetic outcomes and fewer complications compared to scalpel incision or electrocautery.

SAS 54

COMPARISON OF MATTRESS SUTURING AND STAPLING TECHNIQUES FOR SURGICAL MANAGEMENT OF AURAL HEMATOMA IN DOGS

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Aural hematoma is a common otic condition in dogs requiring surgical intervention to prevent recurrence and cosmetic deformity of the pinna. The present study was undertaken to compare the clinical efficacy of through-and-through mattress suturing and stapling techniques in the surgical management of aural hematoma in dogs. The study was conducted on twelve dogs diagnosed with unilateral aural hematoma and randomly divided into two equal groups. Group I dogs were treated using the through-and-through mattress suturing technique following hematoma evacuation, whereas Group II dogs were managed using surgical skin staples after drainage. Parameters evaluated included surgical time, postoperative pain and swelling, hematoma recurrence, wound healing, and cosmetic outcome. The stapling technique required significantly less operative time and was associated with reduced postoperative edema and pain. Both techniques effectively prevented recurrence; however, dogs treated with stapling showed faster healing and superior cosmetic appearance of the pinna. The study concludes that while both methods are effective for the treatment of aural hematoma in dogs, stapling offers a simpler, faster, and cosmetically more acceptable alternative to conventional through-and-through mattress suturing.

SAS 55**MANAGEMENT OF GENITAL TUMORS IN DOGS**

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Four dogs irrespective of age, sex and breed with internal genital tumors were presented at VCC, Department of Veterinary Surgery and Radiology, Jabalpur, M.P. Dogs were examined clinically with different diagnostic modalities. Out of four cases, three cases were diagnosed with testicular tumor and one had cervical tumor. Management of these tumors was done by surgical procedure followed by chemotherapy. All animals were premedicated with atropine sulphate @ 0.02 mg / kg b.wt I/M followed by inj. xylazine @ 0.8 mg/ kg b.wt I/M and induced with subsequently with ketamine after induction, maintenance of anaesthesia by isoflurane. The animals were operated as per surgical technique. Postoperatively, all animals were managed with supportive therapy including inj. amoxicillin sulbactam @ 12.5 mg/kg b.wt BID I/M for 5 days, inj. carprofen @ 4 mg/kg b.wt OD by S/C route for 3 days and antiseptic dressing. Skin sutures were removed after 14 days followed by chemotherapy using injection doxorubicin 30 mg/m² given slow I/V diluted in normal saline and after 3 days, inj. carboplatin 300 mg/m² slow I/V with normal saline dilution. Total four cycle were done and each cycle was repeated in 21 days interval. All four cases recovered successfully with no recurrence within 8 months duration.

SAS-56**SURGICAL MANAGEMENT OF URETHRAL OBSTRUCTION IN TOM CATS: A COMPARATIVE CLINICAL STUDY**

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A clinical study was conducted to compare the efficacy and complications of urethral catheterization, tube cystostomy (TC), and perineal urethrostomy (PU) in the management of urethral obstruction in tom cats. Eighteen clinical cases presented to the Division of Surgery, RVP–TVCC, Izatnagar, Bareilly, Uttar Pradesh, were subjected to three treatment groups (n = 6). Most affected cats were intact Persian toms aged 2–3 years, maintained indoors, fed predominantly commercial dry diets, and exhibited low water intake. Predisposing factors included environmental stress, inter-cat aggression, and changes in household routine. Urethral plugs were the most common cause of obstruction, followed by idiopathic cystitis and urolithiasis. Common clinical signs included stranguria, persistent vocalization, hypothermia, and abdominal distension. Sedation was achieved using glycopyrrolate (0.02 mg/kg, SC), midazolam (0.2 mg/kg, IV), and buprenorphine (0.02 mg/kg, IV), followed by induction with ketamine (5 mg/kg, IV) and maintenance with isoflurane inhalation anesthesia. Partial obstruction was managed by transurethral catheterization, while TC was performed in the cases which failed of catheterization or severe penile inflammation. PU was indicated for recurrent obstruction and penile necrosis. Postoperative complications, including wound infection, delayed healing, catheter dislodgement, and urinary tract infection, were more frequent in the catheterization and TC groups. Urethral patency was restored within 3–7 days. Although catheterization allowed faster initial recovery, recurrence was highest. PU showed the most favorable outcome, with no recurrence. Four mortalities were recorded due to urinary tract infection. The study concluded that individualized surgical intervention based on the severity of obstruction improves clinical outcome in tom cats.

COMMON SURGICAL AFFECTIONS AND ITS MANAGEMENT IN ELEPHANTS

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Introduction

Elephants are the large mammals of family Elephantidae and order Proboscidea. Two species are traditionally recognised, African elephant (*Loxodonta africana*) and Asian elephant (*Elephas maximus*). They are herbivorous and can be found in different habitats including savannahs, forests, deserts and marshes. They are considered to be keystone species due to their impact on their environments. In India domesticated Asian elephants (*Elephas maximus*) are mostly used for heavy work like moving logs, lifting vehicles and demolishing structures. Captive elephants caught from the wild or born in captivity and tamed, trained and kept for exhibit purpose. Encroachment of elephants to human habitats is increasing day by day because of growing human population, declining forest cover and invasion of elephant corridors which lead to human and elephant conflicts and injuries. Apart those different types of affections are generally encountered in both captive and wild elephant during their lifetime. The technical expertise of surgeons bears a greater importance in successful handling of surgical cases in both wild and captive elephants, especially in the area of proper restraint and operative intervention.

Restraint and Anaesthesia

Being the largest living terrestrial mammal, special consideration during anaesthesia should be undertaken. Standing sedation is always preferred. Captive elephants should always be sedated with xylazine-ketamine mixture or Medetomidine-Ketamine combination. In case of sick elephant careful consideration for the decreased dose and standing support is vital. Judicious use of antidote (partial or pure) is important on completion of the treatment. Elephant sedation is usually conducted in shaded area or camouflaged in wild habitat. Author has observed a case of photosensitized wound while treating “Nandan” Elephant in musth. The wound on back healed in 6 months by usual antiseptic dressing. The combination fails to show desired effect in excited, apprehensive animals. Immobilon LA should only be used in wild aggressive elephants. Immobilon in full stomach animals may result in regurgitation of food material resulting in death due to aspiration pneumonia. Scheduled drugs like Immobilon has narrow margin of expiry at the time of purchase. So, it depends solely upon the anaesthesiologist how to use it safely depending up on the demand of the situation. Nowadays Immobilon LA is not available and more potent Captivon (Etorphine HCl 9.8mg/ml) is used for radio collaring in problematic elephants. Elephant becomes recumbent. Oxygen support is mandatory during the process. Veterinarian should always take the lead, forest people to help always. Assistance of the experienced vets and technicians should always be considered. Even one degree rise in body temperature is fatal for the elephant. So, during anaesthesia, if there is rise in body temperature cold water should always be sprayed upon the ear pinna and foreheads. Sometimes Immobilon may lead to erratic response in elephants. Even if we have administered the correct dose, there is just drowsiness and the animal may immediately get up as if no anaesthetic has been administered particularly during musth period. Thiafentanil (A 3080) is recently used by Dr Jacob of South Africa along with Dr Parag Nigam of WII in “Shanker” and “Uma” elephant of Chandaka Elephant Sanctuary. Attaining sternal recumbency after drug administration and their hurriedness to shift the elephant to lateral recumbency and oxygen support is to be noted carefully. Drug is not available with any other firm. This may be used only in healthy problematic or rogue elephant for radiocollaring or capture.

DIFFERENT SURGICAL AFFECTIONS

Wound

Skin wounds are one of the most commonly encountered pathological conditions in wild and captive elephants. Mechanical injury from sharp objects like theankush used by mahouts or pieces of wood, and cut injuries from chains are the most common causes of skin wounds. Many times gunshot wounds are also observed due to poaching activity. The presence of metallic bullet can be ruled out by the help of metal detector and treatment of the wound should be done with utmost care. The lack of sebaceous glands makes the skin dry and in natural habitats, elephants keep their skin moist and protected from UV rays by covering with mud and dust. Management of skin and soft tissue infections normally involves a combination of surgical intervention and empirical antibiotic therapy. Use of specific antibiotics that the organisms are sensitive to and regular cleaning reduces the oozing of exudates. Gradually necrotic tissue are replaced by healthy fibroblastic cells and the wound gap will be minimized. An antibiogram is therefore an essential tool in the management of skin wounds in elephants. Chronic wounds can be managed by cryosurgery with the application of liquid nitrogen.

Perforating wounds on the trunk

Wounds over the trunk is common and caused by crushing between logs of wood, pointed objects tearing through and penetrating objects including the tusk penetrating through. Injuries to the trunk cause difficulty in prehension and in drinking. Since the trunk is supported by both longitudinal and circular muscles, the wound edges gape. Bleeding will be profuse and the animal repeatedly sneezes. The lesions are extremely painful, especially if it is near the tip. Under general anaesthesia cleaning, removal of debris, freshening wound edges and suturing the wound by '8' type or near and far tension sutures. Dead and devitalized tissues may be excised in interval during healing process to avoid self mutilation. Dressing the wounds with antiseptics, parenteral administration of antibiotics, rest and minimal use of trunk be permitted to take water or fodder till complete healing. Animal may be hand fed. Perforating and suppurative wound in "Babloo" the baby elephant of Simlipal tiger reserve caused due to its own abnormally deviated tusk was treated by surgical intervention under anaesthesia. Treatment of a deep cut injury to trunk of a wild tusker of Sundargarh division was unsuccessful due to suture dehiscence. Palpable soft tissue masses at trunk tip of "Jashoda" was managed by topical application of glycerine.

Abscess

Abscesses are observed in all parts of the body in elephants. They are seen developing from secondary contamination of haematoma, secondary to penetrating wounds and iatrogenic infection. Latent period of development of abscess varies from weeks to months. Development of abscess and maturation are like in other animals. Treatment procedure includes hastening maturation using counterirritants like iodine ointment and opening and draining contents and treating it as open septic wounds. Strangulating foreign bodies like metallic wire and heavy plastic ropes causing suppurative wounds in three wild elephants was successfully treated by author.

Cyst

Cysts are noticed at the point of elbow, point of hip and carpal joint developed probably due to repeated irritation in lying down and getting up-similar to capped elbow in other animals. Treatment includes exploratory puncture and study the nature of contents. Cyst contains clear fluid with cell debris or casts. Tr. iodine is injected into the capsule after destroying it by surgery or chemical cauterization with Triple sulphur.

Arthritis

Arthritis is observed in elephants of all age groups and in both male and female. It is found to be caused by trauma, infection and as an old age syndrome. The elbow, carpal joint, stifle joint and the tarsal joint are affected. The symptoms noticed are: swelling involving the joint with oedema of the limb distal to the joint, tenderness and pain over extensive areas, lameness. Large animal x-ray machine is used to take radiograph above joints. Treatment may be adopted as external application of counter irritants/absorbents, anti-inflammatory drugs, antibiotics in septic arthritis, diuretics to relieve oedema, draining of pus and rest.

Fractures, dislocations, sprain

Fractures and dislocations are observed in elephants as a result of accident due to heavy automobile/train, infighting and falling from height. Because of the large body size and weight, immobilization of fracture or dislocation is difficult in elephants. In case of fracture in sub adult and baby elephant, use of modified Thomas splint is successfully tried in Assam. Compound fracture of metacarpal in one sub adult elephant resulted in death at Bonai division. Chronic limping in a wild bull elephant in Baripada forest division was successfully treated by POP application. In this case lameness caused by sprain improved due to immobilization provided by POP which was retained in leg for about 2 weeks in a summer month and slowly removed in due course of time by water contact. Shoulder lameness in a rescued baby elephant was radiographed to reveal absence of any fracture and treated by physiotherapy. Hip dislocation due to train accident in sub adult elephant “Seema” is treated by restricting its movement keeping in wooden Kraal and medicine.

Temporal adenitis

Hypertrophy of the temporal glands and secretion from it is noticed during must. The gland during this period may get injured or infected resulting in temporal adenitis..Two types of lesions have been observed.(i) Chronic adenitis resulting in thickening and enlargement of the gland and supporting tissue.(ii) Purulent adenitis with discharge of pus through the temporal duct orifice. The swelling will be tender and painful. It subsequently behaves like an abscess, point and burst. In the chronic form, counter irritants can be applied to resolve the adenitis. In recurrent inflammation, anti-inflammatory drugs may be administered orally and parenterally. The indurate gland may be surgically removed under general anaesthesia. Opening the swelling and cauterizing the gland with caustics like triple sulphate/LN2.Purulent form may be opened and drained and treated as open wound. Myxosarcoma of temporal gland excised successfully in captive elephant (Shanker) by the Author.

Tusk trimming

The evolution of sexually dimorphic, elaborate, extravagant, ornamental male traits like possession of tusk in elephants; that are seemingly maladaptive may be driven by sexual selection (male-male competition and or female mate choice).Tusks are elongated second upper incisors and have been the norm in the proboscidean fossil record. The functional role of tusks in the elephant has not been empirically determined but there are anecdotal observations of elephants using their tusks for digging mud for minerals, debarking trees, function as a weapon and a courtship aid. During agonistic interactions, tuskers usually asserted their dominant status and corresponding high reproductive success. Being placed higher in their social hierarchy, tuskers usually turn aggressive, especially during musth. As a result of which, it not only attacked mahout and adjacent human habitation causing fatality. Author has observed inter-species sexual interaction caused by such aggressive tuskers. In order to curb such inadvertent aggression, authors had trimmed the most profligate male traits of a male elephant i.e., tusks. This manoeuvre not only curbed aggression in free ranging elephants but also incited amenability in captive ones. Tusk trimming acted beneficial in multiple fronts like prevention of poaching, decreased chances of future tusk affections (open pulp, pulp it is, tusk fracture) and

exalted aestheticism. Tusk trimming done in several wild bulls causing 4-5 human casualty in Odisha, One killer tusker remained cool for about one year after tusk trimming but thereafter killed 2 persons. It was captured and kept in a separate limited enclosure in Dhenkanal forest division leading its normal life(Rakesh of Kapilas Rescue and Rehabilitation Centre). Another killer bull in Angul was killed by group elephant after two years of tusk trimming.

Tusk trimming in captive elephant is a regular husbandry practice before onset of musth in captive animals. Standard protocol should be followed during trimming. Care should be taken not to expose pulp of the tusk during trimming.

Broken tusk

Tusk gets broken by automobile accidents, fall from a height and charging against hard objects. The break may be at any part of the exposed tusk with or without exposing the pulp. When the pulp is exposed, it bleeds profusely. The animal shows signs of severe pain. This may be treated by trimming the broken end and dressing with tincture benzoin. The wound may be sealed with wax. Repeated antiseptic dressing and use of ametal cap would aid recovery. Cryotherapy (LN2 swabbing) gives excellent result in controlling bleeding and healing.

Affections of eye

Conjunctivitis, keratitis and corneal ulcer in elephants are caused by trauma or injury from foreign body. The inflammation, when became chronic, causes opacity of cornea. The signs noticed are profuse lacrimation with soiling of the cheek, photophobia – animal shows difficulty in opening the eye, frothy mass of mucus forming at the inner canthus, congestion of conjunctiva, ulcers and vascularisation of cornea. Regular cleaning and dressing with antiseptic/antibiotic eye drops. Placentex subconjunctival, in chronic cases. 5-10 injections given on alternate days. Anti-inflammatory eye drops should be recommended. Kharsel elephant of Hirakud wildlife division was treated successfully by subconjunctival inj. of placentex.

Penetrating wounds on chest and abdomen

Abdominal and thoracic wounds are those caused by attack of tuskers. Penetrating wounds with laceration of peripheral tissue is noticed. The depth and direction of wounds varied. The tissue in the vicinity of wounds is seen severely damaged. The wounds are cleaned and treated as open wounds.

Dystocia

The elephant is the largest land mammal with the longest gestation period of 20-22 months. Unique anatomical features of the female elephant include: Long reproductive tract over 3 m from vestibule to ovary, ventrally directed opening of the vulva which is located between the hind limbs, permanent hymeneal membrane in nulliparous females which is not ruptured during natural mating and small vaginal opening with two blind pouches of similar size on either side of it. In part, arising from these anatomical features, dystocia and stillbirths are observed in free ranging and captive elephants. Two cases of dystocia in wild elephants treated successfully one by IM injection of 10ml Epidocine through darting and other by episiotomy.

Balanoposthitis

A case of Balanoposthitis in a wild “Makhna” was treated after tranquilization in Athamallick forest division of Odisha.

Rescue and rehabilitation of new born calves

Many times elephant calves are left outside the forest by their herd due to inability to move, accidental injury or recent calving of the calf. They are first stabilized through medication. Then secondary affection is taken care. In case of recumbent animals provision of slings should be provided as soon as possible. Ruling out EEHIV by analysing trunk wash is first step in case of wild rescue babies.

FOOT DISORDERS

Interdigital growth: Like bovine, interdigital growths are also seen in captive elephants. Due to over growth they are creating friction on the ground and severe bleeding occurs. Understanding sedation surgical removal and cryotherapy is found successful.

Cracked sole: Elephants exposed to wet condition and poor sanitation is more prone to this condition. Cracks often penetrate into the foot and expose deep tissues to dirt and infection. Treatment measures include debridement of cracks, antiseptic irrigation, parenteral and topical use of antibiotic preparations, bandaging of the foot, stabling of elephants in saw dust places and application of leather/fibre glass boots.

Conclusion

Treating the largest living terrestrial mammal i.e. elephant is always a challenge to veterinarian. Being a ruminant with heavy body weight, utmost care and preventive measures should be taken during treatment to avoid unusual circumstances. A wild animal surgeon is not only a surgeon but also serves as both anaesthesiologist and surgeon. Delay in detecting the sick animal and subsequent permission from PCCF for tranquilization and treatment further increase the risk. However early attention and detecting the cause makes the operation successful and helps in saving the precious life of our patient.



Wild and Zoo Animal Surgery



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WZS 01**SUCCESSFUL PLATE ROD OSTEOSYNTHESIS OF PROXIMAL RIGHT HUMERAL FRACTURE IN A RESCUED INDIAN LEOPARD CUB
(*PANTHERA PARDUS FUSCA*)****Ravi Raidurg and Muruli Manohar***Department of Surgery & Radiology, Veterinary College, Vinoba Nagar, Shivamogga, Karnataka, India*

A rescued Indian leopard (*Panthera pardus fusca*) cub weighing 6.2 kgs was presented to the Small Animal Orthopaedic Unit of Veterinary college Shivamogga Teaching Hospital with the history of being found abandoned in a village nearby. The cub showed non-weightbearing lameness in right forelimb with swaying gait. Orthogonal radiography revealed transverse fracture of right proximal humerus. Pre-operative plan was prepared using a small animal preoperative planning guide developed by the AO/ASIF and was classified as 'AO 1.1 A 3'. The wild felid was premedicated with Inj Butorphanol @ 0.2mg/kg b.wt intramuscularly followed by Xylazine hydrochloride @ 2mg/kg b.wt intramuscularly and Ketamine hydrochloride @ 3mg/kg b.wt intramuscularly and was maintained with propofol, intravenous to effect. Pre-operative Ceftriaxone and Tazobactam was administered at a dose of 25mg/kg b.wt intravenously along with Normal Saline. A cranio-lateral skin incision was made along the right humerus and minimal separations of the attached soft tissues were performed by blunt dissection to approach the fractured ends taking care not to damage the radial nerve. Open reduction and internal fixation was done by retrograde intra medullary pinning using a 2 mm Titanium nail. A five hole 3.5mm titanium LCP was applied on the cranio lateral surface of the diaphysis as per AO principles. One titanium screws in the proximal segment and three titanium screws in the distal segment were engaged bicortically. Fascia and skin were closed using a Polyglycolic acid suture size 2-0 in a continuous manner with knot ending in Aberdeen pattern. An elastic adhesive bandage was applied. The animal started bearing weight on the right limb by 3rd day and started climbing the zoo enclosure by 8th week. Post-operative radiographs on 8th week and 19th week along with CT scan on 19th week revealed excellent clinical union by way of cortical continuity and presence of bridging callus.

WZS 02**CONSERVATIVE MANAGEMENT OF DYSTOCIA IN A WILD ASIAN ELEPHANT (*ELEPHAS MAXIMUS*)****Anjan kumar Sahoo, Sidhartha Sankar Behera, B Mahanand, Mandakini Sahoo, Biswadeep Jena, Pritish Rath and Indramani Nath***Department of Veterinary Surgery & Radiology, College of Veterinary Science & AH, OUAT, Bhubaneswar*

A wild female elephant aged about 20 years old was found struggling to deliver baby in the forest Range of Debagarh Wildlife Division which was tracked through night vision thermal Cameras. The elephant cow was straining in labor pain and entire herd was forming a protective shield around the female elephant. The two legs of the baby elephant were seen hanging from cervical canal with discharge from the birth canal since 1 to 2 days detected from a distance by binocular camera and immediately informed to the Dept. of Vet. Surgery & Radiology, CVSc & AH for intervention. The mother elephant was frequently dipping herself in nearby ponds to relieve of labor pain as water provides buoyancy while the calf is being delivered. Initially it was planned to sedate the elephant, but as fetal legs were hanging from cervical canal, it was decided to intervene conservatively and Valium bromide @ 10ml (EPIDOCIN injection) was administered to dilate the cervical canal to facilitate expulsion of baby. Post-administration the elephant was tracked carefully through its path in the forest to find a full-grown dead baby elephant next day. The PM examination of baby revealed it to be a normal full grown calf. The cause of dystocia may be too young mother unable to deliver due to improper dilation of cervical canal. The mother is tracked further few days to find it recovered completely. Hence,

proper decision to administer Epidocin instead of tranquilization of a struggling mother amongst group of protective herd could be avoided and female elephant could be saved avoiding sedation.

WZS 03

MANAGEMENT OF MULTIPLE WOUNDS IN SAMBAR DEERS (*RUSA UNICOLOR*)

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A 7-year old male Sambar deer weighing about 300 kg was spotted with large skin wounds at its wither and gluteal region in Nandankan Zoo Herbivore safari. Initially, regular wound dressing was done from a distance through sprinkling with Potassium Permanganate, Povidone Iodine and Magsacite Solution but was totally unresponsive. Animal was then sedated with Xylazine (300mg) and Ketamine (600mg) and wound was thoroughly washed, clean with Cetrimide solution (1%), dressed with antiseptic solution (Povidone iodine (5%) stock solution) and then locally antimicrobial lotion (Mupirocin ointment) was applied. Necrotic tissue was surgically debrided and maggots were manually removed. Parenteral Ivermectin (6ml S/c), antibiotic (Ceftriaxone, Intacef 2gm), analgesic (flunixin meglumine @ 1ml/45kg body wt) and Tissue Aid tablet was administered orally in food bait. Animal was regularly administered oral antibiotic and analgesic for 15 days still there was no remission of wound though it was clean of maggots. During the anesthetic procedure, blood sample and wound swab were collected for microbiological testing and treated accordingly without any improvement. Then advise from Dept of Dermatology, AIIMS Bhubaneswar was taken to treat the aggravated wound with oral medication of virucidal (VALCIVIR 1000mg tablet) and OMNACORTIL 40mg tablet regularly for 30 days after which the large skin wound was found contracting with remission upto 50% of the preliminary stage. As Valcivir tablet is a common antiviral drug for treating herpes infection in human being, the same was practiced for other similar type of skin lesion in 5 more sambar deers with similar condition with promising results.

WZS 04

TRAUMA MANAGEMENT AND SUCCESSFUL REHABILITATION OF BURMESE PYTHONS INJURED BY FISHING NETS NEAR KAZIRANGA NATIONAL PARK & TIGER RESERVE

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Traumatic injuries in large constrictor snakes like the Burmese python (*Python bivittatus*) present a significant clinical challenge to wildlife rehabilitators due to their specialized integument and slow nature of wound-healing. Of the 589 cases of Burmese python displacements attended by the Wildlife Trust of India (WTI) in Assam since 2002, 65 had injury as the cause of displacement. This paper is on the two Burmese pythons (*Python bivittatus*) that had sustained injuries in 2025 due to entanglement in fishing nets near the Kaziranga National Park & Tiger Reserve. Case 1 was presented with a deep laceration on the lateral side of the neck, with complications like maggot infestation, marked inflammation, and exposed musculature. Treatment regime, after chemical restraint included the removal of maggots, thorough debridement, application of tension-relieving sutures to reapproximate skin margins to restore tissue integrity. Case 2 had an extensive dorsal and circumferential cervical wound with exposed muscle bands and substantial scale loss. The animal was physically restrained to remove the necrotic tissue, followed by debridement. The wound was then left to heal by secondary intention, supported by intensive wound management protocols. Both snakes were given

postoperative antibiotics, analgesics, thermal support, and proper wound care, resulting in progressive granulation, re-epithelialization, and complete recovery. Following clinical stabilization, both animals were released back into the wild after 47 & 42 days of captive care.

WZS 05

LIMB CONSERVATION IN A RESCUED WILD LEOPARD (*PANTHERA PARDUS*) THROUGH DISARTICULATION FOLLOWING MULTIPLE COMPOUND METATARSAL FRACTURES

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A four-year-old female wild leopard (*Panthera pardus*) was rescued after being trapped in a foot snare for approximately two days. The animal was presented with non-weight bearing lameness on the left hind limb and exposure of multiple metatarsal bones. Radiographic examination of the distal hind limb revealed multiple compound fractures of the metatarsal bones along with a distal fibular fracture. Anaesthesia was induced with darting of xylazine and maintained with isoflurane using small animal anaesthesia machine through a face mask, the fractured metatarsal bones were disarticulated from tarsal joints and were surgically resected then the wound was closed using absorbable suture material. Post-operatively, padded bandage was done which was changed for every three days along with antibiotics and analgesics. The wound showed gradual healing and the animal recovered successfully following surgery with ability to use limb completely and is currently been maintained under captive care of Sri Venkateswara Zoological Park, Tirupati.

WZS 06

PHARYNGEAL FISTULA DUE TO A SNARE ENTRAPMENT IN A RESCUED WILD ROYAL BENGAL TIGRESS AND ATTEMPT FOR ITS SURGICAL RECONSTRUCTION

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A wild Royal Bengal tigress, approximately 4.5 years old, was rescued from the Nallamalla Srisailam Tiger Reserve, Andhra Pradesh after sustaining a severe neck injury caused by entrapment in a snare and was presented to Department of Veterinary Clinical Complex, CVSc., SVVU, Tirupati. Clinical examination under general anaesthesia revealed a circumferential, deep lacerated wound around the neck with extensive maggot infestation. The ventral aspect of the neck showed an open wound exposing the pharyngeal and laryngeal cavities, with formation of a pharyngeal fistula. Feed material consumed by the tigress was observed escaping through the fistula. The epiglottis, arytenoid cartilages, and tracheal opening were clearly exposed and surgical reconstruction and closure of the fistula were planned following radiological examination. Following aseptic surgical preparation, thorough debridement of devitalized tissue was performed. The pharyngeal fistula was closed using a continuous locking suture pattern with PGA No. 0. Subcutaneous tissues were sutured with PGA No. 1, and the skin was closed using No. 1 surgical silk. The tigress regained consciousness after administration of reversal agents and was safely shifted to the local zoo. On the third postoperative day, it was reported that the diet consumed by the tigress was leaking from the operated site due to dehiscence which was reconstructed again. Postoperatively, the animal was provided with a neck brace to prevent mutilation and the complications and clinical outcome were discussed.

WZS 07**SURGICAL RECONSTRUCTION OF CARAPACE FRACTURE IN TURTLES**

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Three rescued turtles, two Indian Black Turtle, 1 to 1.2 kg and an Indian star turtle, 50 g, were presented to DVSR, RIVER, with a history of a crush injury resulting in multiple carapace fractures. Two Indian black turtles on clinical examination revealed multiple fractures of the carapace and with protrusion of the coelomic membrane and internal organs in the Indian star turtle. A dorsoventral radiograph confirmed comminuted fractures, with displacement and absence of carapace fragments. The turtles were stabilised with Inj. Dexamethasone @ 4mg/kg IM and Inj. Meloxicam @ 0.1mg/kg IM. Carapace repair was performed under sedation with Inj. Ketamine @ 10mg/kg IM and Isoflurane maintenance @ 3% via a makeshift inhalant anaesthetic mask. Wound decontamination involved saline irrigation with 0.1% povidone-iodine, while bleeding vessels were ligated. The carapace fractures were stabilised with orthopaedic wires, zip lock ties, J-hooks and Epoxy adhesive was used to superficially seal the inter-fragmental spaces to minimise contamination. The coelomic membrane was closed with Vicryl 3-0 simple continuous sutures. Missing carapace fragments were reconstructed using sterile materials (such as crafted plastic and epoxy). Post-operative care included antibiotic and anti-inflammatory medications. Ozone therapy was done to reduce soft tissue infection. The two turtles made an uneventful recovery.

WZS 08**CHEMICAL CONTROL OF MUSTH IN A CHRONICALLY AGGRESSIVE ASIAN ELEPHANT USING MEDETOMIDINE–KETAMINE AND ADJUNCTIVE THERAPY: A FIELD CASE REPORT**

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Musth in adult male Asian elephants (*Elephas maximus*) is a physiological but potentially hazardous condition marked by elevated androgen levels, intense aggression, and unpredictable behavior, posing serious threats to human life and property. This case report describes the successful chemical management of musth in a chronically aggressive captive bull elephant (“Shankar”) with a consistent history of annual musth-related violence, including destruction of barbed and solar fencing and attacks on caretakers and bystanders. In earlier years, the elephant had been managed using a xylazine–ketamine protocol delivered remotely; however, repeated use led to a diminished sedative response, requiring progressively higher doses, suggestive of pharmacological tolerance to xylazine. During the present musth episode, an alternative protocol comprising medetomidine, a potent α_2 -adrenoceptor agonist, combined with ketamine was administered via a remote drug delivery system. This regimen produced reliable sedation and effective behavioral control. Intermittent top-up doses were used to maintain a stable and safe level of chemical restraint, and sedation was successfully sustained for approximately three days, enabling mitigation of aggressive behavior and ensuring the safety of personnel and infrastructure. Adjunctive supportive therapy included flutamide, haloperidol, furosemide, and medroxyprogesterone acetate to aid in suppressing musth-related physiological and behavioral changes. After three days, reversal was achieved using atipamezole, an α_2 -adrenoceptor antagonist. The elephant recovered uneventfully without adverse effects. This case underscores the effectiveness of the medetomidine–ketamine combination as an alternative in elephants showing reduced responsiveness to xylazine and highlights the importance of tailored drug selection, careful monitoring, and welfare-oriented musth management strategies.

WZS 09**SURGICAL MANAGEMENT OF CARAPACE FRACTURE IN TWO INDIAN BLACK TURTLES**

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Two Indian Black Turtles were presented to Department of Veterinary Surgery and Radiology Veterinary College Hassan, Karnataka in two different months of this year. One with history of fallen from height on detailed physical examination revealed right lateral fracture in carapace extending to ventral plastron, caudal to tail and blood clots are seen. Another Turtle with history of met with an automobile accident on a day before, on detailed physical examination revealed dorsally depressed fracture, left lateral fracture of carapace and internal bleeding is seen. Under general anaesthesia surgery was performed to correct left lateral fracture, right lateral fracture and depressed fracture of carapace fixation into normal position by using epoxy putty, cloth hooks and orthopedic wire. Post operatively Indian Black Turtles were treated with antibiotics and analgesics and animal recovered uneventfully.

WZS 10**SURGICAL MANAGEMENT OF A CARAPACE FRACTURE IN AN INDIAN BLACK TURTLE USING SCREW FIXATION COMBINED WITH FIGURE-OF-EIGHT STAINLESS STEEL SUTURES AND CYANOACRYLATE ADHESIVE**

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A male Indian black turtle (*Melanochelys strijuga*) of unknown age, weighing 3.2 kg, was presented to the Teaching Veterinary Clinical Complex (TVCC), DUVASU, Mathura, following a fall from a second floor. Clinical examination revealed the turtle to be alert, ambulatory, and restless, with normal vital parameters and intact neurological reflexes, including deep pain perception. Multiple lateral, open, non-displaced carapacial fractures with moderate haemorrhage were observed, without evidence of coelomic organ involvement. Surgical stabilisation was performed under general anaesthesia induced and maintained with ketamine (10 mg/kg, IM). After aseptic preparation, fracture fragments were aligned and temporarily stabilised using sterile cyanoacrylate adhesive. Pilot holes were created using a 1.0-mm sterile K-wire and definitive fixation was achieved using 1.5 × 14 mm orthopaedic screws augmented with 40-mm stainless-steel sutures in a figure-of-eight pattern. The combined use of screws, stainless-steel sutures, and cyanoacrylate adhesive provided effective stabilisation and resulted in satisfactory healing without any post-operative complications.

WZS 11**AMPUTATION OF TAIL IN LANGUOR**

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A female Langur aged 4 years (weight 12kg) where presented to Department of surgery and radiology, Veterinary Clinical complex, CVSc., Warangal with a complaint of auto runover on its tail, on sedation with ketamine hydrochloride (5mg/kg) restrained the langur and amputation of the tail above the injured area were removed by flap method with duly following the aseptic procedures and applied bandage and guided the rescuer to protect the tail

with any plastic covering so as not to get self injured. Post-operative dressing and antibiotics and Nonsteroidal anti-inflammatory drugs were given for good healing without any complication. The tail healed over 15 days and sutures removed.

WZS 12

RADIOGRAPHIC LOCALIZATION AND SURGICAL RETRIEVAL OF FISH HOOKS IN THREE MONOCLED COBRAS (*NAJA KAOUTHIA*): A CASE SERIES

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Accidental ingestion of fish hooks is an emerging cause of oropharyngeal injury in free-ranging snakes, particularly in areas where fishing activities overlap with wildlife habitats. The present report describes the successful clinical management of three *Naja kaouthia* (Monocled Cobra) rescued with fish hooks lodged in the oral cavity following attempts to ingest baited hooks. All snakes were subjected to thorough clinical examination on presentation. Radiographic evaluation was performed to accurately determine the location, orientation, and depth of penetration of the fish hooks, as well as to assess involvement of adjacent soft tissues and bony structures. Based on radiographic findings, the snakes were chemically restrained using an appropriate protocol to ensure safe handling and minimize stress. Careful removal of the fish hooks was undertaken with minimal tissue trauma. Post-procedural management included wound care, antimicrobial coverage, and supportive therapy. All three snakes showed uneventful recovery without post-operative complications and were deemed fit for release after an adequate observation period. This case series highlights the critical importance of early rescue, prompt radiographic assessment, and proper surgical intervention in ensuring favourable outcomes in snakes with foreign body entrapment. The report also underscores the need for increased awareness regarding the indirect impacts of fishing practices on reptile wildlife and emphasizes the role of timely veterinary intervention in wildlife conservation.

WZS 13

UNEVENTFUL RECOVERY OF CORNEAL INJURY IN AN ASIAN ELEPHANT IN CAPTIVITY

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Ocular diseases in elephants are uncommon but can pose significant welfare concerns due to the species' size, behaviour, habit, habitat and challenges associated with clinical management. This report describes the successful medicinal treatment of a corneal injury in an adult Asian elephant (*Elephas maximus*). The male elephant named Shankar aged about 35 years was attended at reserve forest Chandaka, Bhubaneswar with signs of shaking of head, muco purulent ocular discharge, epiphora, blepharospasm, redness of cornea and corneal opacity. Ophthalmic examination revealed a superficial corneal injury without evidence of globe rupture or deep stromal involvement. From history, it was known that the injury to cornea was inflicted by barbed wire fencing around confinement. Due to musth associated aggressiveness and the risks associated with general anesthesia and surgical intervention in elephants, a conservative medical approach was selected. Treatment consisted of topical broad-spectrum antibiotic eye drops, anti-inflammatory medication, lubricating agents and environmental management to minimize further ocular irritation. Ocular topical medications were administered using positive reinforcement sprayer to ensure safe and consistent application. Clinical improvement was observed within twenty days, with gradual resolution of pain and successful healing over the treatment period. No complications or recurrence were noted during follow-up.

examinations. This case highlights the effectiveness of non-invasive medical management for corneal injuries in Asian elephants and underscores the importance of early diagnosis, appropriate drug selection and cooperative handling techniques.

WZS 14

SUCCESSFUL SURGICAL MANAGEMENT FOR PREOVULATORY EGG BINDING IN TWO *IGUANA IGUANA*

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Pre-ovulatory egg binding, also termed follicular stasis, is a common reproductive disorder in captive reptiles characterized by persistence of enlarged ovarian follicles that fail to ovulate or undergo resorption. Two female Green Iguanas (*Iguana iguana*) were presented with a one-month history of inappetence. Clinical examination revealed lethargy, dullness, reduced responsiveness, and marked abdominal distension, raising suspicion of a reproductive disorder. In the first case, diagnosis was confirmed using computed tomography, which revealed multiple round, soft-tissue density structures within the coelomic cavity without calcified shells, consistent with retained ovarian follicles. The second case was diagnosed using radiography. Owing to progressive clinical deterioration and the pre-ovulatory nature of the condition, immediate surgical intervention was undertaken. Both underwent bilateral ovariectomy under general anaesthesia. Anaesthetic induction was achieved using a xylazine–ketamine combination, and anaesthesia maintained with isoflurane. Intraoperatively, 42 enlarged ovarian follicles were removed in the first case whereas rupture of one follicle with associated peritonitis was observed in the second case. Both surgeries were completed successfully without intraoperative complications. Pre-ovulatory egg binding can be suspected by abdominal palpation and confirmed by diagnostic imaging. Early diagnosis and prompt surgical intervention is essential to achieve favourable outcome.

WZS 15

MANAGEMENT OF CLOACAL PROLAPSE IN CHELONIANS: CONSERVATIVE AND SURGICAL APPROACH

Nitish Kumar, Prabha Sharma, Akash, Jyotsna Bhatt Joshi, Gaurav Kumar Verma, Gulshan Kumar, Sanjay Purohit, Pradeep Kumar and Rohil Sagar

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Cloacal prolapse is an infrequently reported yet clinically important condition in chelonians and is commonly associated with gastrointestinal disturbances, parasitic infestations, constipation, reproductive stress, and suboptimal husbandry practices. This case compilation describes the management of cloacal prolapse in three captive freshwater turtles presented with protrusion of cloacal tissue accompanied by edema and persistent straining. Among the three cases, the prolapsed tissue was viable in one turtle, whereas it was non-viable in the remaining two. Accordingly, surgical intervention was undertaken in all cases under general anesthesia using a combination of xylazine (0.2 mg/kg) and ketamine (20 mg/kg) administered intramuscularly. In the case with viable tissue, lubrication followed by gentle manual reduction of the prolapse was successfully performed. In contrast, amputation of the prolapsed mass was carried out in the two cases where the tissue was non-viable. Following correction of the prolapse, a purse-string suture was placed around the cloaca in all three turtles, ensuring adequate patency to allow normal defecation and urination. Postoperative management included administration of antibiotics, anti-inflammatory drugs, fluid therapy, and appropriate dietary modifications to address underlying predisposing factors. The sutures were removed after 7–10 days. All three turtles exhibited uneventful postoperative recovery with no recurrence of

prolapse during the follow-up period. These cases emphasize that prompt diagnosis combined with appropriate conservative or surgical intervention results in a favorable prognosis for cloacal prolapse in chelonians.

WZS 16

SURGICAL MANAGEMENT OF CARAPACE FRACTURES IN TORTOISES AND TURTLES USING ORTHOPAEDIC SCREWING AND WIRING TECHNIQUE

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The present clinical report describes the surgical repair of carapace fractures in five tortoises and two turtles of varying ages and body weights presented with a history of trauma associated with shell disruption, haemorrhage, pain and impaired mobility. Clinical examination revealed displaced carapace fragments, exposed soft tissues and reduced activity levels in all cases. Fracture assessment was carried out through detailed physical examination and radiographic evaluation to determine the location, configuration and extent of carapace fractures. Surgical intervention was performed under general anaesthesia using ketamine hydrochloride @ 30 mg/kg body weight administered intramuscularly. Following thorough debridement and copious lavage of contaminated fracture sites followed by stabilization of fractured carapace segments was achieved using stainless steel orthopaedic screws and wires placed strategically to restore anatomical alignment and shell integrity while carefully avoiding injury to underlying viscera. Post-operative management included systemic antimicrobial therapy, analgesics, regular wound care and maintenance of optimal environmental and housing conditions to support healing. Five chelonians showed satisfactory stabilization of the carapace with progressive clinical improvement and complete functional recovery; whereas, two animals succumbed during the post-operative period, likely due to the severity of trauma and associated systemic compromise. No major implant-related complications were recorded in recovered cases.

WZS 17

MODIFIED SURGICAL APPROACH FOR MANAGEMENT OF CHRONIC ABSCESS/FARRA GALL IN ASIAN ELEPHANT

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All total 25 numbers of captive Asian elephants of Assam and its nearby NE States was taken under present investigation for surgical management of chronic wound/ farra gall for a period of over 20 years. It was understood from the history that constant friction due to the loose fitting of sitting structure (howdah) resulted painful swelling initially which turned later to either abscess or hard partially pus filled masses. Majority of the cases was reported as chronic swelling/ surgical drainage performed once or twice with recurrence. On clinical examination, hard fibrosed swelling with oozing of thick pus was recorded in most of the cases. It was found that redundant skin fold after initial surgical drainage cover-up the pus filled cavity and restrict the free drainage of pus material might resulted the healing underneath tissue and resulted repeated recurrence. All the animals were premedicated with an IM dose of Atropine Sulfate (10-15 mg as total dose depending upon size and age) followed by after 15 minutes combination of Xylaizne and Ketamine @ 100mg & 50 mg/1000 kg body weight respectively. Surgical drainage was attempted with removal of cone shaped fold of skin dermal layer exposing the underlying cavity in all recurrent cases. Following removal of the skin fold the wounds were irrigated with KMNO₄ multiple times followed by, Povidone Iodine solution and 2.5% Tincture of Iodine solution and finally sterile gauge bandage soaked in Tincture of Iodine was packed for

24 hours. Complete healing was recorded in 20 elephants on an average 30 to 45 days however remaining elephant's required second surgery for complete healing. The study revealed that the unique extremely thick epidermis and dermis in elephant causes obstruction in smooth drainage of pus material and hinder the healing process in chronic abscess/farra gall.

WZS 18

SURGICAL AND ANAESTHETIC MANAGEMENT OF TRUNK INJURIES IN CAPTIVE ELEPHANTS

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The trunk, the extension of the upper lip, of an elephant is the most attractive feature, which makes it look different from other herbivores. This organ enables the elephant to pick up the smallest of objects from the ground. The two openings within the trunk forms the nasal passages runs into the centre of the forehead, followed by the gullet and finally branches into the lungs. The peculiar anatomy of the trunk enable elephant to breathes air, suck water, spraying body with water, uprooting grasses etc. Trunk injuries in elephant are one of the common occurrences in captive elephants which require immediate veterinary care with long term care for recovery. In the present study, surgical with anaesthetic management was carried out in six (6) cases of different trunk injuries in captive Asian elephant. In Group A (n-3) was subjected to combination of Xylazine and Ketamine sedation pre-medicated with atropine sulphate; while in Group B (n-3) was given Medetomidine-Ketamine sedation pre-medicated with atropine sulphate on the basis of age group. The surgical interventions include suturing fresh cut wound (2), wound debridement in chronic wound with open dressing and application of stay sutures (3), thermocautery aided enlarging of right nostril opening (1). The elephants with fresh cut injuries (2) were observed recovered well although break of few stitches; while stay suture breaks and healing under granulation tissues were observed in chronic cut wounds. The elephant with injury in the nostril recovered smoothly without recurrence. The quality of anaesthesia was better in Group B when compare to Group A.

WZS 19

EMERGENCY CAESAREAN SECTION IN VENOMOUS SNAKES: OFFSPRING SALVAGE IN AN INDIAN COBRA AND RUSSELL'S VIPER

Biswadeep Jena, Sidhartha Sankar Behera, Subhendu Mallik, E. Silendra Kumar, Nikita Bhargav, **D.Vamshi Krishna**, Sunaina Dash and Indramani Nath

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Reproductive emergencies in free-ranging venomous snakes are rarely documented and present significant clinical and conservation challenges. This report describes two distinct cases of emergency caesarean section performed in venomous snakes following severe anthropogenic trauma. The first case involved a gravid Indian cobra (*Naja naja*), rescued after sustaining extensive lacerated injuries caused by accidental trauma from a digging JCB machine. Detailed clinical and radiographic examination confirmed the presence of multiple radiopaque eggs, consistent with the oviparous nature of the species. Under chemical restraint, an emergency caesarean section was performed, resulting in the successful retrieval of 23 eggs. Despite intensive post-operative care, the snake succumbed three days after surgery due to systemic complications. However, careful artificial incubation of the retrieved eggs led to successful hatching, and the healthy hatchlings were subsequently released into their natural habitat. The second case involved a gravid Russell's viper (*Daboia russelii*) that was rescued after becoming trapped in coal tar. The tar was safely removed using food-grade vegetable oil. Clinical and radiographic assessment revealed the presence of multiple developing embryos,

consistent with the ovoviviparous reproductive biology of the species. An emergency caesarean section was performed to retrieve the neonates. Although the dam succumbed to shock despite supportive therapy, meticulous post-operative care of the neonates resulted in complete survival, and all viable young were released into the wilderness. These cases highlight the role of prompt rescue, radiographic assessment, and emergency surgical intervention in salvaging offspring from gravid snakes suffering fatal injuries, thereby contributing to wildlife conservation efforts.

WZS 20

SURGICAL MANAGEMENT OF AURAL ABSCESS IN A RED-EARED SLIDER IMMOBILIZED WITH MIDAZOLAM

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A two year old red-eared slider (*Trachemys scripta elegans*) turtle was presented at the School of Wildlife Forensic and Health, Jabalpur, with the history of inappetence for a week. Clinical examination revealed a unilateral, painful swelling in the left auricular region. Radiographic evaluation confirmed the presence of a left-sided aural abscess. Initial medical treatment include fluid therapy, parenteral broad-spectrum antibiotics, analgesics and multivitamin supplementation. The owner was also advised to apply hot fomentation on the affected area to facilitate softening of the abscess. After one week of conservative treatment, the swelling became soft and fluctuant, indicative of suitability for surgical intervention. The turtle was sedated using intramuscular administration of midazolam, and the abscess was aseptically incised and drained. The abscess cavity was thoroughly flushed with diluted betadine solution to reduce microbial load and prevent secondary infection. Post-operative care consisted of continued fluid therapy, analgesics, antibiotics, and supportive management to promote healing. The owner was instructed to maintain strict wound hygiene through regular cleansing with betadine solution and house the animal in a clean, contamination-free environment. The turtle responded well to treatment, recovered and resumed normal feeding.

WZS 21

FIELD MANAGEMENT OF TRAUMATIC MYIASIS IN A TIGRESS (PANTHERA TIGRIS)

Aditi Sidar, Rajesh Tomar, Anupam Sahay, Shobha Jawre, Somesh Singh, Abhay Sengar and Vishal Adep

School of Wildlife Forensic and Health, NDVSU, Jabalpur, M.P., India

A tigress aged approximately 7 years was developed an open wound below the right eye and wounds in thoracic region and forelimb due to infighting injuries in Bandhavgarh Tiger Reserve, Umaria. The tigress was immobilized by darting with xylazine ketamine anaesthetic combination. Thorough examination revealed the presence of a maggot wound below the right eye extending from medial to lateral canthus with inflammation of 3rd eyelid covering almost all the bulbar conjunctiva. Along with this, 2 small maggot wounds were also observed on the inter-costal space of the left thoracic wall and on left digital region of forelimb. Abrasions and friction injuries all over the body were also observed suggestive of territorial fighting. Tigress was emaciated and showed reluctance to eat the feed offered. Treatment involved packing of the maggot wound with turpentine oil-soaked gauze pieces at the affected sites followed by manual removal of maggots with the help of forceps. Thorough irrigation of wounds using normal saline and betadine solution was done followed by application of antiseptic ointment and fly repellent spray. Subconjunctival injection of adrenalin and parenteral administration of antibiotic, analgesics, multivitamins, anti-histamine and supportive fluid therapy was done. The treatment was repeated on 5th, 7th and 10th day. The animal recovered uneventfully.

WZS 22**CASE STUDY OF USE OF MEDETOMIDINE AND KETAMINE FOR CAPTURE AND IMMOBILIZATION OF TIGER IN KANHA TIGER RESERVE, MANDLA****Sandip Agrawal***Wildlife Health Officer, Kanha Tiger Reserve, Mandla*

The Kanha Tiger Reserve is among the first nine tiger reserves established under the ambitious conservation initiative *Project Tiger* during 1973–74. According to the 2024 tiger census, the reserve supports a population of 118 adult tigers and 20 cubs. Tigers in the reserve are periodically captured for translocation, medical treatment, rescue operations, and radio-collaring activities. On seven different occasions, a combination of medetomidine and ketamine was used to achieve satisfactory immobilization for procedures such as treating maggot-infested wounds, translocating individuals to other protected areas, conducting rescue operations, and fitting radio collars prior to release. A dosage of medetomidine at 0.03–0.04 mg per kilogram of body weight, combined with ketamine at 2–3 mg per kilogram of body weight, provided effective immobilization for approximately one hour of operational time. Previously, a xylazine–ketamine protocol had been used to immobilize tigers, but it often required multiple darting attempts and produced a prolonged induction phase. In contrast, the medetomidine–ketamine combination proved more efficient and provided the desired level of anesthesia needed to safely accomplish objectives related to tiger capture, treatment, translocation, radio-collaring, and rescue.

WZS 23**CASE STUDY OF USE OF MEDETOMIDINE AND KETAMINE FOR STANDING SEDATION IN MUSTH ELEPHANTS IN KANHA TIGER RESERVE, MANDLA****Sandip Agrawal***Wildlife Health Officer, Kanha Tiger Reserve, Mandla*

Kanha is regarded as one of the finest protected areas not only in India but also in South-East Asia. At present, the department manages sixteen elephants: nine males, six females, and one newborn calf. The dominant male elephant frequently displays signs of musth, a period during which elephants may become highly unpredictable and aggressive. During such times, continuous monitoring is essential, and when individuals show disobedient or threatening behavior, management must ensure the safety of mahouts, charcutters, and all personnel involved in elephant care. Prolonged chaining during musth, a precautionary measure to control aggression, has occasionally resulted in friction wounds at the sites of restraint. These injuries require timely veterinary intervention as well as periodic shifting of the chaining location. Because elephants in musth can behave unpredictably, standing sedation is often necessary to safely treat chaining wounds and adjust the restraint. On five occasions, a combination of medetomidine and ketamine was used to achieve satisfactory standing sedation. A dose of medetomidine at 4–5 mg per 1,000 kg bodyweight, combined with ketamine at 0.5–1 mg per 10 kg body weight, provided effective sedation for approximately one hour sufficient for wound treatment and chain replacement. Previously, a xylazine–ketamine protocol had been used for behavioral control, but it frequently required multiple darting attempts and was associated with a prolonged induction phase.

WZS 24**OPERATIONAL CHALLENGES AND RESCUE STRATEGY FOR A SLOTH BEAR (*MELURSUS URSINUS*) ENTRAPPED IN AGRICULTURAL FENCING****Anushka Upadhyay**, Himanshu Jaiswal, Amol Rokde and Shobha Jawre*School of Wildlife Forensics and Health, Nanaji Deshmukh Veterinary Science University, Jabalpur*

The interface between agricultural expansion and wildlife corridors has led to a rise in Human Sloth Bear Conflict (HSBC), frequently resulting in accidental entrapment within crop protection barriers. This paper discusses the technical challenges encountered during the rescue of a sloth bear entrapped in an agricultural field, which seemed to be a part of its regular trail. Chemical immobilization, despite of reduced visibility due to uneven terrain, was successfully achieved using a remote drug delivery protocol utilizing a combination of Ketamine Hydrochloride and Xylazine Hydrochloride to ensure rapid induction and reliable analgesia. The rescue operation was complicated by hostile crowd dynamics arising from perceived crop disruption and intense onlooker curiosity, leading to mobbing risks and severe acoustic stress and severe mechanical entrapment, wherein the animal's dorsal cervical pelage (nape) and underlying skin were tightly twisted and embedded within the barbs of the perimeter fencing. Extraction necessitated a precise, two-stage mechanical intervention, heavy-duty wire cutters were first employed to sever the fencing strands and relieve structural tension. Subsequently, a field knife kit was utilized to meticulously excise the matted pelage and disentangle the dermal tissue from the wire barbs, preventing further avulsion injury. This case underscores the critical need for Rapid Response Teams (RRTs) to be equipped with specialized extraction instrumentation beyond standard veterinary kits and to employ reliable anesthetic combinations like Ketamine-Xylazine to manage the heightened physiological stress of entrapment scenarios in agricultural landscapes.

WZS 25**BALANCED INJECTABLE–INHALATIONAL ANAESTHESIA FOR ORTHOPAEDIC AND SOFT-TISSUE SURGERY IN GRAY LANGURS: A 04 CASE SERIES****Biswadeep Jena**, E. Silendra Kumar, Nikita Bhargav, Rupa Mistry, D. Vamshi Krishna, **Sunaina Dash**, Roja Mishra, Sourav Neti and S. Saragini*Dept. of Veterinary Surgery & Radiology, CVSc&AH, OUAT, Bhubaneswar, Odisha*

Safe and effective general anaesthesia in free-ranging non-human primates poses unique clinical challenges due to stress, risk of injury, and limited perioperative handling time. This case series reports the anaesthetic and surgical management of four Gray langurs (*Semnopithecus entellus*) presented for emergency and elective surgical interventions. Of the four cases, two animals underwent forelimb amputation following severe electrocution injuries, one langur was treated with Rush pin fixation for a supracondylar femoral fracture, and one case involved intramedullary Steinmann pinning for a mid-diaphyseal long bone fracture. In all cases, general anaesthesia was induced using a combination of xylazine at 0.5 mg/kg body weight intramuscularly and ketamine at 10 mg/kg body weight intramuscularly. This protocol provided rapid, smooth induction with adequate muscle relaxation for endotracheal intubation. Anaesthesia was subsequently maintained using isoflurane delivered via a rebreathing system, allowing precise depth control throughout the surgical procedures. Physiological parameters were monitored intraoperatively, and appropriate supportive care was provided. All surgical procedures were completed without intraoperative complications. Recovery from anaesthesia was smooth and uneventful in all four langurs, with no evidence of anaesthetic-related adverse effects. Post-operative management resulted in satisfactory wound healing and stabilization in fracture repair cases. This case series demonstrates that a xylazine–ketamine injectable induction followed by isoflurane maintenance is a safe, effective, and practical anaesthetic protocol for diverse surgical procedures in Gray langurs, particularly under wildlife rescue and emergency clinical settings.

WZS 26**CONSERVATIVE MANAGEMENT OF SUB LUXATION OF HIP JOINT IN A WILD ASIAN ELEPHANT CALF (*ELEPHAS MAXIMUS*)**

Sidhartha Sankar Behera, Sourav Neti, **D Vamshi Krishna**, Sunaina Dash, Mandakini Sahoo, Biswadeep Jena and Indramani Nath

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A herd of wild elephants were hurt by Express train near panposh area under Rourkela Forest Division. Two female elephants died and a calf was found to be injured and moving near dead mother elephant. It was walking with difficulty in right hind limb. The female calf was rescued for detailed examination and treatment. On close examination, the right hip area was found to be subluxated with an abnormal swelling down right hip joint. The calf has less weight bearing on the affected right limb and keeping it adducted. It was decided to treat it conservatively by restricting its movement by usual leg chaining and administered Intacef Tazo 9gm im, Meloxicam 20ml im daily for 10 days by jab stick. It developed deep wounds at the limbs due to constant pressure at chaining sites even if shodded with canvas. Then it was shifted to a wooden "Kraal" at Chandaka Elephant sanctuary. Wound dressing with sensitive Lixen powder and Dmag spray continued for 3 months. Oral Himalaya Batisa powder with crushed 20 pet joint tabs continued for 3 months with water melon and pumpkin. Slow familiarization with gentle touching by mohout followed by limited walking resulted in good recovery of the calf. After one year it is walking almost normally with weight bearing on affected limb. Now it is being trained to be used as a Kumki elephant at the sanctuary.

WZS 27**SURGICAL MANAGEMENT OF A DIAPHYSEAL FEMORAL FRACTURE IN A RHESUS MONKEY USING INTRAMEDULLARY PINNING: A CASE REPORT**

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Femoral fractures are commonly encountered in non-human primates following traumatic incidents and demand prompt and effective orthopedic intervention to restore limb function. The present report describes the successful surgical management of a diaphyseal femoral fracture in a juvenile rhesus monkey (*Macaca mulatta*) using intramedullary (IM) pinning. An approximately eight-month-old male rhesus monkey was rescued and presented with acute non-weight-bearing lameness, pain, and swelling of the right hind limb following a fall from height. Clinical examination revealed crepitation on palpation of the mid-shaft of the right femur, while hip and stifle joints were normal. Radiographic evaluation confirmed a mid-oblique diaphyseal fracture of the right femur. Surgical repair was undertaken three to four days post-injury to allow subsidence of inflammation. Under xylazine–ketamine general anesthesia, fracture reduction was achieved via a lateral femoral approach. Internal fixation was performed using a 3-mm Steinmann intramedullary pin placed in a retrograde manner, ensuring proper alignment and stabilization of fracture fragments. Routine closure of muscle, subcutaneous tissue, and skin was performed, followed by external coaptation to enhance immobilization. Postoperative management included antibiotics, analgesics, nutritional supplementation, and restricted activity. Postoperative radiographs confirmed satisfactory alignment of the bone fragments, and recovery was uneventful. The case highlights intramedullary pinning as a simple, economical, and effective technique for femoral fracture stabilization in rhesus monkeys, offering adequate biomechanical stability, minimal complications, and favorable functional outcome. This approach can be considered a reliable option for orthopedic fracture management in captive and rescued non-human primates.

WZS 28**CARAPACE FRACTURE MANAGEMENT IN FLAP SHELLLED TURTLE
(*LISSEMYS PUNCTATE*)**

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Department of Veterinary Surgery and Radiology, College of Veterinary Sciences, Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar, Haryana

A flap shelled turtle (*Lissemys punctate*) was presented to the department with severe carapace injury with agricultural equipment. The injury was too deep causing exposure of internal organs and radiographic examination confirmed it along with extent of shell fracture. The animal was sedated using Ketamine (50mg/kg) administered intramuscularly thereafter antiseptic cleaning and dressing of the wound was done using 1% solution of povidone-iodine. For the surgery animal was maintained in general anesthesia using isoflurane. A noninvasive wiring technique was employed for carapace fracture repair, for that fractured segments were carefully lifted and realigned into proper position. The cyanoacrylate adhesive was used to fix stainless steel hooks externally. After getting the hooks fixed into position orthopedic wire of 26 gauge used for wiring and stabilizing the fracture. Postoperatively meloxicam (0.5 mg/ kg) and cefotaxime (50 mg/ kg) were administered IM and continued for one week. The turtle shown uneventful recovery and resumed feeding. The owner was advised not to emerge the carapace into water till complete healing.

WZS 29**AUTOLOGOUS BLOOD PATCH PLEURODESIS TREATMENT IN A MALE
BLACKBUCK (*ANTILOPE CERVICAPRA*) WITH TRAUMATIC
PNEUMOTHORAX**

Anand V M, Sarang S and Kiran Gowda M P

Veterinary Officer, Bannerghatta Biological Park, Bannerghatta, Bengaluru, Karnataka, India

A 4-year-old male Blackbuck (*Antelope cervicapra*) was found injured at the right chest region due to infighting in the herd in Herbivore safari, Bannerghatta Biological Park, Bannerghatta, Bengaluru. Visible signs that the animal had difficulty breathing, including absence of chest wall motion, exaggerated ventilatory effort and flaring of nares. The animal was darted with Medetomidine and Ketamine combination. Animal was brought to zoo hospital for exposure to survey radiograph. tools. 7th & 8th rib fractures, subcutaneous air filled at the scapular region, and atelectasis of lungs were noticed. A decision was taken to close the ruptured intercostal space. Air inside the thorax was removed by inserting baby feeding tube and later the whole blood which was collected was injected into the thoracic cavity via same feeding tube. Post Operative antibiotics, anti-inflammatory and vitamin supplements were given. Blackbuck showed uneventful recovery and started taking feed from the next day itself. In conclusion, the authors report the first of its kind of intensive cautious corrective surgery for traumatic pneumothorax being diagnosed and successfully treated in a Blackbuck.

WZS 30**SURGICAL MANAGEMENT OF ACCIDENTAL INJURIES AND MYIASIS IN
SNAKES – 5 CASES STUDY**

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Five injured snakes reported to the Department of Veterinary Surgery and Radiology of Veterinary Clinical Complex of three different genus with history of accidental injury and myiasis. All injured snakes surgically managed under general anaesthesia with Ketamine @ 10mg/kg b. wt. and maintained under Isoflurane (1-2%) with oxygen after intubation in one

snake, except one snake managed under local anaesthesia using 2% lignocaine infiltration along with topical application of 10% lignocaine spray. Severe laceration wound sutured with Vicryl 3-0, whereas one snake with minor laceration was managed conservatively without suturing. Antiseptic dressing was performed using 2% povidone-iodine solution. In cases of myiasis, thorough irrigation with normal saline was performed, followed by topical application of ivermectin (0.1%) to facilitate larval death and manual removal. The wounds were subsequently dressed with Coolmac™ ointment and bandaged. Following complete recovery from anaesthesia, all treated snakes were handed over to the Wildlife Division of the Forest Department, Bikaner, for further rehabilitation and release.

WZS 31

REPAIR OF VERTEBRAL DISPLACEMENT IN A BANDED KRAIT

R M Tripathi,

Veterinary Services Mungeli (CG)

An injured Banded krait was brought to Divisional Veterinary Hospital Bilaspur in Oct 2020 with the history of injury of back with restricted movement of distal portion from mid of body. On physical examination it was found that thoracic vertebrae detached and overridden leading to compression in spinal cord and hind portion unable to move. The overridden vertebra was pulled back and aligned. Immediately after correction the hind portion started moving. Locally Inj Xylocain 2% was infiltrated and both vertebrae were immobilised using SS wire. Muscle and skin sutured by routine method. There was an uneventful recovery and the snake was left in a nearby forest.

WZS 32

RETRIEVAL OF FISH NETTING HOOK FROM THE STOMACH OF CROCODILE

R M Tripathi,

Veterinary Services Mungeli (CG)

One injured crocodile was presented at Divisional Veterinary Hospital Bilaspur with a history of uneasiness and a nylon thread was hanging outside the buccal cavity. For physical examination the crocodile was restrained properly and a wooden plank was placed between its jaws and tried to trace the hook. It was not possible to open the crocodile's jaws and its tail was pressed. The crocodile opened its jaws furiously to catch handlers. During this act one wooden piece of approximately 10"×10" was placed between the jaws and closely tied with the help of a snare. Tried to trace manually the hook through the thread hanging outside but didn't find it. It was decided to go for a laparotomy. Inj Xylazine given 100 mg i/m and after sedation gastrotomy done on careful examination it was found that thread hanging outside is trapped inside the stomach and successfully removed trapped fish netting hook. A bolus of 60 mg again given i/m during repair of muscles. Antiseptic dressing was done for 10 days and sutures were removed on 10th day. Inj Streptopenicilline and Analgin were given for 7 days. Although Inj Xylazine is not advised in crocodiles and the choice of anaesthesia is Inj Ketamine but there was an uneventful recovery and it was left in the pond.

WZS-33**ANAESTHETIC MANAGEMENT OF CAPTIVE WILD HERBIVORES USING MEDETOMIDINE–PROPOFOL****Chetan Patond**, Ushma Patel and Soham Mukherjee*Sardar Patel Zoological Park, Ekta Nagar, Gujarat*

Sardar Patel Zoological Park houses a diverse population of native herbivores such as Indian gaur, sambar, blackbuck, four-horned antelope, spotted deer, and barking deer, as well as exotic species including oryx and wildebeest. Chemical immobilization is frequently required for diagnostic, therapeutic, and surgical procedures in these animals. A medetomidine–propofol anaesthetic protocol was used in multiple herbivore cases undergoing various interventions. Medetomidine was administered intramuscularly at 60–70 mcg/kg to achieve sedation, followed by intravenous propofol administered to effect. The combination provided rapid and smooth induction, good muscle relaxation, and adequate anaesthetic depth suitable for procedures. Non-significant alterations in physiological parameters were observed in a few cases but resolved spontaneously. After reversal of medetomidine with atipamezole at 0.1–0.2 mg/kg, animals recovered immediately, standing on their legs without any issues, demonstrating the safety, reliability, and effectiveness of the protocol. The medetomidine–propofol combination proved effective and safe for anaesthetic management of captive herbivores under zoological conditions.

WZS-34**USE OF DOPPLER FOR ANAESTHETIC MONITORING OF REPTILES UNDER GAS ANAESTHESIA****Chetan Patond**, Ushma Patel and Soham Mukherjee*Sardar Patel Zoological Park, Ekta Nagar, Gujarat*

Chemical immobilization of reptiles is routinely required for diagnostic, therapeutic, and surgical interventions in captive settings. Isoflurane inhalation anaesthesia is commonly employed; however, assessment of anaesthetic depth and cardiovascular parameters in reptiles remains challenging due to anatomical and physiological limitations. Conventional monitoring modalities such as pulse oximetry, electrocardiography and blood pressure monitoring often provide inconsistent or unreliable data, particularly in small-bodied species. In the present study, a Doppler ultrasound device was utilized for intra-anaesthetic monitoring of cardiac activity in various captive reptile species including Indian Rock pythons, tegus, corn snakes, vipers, cobras, iguanas etc. maintained under isoflurane anaesthesia. The Doppler probe was applied using ultrasound coupling gel and secured with adhesive tape. Monitoring was performed at multiple anatomical sites, with the primary placement over the cardiac region and alternative placements over the carotid artery and ventral tail vein/artery. The doppler provided continuous, real-time assessment of cardiac activity, facilitating accurate evaluation of anaesthetic depth and early detection of physiological alterations. No doppler-related adverse effects were observed during anaesthesia. The technique proved to be safe, non-invasive and highly effective, particularly in cases where conventional monitoring equipment was impractical or inadequate.

WZS-35

MANAGEMENT OF FRACTURE IN CHEETAH

Jitendra Kumar Jatav, Onmar Anchal, Shobha Jawre, Uttam Kumar Sharma, R. Thirukural, Hamza Nadeem, Sparsh Dubey and Vinayak Raj M.

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Cheetahs (*Acinonyx jubatus*) are highly specialized predators, known for their exceptional speed and agility. Their lightweight skeleton, long limbs, and powerful muscles make them efficient hunters—but also susceptible to injuries. Forelimb lameness was observed in the male Cheetah Agni, the dorso-palmar radiography confirmed a simple complete transverse fracture in 4th left Metacarpal and 4th right metatarsal bones. Conservative management was opted as method of treatment. The fracture healed within 5–6 weeks without complication and Cheetah Agni regained normal movement. While the first Indian born cheetah Mukhi female, cub around 8 months weighing approx 20 kg was found limping along with carrying its right forelimb, X-ray revealed complete diaphyseal fracture at proximal third of humerus, was externally immobilized. Anti-inflammatory drugs along with calcium and multivitamins was followed for 21 days. Post treatment radiograph showed displacement along with overriding of the fracture segments with soft callus formation at both the fracture ends. Performed cohesive bandaging as body cast with restriction of the movement in to a small space and monitor from distance. Subsequent X-ray revealed progressive bony union. However, on the same limb a compound wound with maggots was observed on the dorsal surface of digital region with cellulitis above the fetlock joint. RJ bandage was removed and wound was cleaned with turpentine oil and antiseptic dressing applied. Restricted movement and continuous monitoring was done. Final X ray after 6 months, revealed complete bony union with uneventful recovery. Now cheetah Mukhi becomes the mother of 5 cubs and hunting well without any limb abnormality.



Large Animal Poster Session



S.No	Title and Authors
1	SUCCESSFUL TREATMENT OF CORNEAL PERFORATION USING OZONATED AUTOLOGOUS PLATELET RICH PLASMA IN A CBJ COW <i>M. Mahalakshmi, Tina Roshini S, Gurunathan N, Vigneshwari M, Arul Jothi N, Jithesh Thottiyil and Deepika A.</i>
2	SUCCESSFUL SURGICAL MANAGEMENT OF RIGHT LATERAL HERNIA IN A HEIFER <i>Ganesh Nishan, M., Dilip Kumar, D., Vijay Kumar M., Bhagavantappa, B., Manjunath Patil., Abhijith, M. S. and Vivek Gowda, D. P.</i>
3	A CLINICAL CASE REPORT ON SURGICAL REMOVAL OF EYE WORMS IN A HORSE <i>Dhameliya, D. R., Asari, V. H., Chudasama, M. J., Patel, T. P., Suthar, D. N. and Raulji, V. S.</i>
4	COMPOUND ODONTOMA WITH MULTIPLE DENTICLES ASSOCIATED WITH AN UNDERLYING MYXOMA IN A BUFFALO- A RARE CASE REPORT. CLINICO-PATHOLOGICAL FEATURES OF AMELOBLASTOMA IN A NEONATAL BUFFALO CALF: A RARE CASE REPORT <i>Abhishek Verma, Vandana Sangwan, and Anuradha Gupta</i>
5	SURGICAL MANAGEMENT OF OESOPHAGEAL DIVERTICULUM IN BUFFALOES <i>P.T. Sutaria, J. B Patel, J. P. Patel, A.M. Patel, D. N. Suthar, B. B. Kaiyad, A. A. Gangurde and A. V. Vyas</i>
6	SURGICAL MANAGEMENT OF ENTERIC FISTULATION IN A GOAT <i>Sutaria, P. T., Gangurde, A. A., Patel, J. B., Suthar, D. N., Vyas, A. V. Patel, J. P. and Kaiyad, B. B.</i>
7	MANAGEMENT OF SQUAMOUS CELL CARCINOMA AT THE HORN BASE IN KHILLAR BULL BY IMMUNOTHERAPY USING BCG VACCINE INTRALESIONALLY <i>Salunke V. M., Chauhan S. A., Agivale S. M., Maybhate R. S., Ashish and Kadam S.N.</i>
8	INTEGRATED SURGICO-THERUPETIC MANAGEMENT OF OBSTRUCTIVE UROLITHIASIS IN A MURRAH BREEDING BULL <i>Hemant Kumar Fagana and Satyaveer Singh</i>
9	SURGICAL EXCISION OF TUMOUROUS GROWTH AT BRISKET IN A MURRAH BUFFALO: CASE REPORT <i>Megha Fenin, Pradeep Kumar, Hemant Kumar Fagana and Satyaveer Singh</i>
10	MANAGEMENT OF ACHILLES TENDON RUPTURE IN A GOAT WITH XENOGENIC TENDON DERIVED GEL <i>Harsha Sahu, Rekha Pathak, Jotishsima Konjengbam, Aman Kumar Tiwari, Bhoomika Chand K G, Devendra Manger, Noor ul Nissa Bandey and Chandana L</i>

11	CLINICAL MANAGEMENT OF SEVERE RECTAL PROLAPSE ASSOCIATED WITH URINARY RETENTION IN A BUFFALO CALF <i>Madhuri Mahor, Neelam Tandia, Dharmendra Kumar, Anuradha Nema, Priya Singh, Atul Kushwaha, Dhiwar Mansi Rajendra and Shubham Parmar</i>
12	SURGICAL MANAGEMENT OF RECTAL PROLAPSE BY RECTAL RESECTION TECHNIQUE IN A BUFFALO CALF <i>P. Vidya Sagar, K. Anjali, D. Kusuma Latha and Y. Krishna Swaroop</i>
13	DIAGNOSIS AND SURGICAL MANAGEMENT OF PERINEAL HERNIA WITH CONCURRENT LIPOMA IN RUMINANTS <i>Ram Niwas, Mandeep Kumar Sheoran, Amit Sangwan, Navneet Kumar and Neha</i>
14	SURGICAL MANAGEMENT OF INTUSSUSCEPTION IN A DEONI CATTLE-A CASE REPORT <i>Patil S.S., Pitlawar S.S., Suryawanshi R.V., Keskar T.B., Ravi S.D and Jadhav S.D.</i>
15	SUCCESSFUL SURGICAL MANAGEMENT OF DYSTOCIA IN AN EWE <i>Suneel Shukla, Dharmendra Kumar, Neelam Tandia, Anuradha Nema and Priya Singh</i>
16	INTERLOCKING NAILING FOR DIAPHYSEAL TIBIAL FRACTURE IN CALF USING OPEN REDUCTION: A CASE REPORT <i>Mayank Meena, Sobha Jawre, Randhir Singh, Apra Shahi, Babita Das, Apoorva Mishra, Ankur Paul Tirkey and Diwakar Mishra</i>
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20	SUCCESSFUL SURGICAL MANAGEMENT OF OBSTRUCTIVE UROLITHIASIS IN A MALE GOAT KID <i>Bhaskar B S., Dilip Kumar, D., Abhijith M S., Manjunath Patil., Bhagavantappa B., Vijay Kumar M., Ganesh Nishan and Venkatesh H. J</i>
21	SURGICAL RESOLUTION OF PUNCTURED WOUND OF THORAX IN CATTLE <i>H.V.S. Patel, P.D.S. Raghuvanshi, B.P. Shukla, Reshma Jain, A.S. Parihar and M.K. Ahirvar</i>
22	TENDON INJURY IN BUFFALOES: SURGICAL MANAGEMENT AND CLINICAL OUTCOME <i>Navneet Kumar, Deepak Kumar Tiwari, Neeraj Arora, Krishan and Diya Pandita</i>

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26	<p>SUCCESSFUL THERAPEUTIC MANAGEMENT OF SEPTIC PERICARDITIS IN A PREGNANT BUFFALO</p> <p><i>Anjali Verma, Nidhi Singh, A.K. Bishnoi and P. Bishnoi</i></p>
27	<p>MANAGEMENT OF A RARE CASE OF LARGE DEFECT INDUCED BY ATROPHIC NON-UNION OF PROXIMAL METATARSAL FRACTURE IN A CALF USING AUTOGENOUS COCCYGEAL BONE GRAFTING</p> <p><i>Arjun Singh Bhadouria, Sakar Palecha, P. Bishnoi, Anil Bishnoi, S.K. Jhirwal, Kartik Bidari, Kamal Singh and Harsh Vashishth</i></p>
28	<p>PLATELET-RICH FIBRIN MEMBRANE-POLYPROPYLENE COMPOSITE GRAFT FOR ENHANCED HEALING OF FRACTURE OF HORN IN A COW</p> <p><i>Gokul P., Subin Babu, Nijin Jos B. M., Soumya Ramankutty, Anoop S. and Syam K. Venugopal</i></p>
29	<p>SURGICAL MANAGEMENT OF OCULAR SQUAMOUS CELL CARCINOMA IN A HOLSTEIN FRIESIAN COW: A CASE REPORT</p> <p><i>Rambabu Kalaka, R. Rangaswamy Pole Palli, S Likhitha and Ch. Mallikarjuna Rao</i></p>
30	<p>A RARE CASE OF PERINEAL FIBROMA IN A BUFFALO WITH URINARY OBSTRUCTION: SURGICAL EXCISION AND OUTCOME</p> <p><i>Raveena Kumari, Neeraj Arora, Sreekanth P., Diya Pandita, Deepak Kumar Tiwari, Babu Lal Jangir and Sunil</i></p>
31	<p>BILATERAL ROSTRAL MANDIBULECTOMY FOR SURGICAL MANAGEMENT OF ODONTOMA IN AN ADULT BUFFALO</p> <p><i>R B Kushwaha, Pankaj Gupta, Ayushi Sawhney, D K Dwivedi, A K Gupta and Nawab Nashiruddullah</i></p>
32	<p>SURGICAL MANAGEMENT AND HISTOPATHOLOGICAL EVALUATION OF CONJUNCTIVAL DERMOID IN A MURRAH BUFFALO CALF</p> <p><i>Sehajdeep Singh, Ashutosh Mishra, Rahul Kumar Udehiya and Dayamon D. Mathew</i></p>
33	<p>SURGICAL REMOVAL OF HORSE EYE WORM</p> <p><i>Mohit, Rajesh Kumar, Aakanksha, Chandragupt Sharma, Shreya Tiwari, Nikhil Chandra Raj, Rohit Kumar Gupta and Shalini Kumari</i></p>
34	<p>POST-SCROTAL URETHROSTOMY FOR MANAGEMENT OF URETHRAL RUPTURE DUE TO OBSTRUCTIVE UROLITHIASIS IN A KID: A CASE REPORT</p> <p><i>K.E.Venkat, P.B.Kavad, S.K. Jhala, S.H. Talekar and V.S. Dabas</i></p>

35	<p>SUCCESSFUL REPAIR OF BILATERAL MANDIBULAR FRACTURE IN A BUFFALO USING A STRING OF PEARLS PLATE</p> <p><i>Kartik Bidari, A.K. Bishnoi, Jyoti and Piyush</i></p>
36	<p>SURGICAL MANAGEMENT OF MANDIBULAR FRACTURE IN A MALE CALF- A CASE REPORT</p> <p><i>Pallavi., Dilip Kumar, D., Abhijith, M. S., Praveen, M. K., Manjunath Patil and Bhagavantappa, B</i></p>
37	<p>MANAGEMENT OF A CASE OF AUTOMOBILE ACCIDENT IN A GIR COW WITH FIVE YEAR FOLLOW UP UNDER FIELD CONDITIONS</p> <p><i>Anil Sindhur, Dilip Kumar D, Bhagavantappa B and Manjunath Patil</i></p>
38	<p>SURGICAL MANAGEMENT OF OCULAR NEOPLASM IN CATTLE</p> <p><i>R. Dhakad, H.V. Singh, Reshma Jain, P.D.S. Raghuvanshi, A.S. Parihar, B.P. Shukla and M.K. Ahirvar</i></p>
39	<p>VENTROLATERAL HERNIA IN A COW: A CASE STUDY ABOUT SUCCESSFUL SURGICAL MANGEMENT BY HERNIOPLASTY UNDER RESOURCE LIMITED FIELD CONDITION IN TRIBAL DISTRICT OF CHHATTISGARH</p> <p><i>Dhaleshwari, Amarpal, Neeta Mishra, Hitesh Mishra, Anil and Krishna</i></p>



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2	CLINICAL MANAGEMENT OF A CHRONIC MELTING CORNEAL ULCER IN A SHIH TZU DOG <i>Rachit Srivastava, Shreya Tiwari, Md. Moin Ansari, Chandragupt Sharma, Rohit Gupta, Saurabh Patel, Juhi and Manika Kumari</i>
3	HERNIORRHAPHY IN LATE GESTATION: SUCCESSFUL MANAGEMENT OF A HUGE VENTRAL ABDOMINAL HERNIA IN A PREGNANT BITCH <i>Alok Kumar Jaiswal, S.K. Tiwari, M.O. Kalim, Vikash Kumar Meshram and Prakhar Jaiswal</i>
4	SUCCESSFUL SURGICAL MANAGEMENT OF OBSTRUCTIVE UROLITHIASIS IN A MALE POMERANIAN DOG <i>M.O. Kalim, S.K. Tiwari, Alok Kumar Jaiswal and Vikash Kumar Meshram</i>
5	ULTRASONOGRAPHIC DIAGNOSIS AND SURGICAL MANAGEMENT OF A CRYPTORCHID TESTICULAR TUMOR IN A DOG <i>Muskan Sengar, Rukmani Dewangan, Jasmeet Singh, Raju Sharda, S. K. Tiwari, Likhavi Kurrey, Ishant Kumar, Khichar Sangram Singh and Deepti Netam</i>
6	SURGICAL MANAGEMENT OF ILEOCECOCOLIC INTUSSUSCEPTION WITH INTESTINAL RESECTION AND ANASTOMOSIS IN A FOUR-MONTH-OLD INDIAN MONGREL PUP <i>Bharathi S, Raghunath M, Nasreen A, Preethika M, Sujatha P, Subbaiah D, Navin N and Rajitha R</i>
7	DIAGNOSIS AND SURGICAL CORRECTION OF SCAPULAR FRACTURE AND ASSOCIATED SOFT TISSUE INJURY IN A NONDESCRIPT DOG <i>Raghunath. M, Bharathi. S, Navin. N, Preethika. M, Subbaiah. D, Rajitha. R and Sujatha. S</i>
8	SPLENIC HEAMANGIOSARCOMA IN A DOG AND ITS SURGICAL MANAGEMENT <i>Hemanth. K, Sujana A. S, Nijin Jos B. M, Soumya Ramankutty and Syam K. Venugopal</i>
9	SURGICAL REMOVAL OF FISH-HOOK EMBEDDED IN BETWEEN MUCOSA AND MUSCULARIS LAYERS OF OESOPHAGUS IN AN INDIAN MONGREL DOG <i>Bharathi. S, Raghunath. M, Gowsiya Kowsar. Sk, Sujatha. P and Subbaiah. D</i>
10	COLOTOMY AND BALLONOPLASTY AS A NOVEL APPROACH FOR MANAGING COLON STRICTURE IN A DOG <i>Raghunath. M, Bharathi. S, Nimisha. N, Rajitha. R, Preethika. M, Sujatha. P, Subbaiah. D and Navin. N</i>
11	SURGICAL MANAGEMENT OF DISTAL THIRD FEMORAL FRACTURE MALUNION USING POSITIVE PROFILE END THREADED INTRAMEDULLARY PIN AND CERCLAGE WIRING IN A DOBERMANN DOG <i>Raghunath. M, Bharathi. S, Ashwitha. S, Preethika. M, Navin. N, Rajitha. R and Sujatha. P</i>

12	<p>SURGICAL CORRECTION OF GASTROCNEMIUS TENDON RUPTURE IN A POODLE</p> <p><i>Raghunath. M, S. Bharathi, N. Aishwarya, MK Prasanth and SK. Gowsiya Kowsar</i></p>
13	<p>SURGICAL EXCISION OF EXTRAMURAL MASS IN A GERMAN SHEPHERD DOG WITH UROLITHIASIS</p> <p><i>Prasanth MK, Bharathi S, Kumar RVS, Santhi Lakshmi M, Raghunath M and Sailaja N</i></p>
14	<p>CLINICAL PRESENTATION AND DIAGNOSIS OF GASTRIC DILATATION AND VOLVULUS IN A DOG</p> <p><i>Asari, V. H., Dhameliya, D. R., Patel, T. P., Suthar, D. N., Raulji, V. S. and Chudasama M. J.</i></p>
15	<p>SURGICAL MANAGEMENT OF A MAMMARY GLAND TUMOR IN A GERMAN SHEPHERD DOG</p> <p><i>Dhameliya, D. R., Asari, V. H., Patel, T. P., Suthar, D. N., Chudasama, M. J. and Raulji, V. S.</i></p>
16	<p>A COMPREHENSIVE MANAGEMENT OF RECURRENT PERINEAL HERNIA WITH RECTAL PROLAPSE IN A CANINE</p> <p><i>Vajrala N Rahul, Neelam Tandia, Dharmendra Kumar, Anuradha Nema, Priya Singh, Tulika Sharma and Suneel Shukla</i></p>
17	<p>SURGICAL CORRECTION OF ILEO- CEACO-COLONIC IMPACTION VIA MULTIPLE ENTEROTOMIES IN ROTTWEILER DOG- A RARE CASE REPORT</p> <p><i>Suryawanshi R.V., Keskar T and Sai Patil</i></p>
18	<p>RADIATION THERAPY FOR RECURRENT CANINE THYMOMA FOLLOWING MEDIAN STERNOTOMY</p> <p><i>Naveen Kumar and Noopur Desai</i></p>
19	<p>A SUCCESSFUL CORRECTION OF SEVERE VAGINAL HYPERPLASIA IN SIX- YEAR-OLD BITCH</p> <p><i>Tulika Sharma, Neelam Tandia, Dharmendra Kumar, Anuradha Nema, Priya Singh and Vajrala N Rahul</i></p>
20	<p>SURGICAL MANAGEMENT OF STUMP PYOMETRA IN A NON-DESCRIPT SPAYED SHE-DOG: A CASE REPORT</p> <p><i>Aman Sharma, Atul Saxena, Anuj Kumar, Jitendra Kumar Agarwal, Pawan Kumar, Nitish Kumar and Rakesh Kumawat</i></p>
21	<p>PULMONARY ARTERIAL HYPERTENSION AND RIGHT HEART FAILURE AS A SEQUELE TO COMBINED VALVULAR AND SUPRAVALVULAR PULMONARY STENOSIS IN AN AGED DOG: COMPREHENSIVE RADIOGRAPHIC AND ECHOCARDIOGRAPHIC FINDINGS</p> <p><i>Deepti Bodh, Adarsh Kumar, S P Tyagi, Amit Kumar, Deepti Sharma, Pardeep Sharma and Rohit Kumar</i></p>
22	<p>SURGICAL MANAGEMENT OF TRAUMATIC LUNG EVISCERATION IN A DOG</p> <p><i>Rohit Kumar, Amit Kumar, Anamika Sharma, Jitender Singh Thakur, Adarsh Kumar, SP Tyagi, Deepti Sharma, Deepti Bodh and Akhila K A</i></p>

23	AGENESIS OF VULVA IN A GERMAN SHEPHERD DOG: A CASE REPORT <i>Manish Meena, Satyaveer Singh and Ayub Mohd.</i>
24	DIAGNOSIS OF CEREBRAL INFRACTION IN A DOG USING MAGNETIC RESONANCEIMAGING <i>Nagaraju N, D.R. Manjunatha, Yashwanth J, Deepak T, Dhanush, Shreya, Mahadev Prasad, Malthesh K M, Sachin Gowda B.V and Pushpa H</i>
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26	SURGICAL EXCISION OF AN ANAL GLAND NEOPLASM CAUSING OBSTRUCTIVE DYSCHYZIA IN A GERIATRIC DOG: A CASE REPORT <i>A.K. Vishwabrahmin, P.D. Gopani, S.K. Jhala, S.H. Talekar and V.S. Dabas</i>
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28	SURGICAL MANAGEMENT OF SPLENIC HEMANGIOSARCOMA IN A DOG: A CASE REPORT <i>H. P. Patel, F. A. Asodiya, J. V. Vadalía, R. K. Gosai, D. A. Parmar and Anurag Verma</i>
29	COMPUTED TOMOGRAPHIC EVALUTION OF THORACOLUMBAR HANSEN TYPE INTEVERTEBRAL DISC EXTRUSION AND ITS THERAPEUTIC RESPONSE TO PROGESTERONE THERAPY ALONG WITH TENS IN A SHIHTZU DOG <i>S. Ganesh, D. Vishnugurubaran, S. Kathirvel, P.K. Ramkumar, G. Abinash, K. Jayakumar and M. Vijayakumar</i>
30	SUCCESSFUL SURGICAL MANAGEMENT OF SPLENIC TUMOUR: A CASE REPORT <i>Ghuge A.R., Chepte S.D., Nakade S.N., Gondavale H.P., Shirsath G.R. and Raut S. U</i>
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33	SURGICAL MANAGEMENT OF CRANIO DORSAL HIP LUXATION IN A DOG WITH TOGGLE PIN TECHNIQUE: A CASE REPORT <i>Gaurav Kumar Verma, Jyotsana Bhatt Joshi, Akash, Sanjay Purohit, Gulshan Kumar, Prabha Sharma, Nitish Kumar, Kapil Jadon and Jatin Jain</i>
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46	SURGICAL MANAGEMENT OF CRANIAL CRUCIATE LIGAMENT RUPTURE USING TIBIAL PLATEAU LEVELING OSTEOTOMY (TPLO) IN A DOG: A CASE REPORT <i>Raushan Kumar Sharma, Kunal Dev Sharma and Aditi Sharma</i>
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48	SURGICAL MANAGEMENT OF GASTRIC DILATATION AND VOLVULUS (GDV) IN A AKITA BREED DOG <i>Satyaveer Singh, Ayub Mohd, Megha Fenin and Manish Meena</i>
49	SURGICAL MANAGEMENT OF MID DIAPHYSEAL COMMINUTED FRACTURE OF TIBIA BY CLOSED NORMOGRADE INTRAMEDULLARY PINNING IN RABBIT <i>Saurabh Yadav, Akash, Jyotsana Bhatt Joshi, Jatin Jain, Jaysanker Singh Yadav, Prabha Sharma, Sanjay Purohit and Gulshan Kumar</i>
50	SURGICAL MANAGEMENT OF BILATERAL PERINEAL HERNIA IN A SHIH-TZU DOG USING TRULENE® POLYPROPYLENE MESH <i>Srujal. V. patel, Arnold R. Mecwan, J. V. Vadalia, R. K. Gosai and Foram A. Asodiya</i>
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53	SURGICAL MANAGEMENT OF PARAPROSTATIC CYST AND PROSTATE ENLARGEMENT INDUCED URINE INCONTINENCE IN A DOG <i>Chandragupt Sharma, Aakanksha, Rajesh Kumar, G.D Singh, Shreya Tiwari, Prince Kumar, Rohit Gupta, Mohit and Nikhil Raj</i>
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57	SURGICAL MANAGEMENT OF FORELIMB DEFORMITY ASSOCIATED WITH RETAINED CARTILAGINOUS CORE AND RADIO-ULNAR GROWTH DISTURBANCE IN A GREAT DANE PUPPY <i>S. B. Akhare, Anmol Tomar, B. K. Bhadane, G. A. Fiske, R. Nikhil, Sadgi Rana and M. R. Kate</i>
58	INCIDENTAL DIAGNOSIS OF UTERUS UNICORNIS IN A BITCH DURING ELECTIVE OVARIOHYSTERECTOMY <i>Arjun Singh, Anil Singh, Sonu Jaiswal, Shubham Asthana, Ashish Banger and Akash Kumar Gangwar</i>
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62	CLINICAL MANAGEMENT OF UTERINE TUMOR IN A FEMALE DOG – A CASE REPORT <i>G. A. Fiske, Giridhar G. Moodbidri, S. B. Akhare, B. K. Bhadane, Anmol Tomar, Minakshi Borse and Sadgi Rana</i>
63	INTERNAL FIXATION OF HUMERAL FRACTURE IN A DOG <i>B. K Bhadane ,Giridhar G. Moodbidri, S. B. Akhare, Gauri Fiske, Anmol Tomar, Sadgi Rana and Minakshi Borse</i>
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68	<p>SURGICAL MANAGEMENT OF SPLENIC ABSCESS CONCURRENT WITH UNILATERAL INTRA-ABDOMINAL CRYPTORCHIDISM IN A DOG</p> <p><i>Minakshi Borse, G.A. Fiske, S.B. Akhare, B.K. Bhadane, Hunar Goel, Nikita Patel, Priyanka Sonavane and Sadgi Rana</i></p>
69	<p>SURGICAL MANAGEMENT OF ANAL SAC IMPACTION BY CLOSED ANAL SACCULACTOMY IN A FEMALE CAT</p> <p><i>Mohit, Rajesh Kumar, Aakanksha, Chandragupt Sharma, Nikhil Chandra Raj and Rohit Kumar Gupta</i></p>
70	<p>LIMB AMPUTATION AND POSTOPERATIVE RECOVERY IN A GERMAN SHEPHERD WITH TIBIAL OSTEOSARCOMA: A CASE REPORT</p> <p><i>Saurabh Patel, Ramesh Tiwari, Rachit Srivastava, Satyendra Singh, Juhi, Manika Kumari and Rajat Garg</i></p>
71	<p>SURGICAL MANAGEMENT OF OBSTRUCTIVE UROLITHIASIS IN A MALE LABRADOR RETRIEVER BY PERINEAL URETHROSTOMY</p> <p><i>Sadgi Rana, S. B. Akhare, S. V. Upadhye, G. A. Fiske, B. K. Bhadane, Minakshi Borse, Giridhar Moodbidri and Anmol Tomar</i></p>
72	<p>SUCCESSFUL SURGICAL MANAGEMENT OF UROLITHIASIS IN A FEMALE DOG</p> <p><i>Venkatesh, H. J., Dilip Kumar, D., Praveen, M. K., Abhijith, M. S., Bhaskar, B. S., Ganesh Nishan, M., Vivek Gowda and Vijay Kumar</i></p>
73	<p>SEGMENTAL OESOPHAGECTOMY FOR SURGICAL MANAGEMENT OF CAUDAL CERVICAL OESOPHAGEAL OBSTRUCTION IN A GERMAN SHEPHERD DOG</p> <p><i>Shilpa Rathore, A. Bhadouria, K. Bhati, A.K. Bishnoi and P. Bishnoi</i></p>
74	<p>SURGICAL MANAGEMENT OF GASTRIC TRICHOBEZOAR (HAIRBALL) IN A CAT</p> <p><i>Sheth, K. M., Sheth, A.L., Chauhan, K. K., Raygaur, B. K., Patel, T. P. and Suthar, D.N.</i></p>
75	<p>CLINICAL DIAGNOSIS AND CONSERVATIVE MANAGEMENT OF CANINE MEGAOESOPHAGUS: A CASE REPORT</p> <p><i>Ashish Banger, Shubham Asthana, Arjun Singh, Kratika Patel and Sankalp Sahu</i></p>
76	<p>COMPUTED TOMOGRAPHIC AND ULTRASONOGRAPHIC EVALUATION OF MULTICENTRIC LYMPHOMA IN A DOG: A CASE REPORT</p> <p><i>Apoorva Mishra, Babita Das, Apra Shahi, Shobha Jawre, Randhir Singh, Tamanna, Indraneel Pamadi and Disha Ubnarey</i></p>
77	<p>SUCCESSFUL MANAGEMENT OF ADRENAL HAEMANGIOSARCOMA IN DOG</p> <p><i>Krishna Kottal, Apoorva Mishra, Apra Shahi, Neha Sharma, Chhavi Maravi, Guguloth Swapna, Randhir Singh and Babita Das</i></p>

78	SURGICAL REMOVAL OF A FIBROSARCOMA OF HARD PALATE INVADING THE NASAL CAVITY IN A DOG <i>L.Kurrey, J. Singh, R.Dewangan, R. Sharda, A.K.Mire and T.K. Ramteke</i>
79	SURGICAL REMOVAL OF MASSIVE TUMOUR OVER CHEST REGION IN A RABBIT (<i>ORYCTOLAGUS CUNICULUS</i>) <i>L.Kurrey, J. Singh, R.Dewangan, R. Sharda, R.F.Kujur, A.K.Mire and T.K. Ramkete</i>
80	SURGICAL MANAGEMENT OF ABDOMINAL TUMOR IN A GERMAN SHEPHERD – A CASE REPORT <i>Apoorva Mishra, Apra Shahi, Shobha Jawre, Randhir Singh, Babita Das, Shivangi Thakur, Muskan Yadav and Ankur Paul Tirkey</i>



Award Session



M.R. Patel Best Field Veterinarian Award**1. Successful Management of Mandibular Fracture in Bovines under Field Conditions*****Sachin Vende****Livestock Development Officer, Veterinary Clinic, Girnare, Tal. & Dist. Nashik, Maharashtra***Best Clinician Award****1. Surgical Management and Prognostication of Canine Oral and Maxillofacial Cancer*****Anjan Kumar Sahoo****Assistant Professor, Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Bhubaneswar, Odisha University of Agriculture and Technology, Bhubaneswar, Odisha***2. Surgical Management of Humeral Fractures in Canines- Clinical Study*****Jagan Mohan Reddy K****Associate Professor & Head, Department of Veterinary Surgery and Radiology, College of Veterinary Science, Warangal, P V Narsimha Rao Telangana Veterinary University, Rajendranagar, Hyderabad, Telangana***3. Functional Visual Outcome of Ocular Affections in Animals: A review of 8 cases*****Rambabu Kalaka, S. Likhitha, Ch. Mallikarjuna Rao and G. Kamalakar****Associate Professor & Head, Department of Veterinary Surgery and Radiology, NTR College of Veterinary Science, Gannavaram, Sri Venkateswara Veterinary University, Andhra Pradesh***4. Interventional Pulmonology -Minimally Invasive yet an Effective Alternative to Thoracic Surgeries in Dogs*****Chauhan S.A., Khandekar G.G., Mote C.S., Tumlam. U.M. and Jadhav Y.B.****Associate Professor, Department of Veterinary Surgery and Radiology, Krantisinh Nana Patil College of Veterinary Science, Shirwal, Dist. Satara Maharashtra Animal and Fishery Science University, Nagpur, Maharashtra***Young Surgeon Award****NIL**

युवा दिवस पर 12 जनवरी से प्रदेश में शुरू होगा “संकल्प से समाधान” अभियान

शासन की विभिन्न योजनाओं और सेवाओं में हितग्राहियों को दिया जाएगा लाभ चार चरणों में 31 मार्च तक चलेगा अभियान अभियान की सम्पूर्ण कार्यवाही सीएम हेल्पलाइन पोर्टल से उत्कृष्ट कार्य करने वालों को दिये जाएंगे पुरुस्कार
भोपाल : रविवार, जनवरी 11, 2026, 17:45 IST

मुख्यमंत्री डॉ. मोहन यादव ने कहा है कि सुशासन और स्वराज के लिए सरकार प्रतिबद्ध है। विकसित मध्यप्रदेश के लक्ष्य की प्राप्ति के लिये केन्द्र और राज्य सरकार की योजनाओं एवं सेवाओं का लाभ पात्र लोगों को दिलाने के लिये प्रदेश में 12 जनवरी से 31 मार्च 2026 तक “संकल्प से समाधान” अभियान चलाया जाएगा। स्वामी विवेकानंद की जयंती “युवा दिवस” पर शुरू होने वाले इस अभियान में ग्राम पंचायत, नगरीय निकाय एवं जिला स्तर पर पात्र हितग्राहियों को लाभान्वित करने के लिये अभियान 4 चरणों में चलाया जायेगा। अभियान में ग्राम पंचायत और नगरीय निकायों में वार्ड स्तरीय समिति और आवेदन/शिकायतों के एकत्रीकरण के लिए दल गठित होगा, जिसका एक नोडल अधिकारी होगा। सम्पूर्ण कार्यवाही सी.एम. हेल्पलाइन पोर्टल के माध्यम से संपादित की जायेगी। पोर्टल में एक प्रथम माड्यूल तैयार कर अधिकारियों एवं नागरिकों के लिए लॉगिन क्रिएट करने की सुविधा दी जाएगी।



अभियान का प्रथम चरण

संकल्प एवं समाधान अभियान का प्रथम चरण 12 जनवरी से 15 फरवरी, 2026 तक चलेगा। इसमें आवेदन प्राप्त करने की कार्यवाही की जावेगी। प्रत्येक ग्राम पंचायत/नगरीय निकायों के वार्ड में नगरीय वार्ड स्तरीय समिति बनाना होगी जिसमें ग्राम/नगरीय वार्ड स्तर के अधिकारी/कर्मचारी सम्मिलित रहेंगे।

पंचायत/नगरीय वार्ड स्तर पर आवेदन/शिकायतों के एकत्रीकरण के लिए दल गठित किया जाएगा, जिसका एक नोडल अधिकारी होगा। यह दल शासन की विभिन्न योजनाओं/सेवाओं से संबंधित आवेदन व शिकायतों को शिविर लगाकर या घर-घर जाकर एकत्रित करेगा। नोडल अधिकारी का यह दायित्व होगा कि वह अपने लॉगिन से सभी आवेदनों को पोर्टल पर दर्ज करे।

पोर्टल पर दर्ज करने के बाद सभी आवेदनों को क्लस्टर/जोन लेवल के अधिकारी के पास जमा किया जाएगा। क्लस्टर/जोन लेवल अधिकारी आवेदनों को विभागवार संबंधित अधिकारियों को निराकरण के लिये प्रेषित कर निराकरण की स्थिति प्राप्त करेगा।

अभियान के प्रारंभिक चरण में प्राप्त आवेदन पत्रों की समीक्षा जिलेवार कलेक्टर एवं कमिश्नर की वीडियो कांफ्रेंसिंग से समय-समय पर की जाएगी।

अभियान का दूसरा चरण

अभियान का दूसरा चरण 16 फरवरी, 2026 से प्रारंभ होकर 16 मार्च, 2026 तक चलेगा। अभियान के द्वितीय चरण में ग्रामीण क्षेत्रों में क्लस्टर लेवल पर एवं नगरीय क्षेत्रों में नगर जोन स्तर पर नोडल अधिकारी के रूप में तहसीलदार/नायब तहसीलदार/मुख्य कार्यपालन अधिकारी जनपद पंचायत/मुख्य नगर पालिका अधिकारी / विकासखंड शिक्षा अधिकारी/जोनल अधिकारी अथवा समकक्ष अधिकारी रहेंगे।

द्वितीय चरण में प्रथम चरण में प्राप्त आवेदन के साथ शेष आवेदन पत्रों के निराकरण के लिये शिविर लगाए जाएंगे। क्लस्टर में पंचायतों की संख्या का निर्धारण संबंधित जिला कलेक्टर द्वारा जिले में स्थित पंचायतों की संख्या के हिसाब से आवश्यकतानुसार 15 से 30 ग्राम पंचायतों का समूह में निर्धारित किया जाएगा।

शहरी क्षेत्रों में छोटी नगरपालिका, नगर पंचायत स्तर पर एक शिविर व नगर निगम स्तर वार्डों की संख्या के अनुपात में क्लस्टर/जोन तैयार किया जाए। क्लस्टर/जोन लेवल पर शिविर लगाने के लिये समय सारिणी जिले द्वारा तैयार किये जाएंगे। टीम द्वारा प्राप्त आवेदन/शिकायतों का निराकरण क्लस्टर/जोन लेवल पर आयोजित शिविर में संबंधित विभाग के अधिकारियों द्वारा किया जाएगा। आवेदनों का निराकरण पोर्टल पर क्लस्टर / जोन लेवल के नोडल अधिकारी द्वारा दर्ज किया जाएगा।

अभियान का तीसरा चरण

अभियान का तीसरा चरण दिनांक 16 मार्च, 2026 से 26 मार्च, 2026 तक चलेगा। इस चरण में विकासखण्ड स्तर पर नोडल अधिकारी अनुविभागीय अधिकारी राजस्व/तहसीलदार मुख्य कार्यपालन अधिकारी जनपद पंचायत/अपर आयुक्त नगर निगम, मुख्य नगर पालिका अधिकारी रहेंगे। इस चरण में ब्लॉक नगर स्तर पर शिविर आयोजित किए जाएंगे, जिसमें क्लस्टर, जोन लेवल पर अनिराकृत आवेदन व शिकायतों/नवीन प्राप्त आवेदनों का निराकरण किया जाएगा।

विकासखण्ड मुख्यालयों में जहाँ नगर पंचायत या नगर पालिका स्थित है, उनमें सम्मिलित रूप से विकासखण्ड मुख्यालय स्तर पर शिविर आयोजित किए जाएंगे। इन शिविरों में किए गए निराकरणों को ब्लॉक लेवल नोडल अधिकारी द्वारा विहित पोर्टल पर दर्ज किया जाएगा। बड़े शहरों यथा नगर निगमों एवं नगर पालिकाओं में जनसंख्या के अनुसार क्लस्टर/जोन का निर्धारण किया जाएगा।

अभियान का चतुर्थ चरण

अभियान का चतुर्थ चरण 26 मार्च से 31 मार्च, 2026 तक चलेगा। इसमें जिला स्तर पर शिविर आयोजित कर समस्त अनिराकृत शेष आवेदन व शिकायती आवेदनों के साथ नवीन प्राप्त आवेदनों का निराकरण किया जाएगा। अध्यक्षता जिले के प्रभारी मंत्री द्वारा की जाएगी। प्रभारी मंत्री द्वारा हितग्राहियों/लाभार्थियों को जिला स्तरीय समारोहों में सम्मान पूर्वक हितलाभ वितरण किया जायेगा।

अभियान के सभी चरणों में आयोजित सभी शिविरों में कलेक्टर/मुख्य कार्यपालन अधिकारी जिला पंचायत/आयुक्त नगर निगम अपर कलेक्टर तथा सभी विभागों के संबंधित जिला अधिकारी उपस्थित रहेंगे। शिविरों की संख्या एवं स्थान का निर्धारण जिला स्तर पर किया जाएगा। प्रत्येक विकासखण्ड में कम से कम 3 नगर परिषद् में 01, नगर पालिका में 2 से 5 एवं नगर निगम 5 से 10 शिविर आयोजित हो।

जिला कलेक्टर्स यह प्रयास करेंगे कि किसी भी चरण में क्लस्टर स्तरीय शिविर एक दिन में एक ही आयोजित किया जाए, जिससे सभी वरिष्ठ अधिकारियों की उपस्थिति उक्त शिविर में सुनिश्चित हो सके। यदि किसी बड़े जिले में विकासखण्डों की संख्या अधिक है तो ऐसी स्थिति में कलेक्टर स्व-विवेक से शिविरों की संख्या में वृद्धि कर सकेंगे। शिविरों के आयोजन के लिए जिला कलेक्टर्स द्वारा रोस्टर्स का निर्धारण जिले के प्रभारी मंत्री से परामर्श कर किया जाएगा। रोस्टर निर्धारण इस प्रकार किया जायेगा कि सभी चरण निर्धारित समयावधि में पूर्ण हो सके। समस्त शिविर के स्थल, तिथि एवं समय तथा शिविर में होने वाली कार्यवाही के संबंध में आम जनता को लगातार स्थानीय मीडिया, सोशल

मीडिया एवं अन्य विभिन्न माध्यमों से जानकारी देने एवं प्रचार–प्रसार का कार्य किया जाएगा ताकि अधिक से अधिक पात्र हितग्राही को अभियान का लाभ पहुंचाया जा सकें।

“संकल्प से समाधान अभियान” से संबंधित संपूर्ण कार्यवाही पोर्टल के माध्यम से ही संपादित की जाएगी। पोर्टल में एक पृथक माड्यूल तैयार कर अधिकारियों एवं नागरिकों के लिए लॉगिन बनाने की सुविधा दी जाएगी।

नागरिक भी दर्ज कर सकेंगे पोर्टल पर अपना आवेदन

शिविर में भाग लेने के लिए पोर्टल पर नागरिक शिविर के पूर्व अपनी सुविधानुसार शिविर रोस्टर से शिविर का चयन कर अपना आवेदन पोर्टल पर दर्ज कर पंजीयन कर सकेंगे। शिविर में प्राप्त आवेदनों का परीक्षण कर जिन आवेदनों का निराकरण क्लस्टर लेवल पर किया जा सकता है उन्हें हितलाभ वितरण क्लस्टर लेवल शिविर में प्रदान किया जाएगा। शिविर में प्राप्त होने वाले अथवा शिविर के ठीक पूर्व पोर्टल पर दर्ज होने वाले नवीन आवेदनों को भी विचार में लिया जाएगा और उनका विधिवत निराकरण किया जाएगा। सभी जिले शिविरों में प्राप्त समस्त आवेदनों का अंतिम निराकरण दिनांक 31 मार्च, 2026 तक अनिवार्य रूप से कर पात्र हितग्राहियों को लाभान्वित करेंगे।

प्रभारी मंत्री करेंगे नियमित समीक्षा

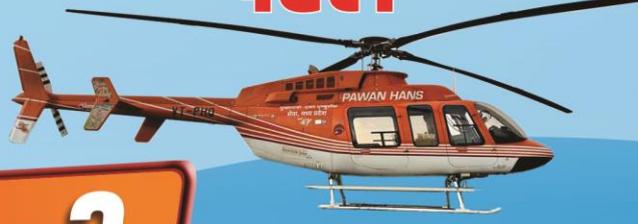
जिलों के प्रभारी मंत्री द्वारा संकल्प से समाधान अभियान के क्रियान्वयन की नियमित समीक्षा की जायेगी। सभी संभागायुक्त द्वारा संभाग स्तर पर, जिला कलेक्टर द्वारा जिला स्तर पर एवं अनुविभागीय अधिकारी (राजस्व) द्वारा अनुविभाग स्तर पर “संकल्प से समाधान अभियान” के संचालन की नियमित समीक्षा एवं पर्यवेक्षण किया जायेगा।

जिला कलेक्टर्स “संकल्प से समाधान अभियान” के प्रभावी क्रियान्वयन के लिए स्थानीय परिस्थितियों एवं आवश्यकता अनुसार जनहित में करेंगे। वे अपने स्तर पर ऐसे नवाचार एवं पहल भी करेंगे, जिससे अभियान के लक्ष्यों को समय–सीमा में प्राप्त करने में सहायता मिले और नागरिकों को उन समस्त योजनाओं का लाभ मिले, जिनकी वह पात्रता रखता हो।





मध्यप्रदेश सरकार की “एक संवेदनशील पहल”



पीएमश्री

एयर एम्बुलेंस सेवा

प्रदेश के दूरस्थ और दुर्गम क्षेत्रों में गंभीर रूप से बीमार, दुर्घटनाग्रस्त लोगों की आपातकाल में त्वरित सहायता के लिए मध्यप्रदेश सरकार की एक परिवर्तनकारी पहल। अत्याधुनिक चिकित्सा सेवाओं और उपकरणों से सुसज्जित इस सेवा के माध्यम से मुश्किल समय में त्वरित जीवनरक्षक समाधान मिलने से आमजन को समय रहते मिलेगी उचित उपचार की सुविधा।



स्वस्थ और सुरक्षित मध्यप्रदेश का संकल्प

- ₹ 592 करोड़ की लागत से उज्जैन में प्रदेश की पहली मेडिसिटी एवं मेडिकल कॉलेज का भूमिपूजन
- वर्तमान में प्रदेश में 17 शासकीय एवं 13 निजी चिकित्सा महाविद्यालय संचालित
- 55 जिला चिकित्सालयों में भारतीय जन औषधि केंद्रों और 800 आयुष आरोग्य मंदिर का संचालन प्रारंभ

- 8 शासकीय चिकित्सा महाविद्यालय निर्माणाधीन एवं पीपीपी मोड पर 12 चिकित्सा महाविद्यालय शीघ्र होंगे प्रारंभ
- 70 वर्ष से अधिक आयु के बुजुर्ग आयुष्मान भारत योजना से ले रहे लाभ

आपातकालीन सहायता के लिए सम्पर्क करें : 9111777858

मध्यप्रदेश जनसम्पर्क द्वारा जारी
मध्यप्रदेश शासन
आकल्पन : म.प्र. नाध्यम/2025

प्रकृति के सम्मान का उत्सव

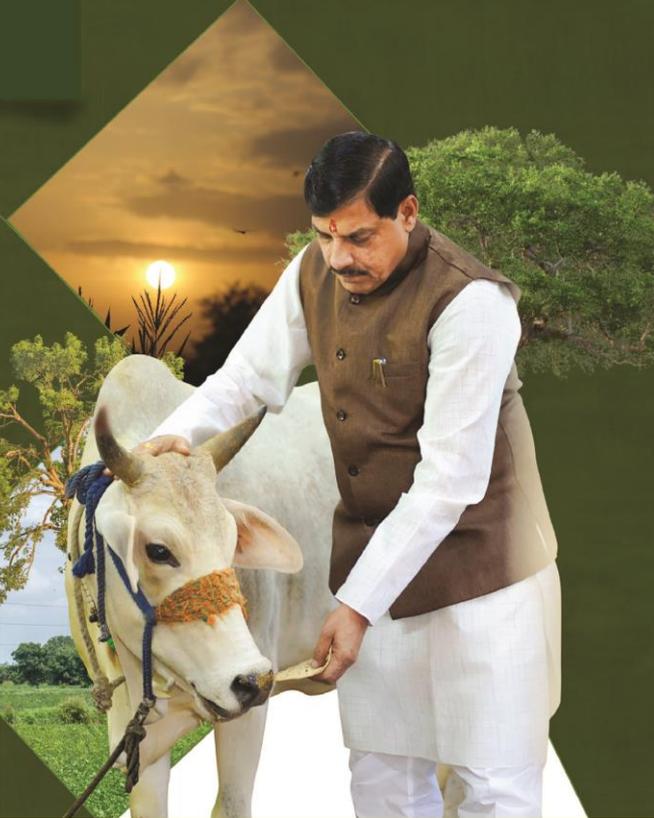




नरेन्द्र मोदी, प्रधानमंत्री

गौ-संरक्षण एवं संवर्धन के लिए मुख्यमंत्री डॉ. मोहन यादव की अभिनव पहल

प्रदेशभर की
गौ-शालाओं में
गोवर्धन पर्व का
सामुदायिक आयोजन

प्रगति और पर्यावरण के प्रति सजगता की मिसाल बनता मध्यप्रदेश

- प्रदेश में संचालित 1,500 से अधिक गौ-शालाओं में 3.30 लाख गौ-वंश का पालन। शीघ्र ही लगभग 2,500 नई गौ-शालाएं प्रारंभ होंगी जिनमें 4.50 लाख गौ-वंश का पालन हो सकेगा।
- गौ-वंश के बेहतर आहार हेतु प्रति गौ-वंश 20 रुपये की राशि बढ़ाकर 40 रुपये की जा रही है।
- दुग्ध उत्पादन बढ़ाने के लिए मध्यप्रदेश सरकार और राष्ट्रीय डेयरी विकास बोर्ड के बीच एमओयू। आगामी 5 वर्ष में लगभग 12,000 दुग्ध समितियां 25 लाख लीटर दूध एकत्रित करेंगी।
- देश में सर्वाधिक 15 लाख हेक्टेयर क्षेत्र में जैविक सेती करने वाले मध्यप्रदेश में गौ-वंश को प्रोत्साहन देने की पहल से जैविक सेती उत्पादन बढ़ेगा।
- दुग्ध उत्पादन और ग्रामीण आजीविका को बढ़ावा देने के उद्देश्य से हर ब्लॉक में एक 'वृंदावन ग्राम' बनेगा।
- गौ-शालाओं का बजट 150 करोड़ से बढ़ाकर 250 करोड़ रुपये प्रतिवर्ष एवं मुख्यमंत्री पशुपालन विकास योजना में 195 करोड़ रुपये का प्रावधान किया गया है।
- ग्वालियर स्थित आदर्श गौ-शाला में देश के पहले 100 टन क्षमता वाले CNG प्लांट की स्थापना।

मध्यप्रदेश जनसंपर्क द्वारा जारी

आकल्पन : मध्यप्रदेश माध्यम/2024



सर्वजन हिताय, सर्वजन सुखाय

सेवा सुशासन और जनकल्याण का अडिग संकल्प



नरेन्द्र मोदी, प्रधानमंत्री



डॉ. मोहन यादव, मुख्यमंत्री

नागरिक सुविधा और राज्य की प्रशासनिक प्रक्रिया को सरल बनाने के लिए तकनीकी सुधार डिजिटलाइजेशन, ई-रिकॉर्ड के माध्यम से आम-जन के कार्यों को आसान बनाना और हितधारकों को सीधा लाभ देने के लिए राज्य सरकार प्रतिबद्ध है। सरकार ने सुशासन और नागरिक सेवा को प्राथमिकता देकर हर वर्ग का लाभ सुनिश्चित किया है। इन अभूतपूर्व प्रयासों से मध्यप्रदेश अब उन्नति के नए युग में प्रवेश कर रहा है।



- नामांतरण, बंटवारा जैसे विभिन्न राजस्व प्रकरणों के ऑनलाइन निराकरण के लिए सभी 55 जिलों में साइबर तहसील परियोजना लागू। यह पहल करने वाला मध्यप्रदेश पहला राज्य।
- संपदा 2.0 रजिस्ट्री के लिए ई-पंजीयन एवं ई-स्टैम्पिंग की नवीन प्रणाली। दस्तावेजों के ऑनलाइन निष्पादन, डीडी वेलिडेशन आदि कार्य होंगे आसान।
- मुख्यमंत्री की अध्यक्षता में संभागीय समीक्षा बैठकों का आयोजन। कानून व्यवस्था के साथ बड़े पैमाने पर किए गए विकास कार्यों के भूमिपूजन एवं लोकार्पण।
- राजस्व महाअभियान के दोनों चरणों में 80 लाख राजस्व प्रकरणों का निराकरण।
- जिला, संभाग, तहसील आदि की सीमाओं के पुनर्निर्धारण के लिए पृथक प्रशासनिक इकाई पुनर्गठन आयोग बनाने का निर्णय।
- मध्यप्रदेश सरकार के मंत्री अब स्वयं भ्रमों अपना इनकम टैक्स।
- प्रदेश की अंतरराज्यीय सीमाओं पर 1 जुलाई, 2024 से परिवहन जांच चौकियों के स्थान पर रोड सेफ्टी एंड इन्फोर्समेंट चेकिंग पॉइंट की व्यवस्था शुरू।

- वॉरेंट और समन की तामील के लिए ई-तकनीक का उपयोग प्रारंभ। मध्यप्रदेश ऐसा करने वाला देश का पहला राज्य है।
- प्रदेश के किसी भी जवान के शहीद होने पर दी जाने वाली सहायता राशि में से 50% शहीद की पत्नी और 50% माता-पिता को देने का निर्णय।
- 105 वर्ग मीटर तक के आवासीय भू-खंडों के लिए ऑनलाइन आवेदन कर डीमड अनुज्ञा प्राप्त करने और 300 वर्ग मीटर तक के आवासीय भू-खंडों पर त्वरित अनुज्ञा प्रदान करने की व्यवस्था लागू।
- बालाघाट के कमकोदादर में हुई मुठभेड़ में नक्सलियों को धूल चटाने वाले 24 शासकीय पुलिस सेवकों का आउट ऑफ टर्म प्रमोशन।
- प्रदेश में थानों की सीमाओं के पुनर्निर्धारण का कार्य तेजी से जारी।
- शासकीय सेवाओं में महिलाओं को अब 35% आरक्षण।
- भूतपूर्व सैनिकों को शासकीय नौकरियों में आरक्षण।





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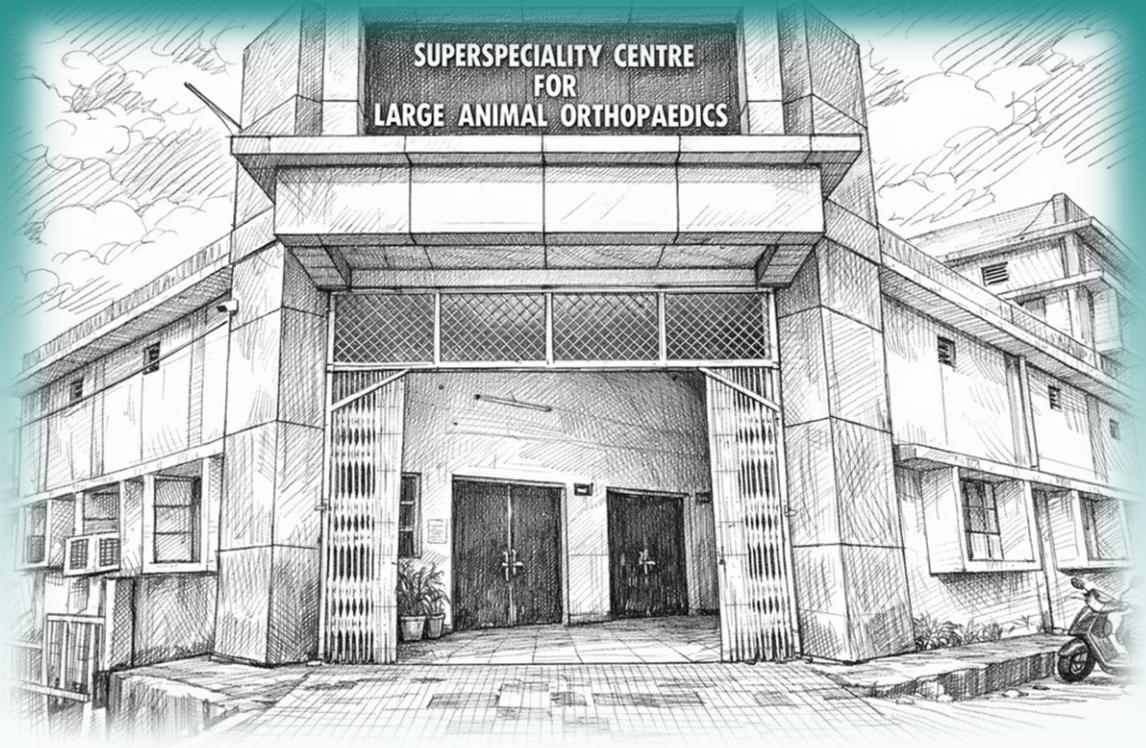
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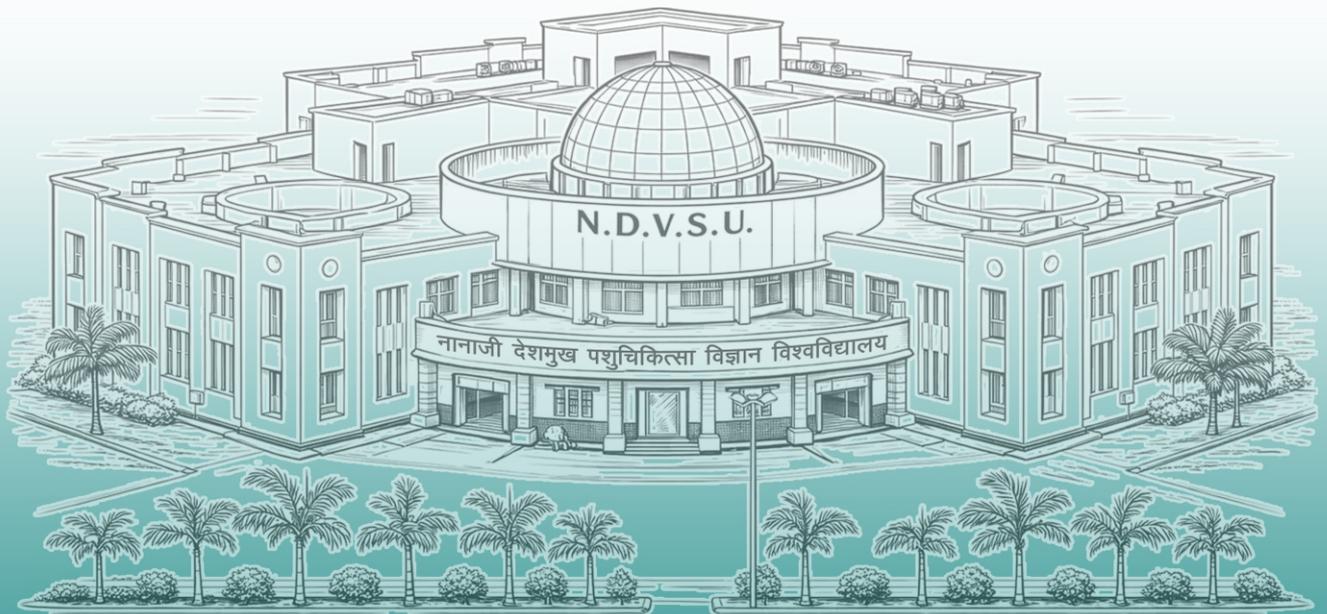
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