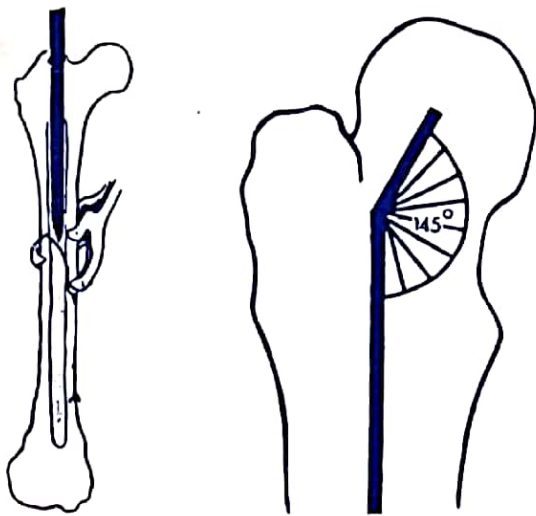




**XX Congress of Indian Society
for Veterinary Surgery and
National Symposium**



OCTOBER 13-15, 1996



**Perspectives and Prospects
of Management of Fracture
in Farm Animals with
reference to the use
of Biomaterials**

**SOUVENIR
&
ABSTRACTS**

Organised by

**DEPARTMENT OF SURGERY AND RADIOLOGY
NAGPUR VETERINARY COLLEGE, NAGPUR - 440 006**

Under the auspices of

Dr. PANJABRAO DESHMUKH KRISHI VIDYAPEETH, AKOLA

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मंत्री
खाद्य प्रसंस्करण उद्योग
भारत
MINISTER
FOOD PROCESSING INDUSTRIES
INDIA

September 17, 1996

M E S S A G E

I am extremely glad to know that the Department of Veterinary Surgery and Radiology, Nagpur Veterinary College and Indian Society for Veterinary Surgery are jointly organising 20th National Congress of Veterinary Surgery and a National Symposium from 13th to 15th October, 1996 and a Souvenir is to be published. I convey my best wishes to the Participants and Organisers and wish the Congress all success.


[DILIP RAY]

Dr. N.G. Bhilegaonkar,
Chairman, Souvenir Committee,
Nagpur Veterinary College,
Nagpur.

CHIEF MINISTER

Date : 21/09/96



MAHARASHTRA

MESSAGE

I am glad to know that the Department of Veterinary Surgery and Radiology of Nagpur Veterinary College and the Indian Society for Veterinary Surgery will be jointly organising the 20th National Congress of Veterinary Surgery and a National Symposium at Nagpur from October 13 to 15, 1996.

Ours is a agrarian society and healthy livestock is necessary for increasing farm output. In the recent times, veterinary science, especially veterinary surgery has undergone sea-change. I am sure, the participating delegates will update their knowledge about the recent advances in the techniques of surgery which will ultimately benefit the farmers.

I hope, the souvenir being brought out on the occasion will be informative and instructive to the veterinarians.

I wish the Congress and the National Symposium all success.

Sd/-

(MANOHAR JOSHI)



MINISTER FOR

Agriculture and Water Conservation

GOVERNMENT OF MAHARASHTRA

Mantralaya, Bombay 400 032

12th September 1996

MESSAGE

I am glad to know that National Congress of Veterinary Surgery and National Symposium ~~is~~ being organised from 13th to 15th October at Nagpur Veterinary Nagpur is bringing out a Souvenir.

India's seventy per cent population is engaged in the agriculture for their livelihood. For that, farmers need healthy cattle. I am sure that Veterinary Surgery will prove a boon for them.

I hope the Souvenir will contain useful information on Veterinary Surgery.

शशि कंत
(SHASHIKANT SUTAR)



भारतीय पशु चिकित्सा परिषद् VETERINARY COUNCIL OF INDIA

(STATUTORY BODY OF THE GOVT. OF INDIA CONSTITUTED UNDER INDIAN VETERINARY COUNCIL ACT, 1984)

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MESSAGE

It gives me immense pleasure to note that Indian Society for Veterinary Surgery is hosting its 20th Congress and a National symposium being organised by Department of Surgery & Radiology, Nagpur Veterinary College from 13th - 15th October, 1996. I am specially impressed by the consistency and regularity with which the society is conducting its conventions and thereby its service to the profession as whole.

With the contribution live-stock sector to Nation crossing a whopping 1,83,000 Crores Rupees per annum (i.e. nearly Rs. 500 crore/day) and value of animals on the increase, many of the surgical manoeuvres which were hitherto considered 'not viable economically' are now being demanded. It fits into the realm of things that I.S.V.S. through its regular deliberations is keeping the scientists abreast with the current science and practice of Veterinary surgery.

I am hopeful that the society will use the congregations platform to induct professionalism and objectivity in the young generations, so that, the science of surgery remains dynamic and its members responsible to the community.

I wish the National Symposium and Annual Congress all the success.

Sd/-
C.M. SINGH

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October 13-15, 1996.

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PROGRAMME

- Date** : 13.10.96 (SUNDAY)
- 8.00 to 9.00** : Breakfast
- 9.00 to 10.00** : Registration
- 10.00 to 11.30** : Inauguration
- 11.30 to 12.00** : Refreshment
- 12.00 to 14.00** : **Session I - Orthopaedic Surgery I (Large Animal)**
Lead Paper : Dr. Gaj Raj Singh,
Chairman : Dr. S.S. Misra,
Rapporteur : Dr. K.K. Mirakhur
- 14.00 to 15.00** : Lunch
- 15.00 to 16.30** : **Session II - Orthopaedic Surgery II (Small Animal)**
Lead Paper : Dr. V. Ramakumar
Chairman : Dr. O. Ramkrishna
Rapporteur : Dr. S. Thilagar
- 16.30 to 17.00** : Tea
- 17.00 to 18.00** : **Session III - Radiology**
Chairman : Dr. V. Ramakumar,
Rapporteur : Dr. A.C. Varshney
- 19.00 to 20.00** : Cultural Programme
- 20.30** : Dinner

- Date** : **14.10.96 (MONDAY)**
- 8.00 to 9.00** : **Breakfast**
- 9.00 to 11.00** : **Session IV - Large Animal Surgery**
Lead Paper : Dr. Jit Singh
Chairman : Dr. Jit Singh
Rapporteur : Dr. J. Mohanty
- 11.00 to 11.30** : **Tea**
Session V Poster Presentation
- 11.30 to 12.00** : **Demonstration - Ultrasound Sonography**
- 12.00 to 13.30** : **Session VI - Small Animal Surgery**
Lead Paper : Dr. C.C. Wakankar
Chairman : Dr. P.N. Sahay
Rapporteur : Dr. M.S. Vasanth
- 13.30 to 14.30** : **Lunch**
- 14.30 to 16.00** : **Session VII - Anaesthesiology**
Lead Paper : Dr. Amresh Kumar
Chairman : Dr. A.P. Singh
Rapporteur : Dr. S. Hussain
- 16.00 to 20.00** : **Excursion/Sight Seeing**
- 20.30** : **Dinner**

Date : 15.10.96 (TUESDAY)

8.00 to 9.00 : Breakfast

9.00 to 10.00 : Young Surgeon Award

Chairman : Dr. P.E. Kulkarni

Rapporteur : Dr. I.V. Mogha

10.00 to 11.00 : Best field Veterinarian Award

Chairman : Dr. M.N. Mannari

Rapporteur : Dr. V.L. Raje

11.00 to 11.30 : Tea

11.30 to 13.00 : Field Problems : Technical Discussion

Chairman : Dr. S.S. Rathod

Rapporteur : Dr. P.R. Zambre

13.00 to 13.30 : Plenary Session

13.30 to 14.30 : Lunch

N.B. *The above programme will be followed as far as possible. The organizing committee however, reserves right to alter the programme if and when necessary.*

Session - I
ORTHOPAEDIC SURGERY - I
(LARGE ANIMALS)

Lead Paper : *Dr. Gaj Raj Singh*
Recent Strides in Veterinary Orthopaedics.

Chairman : *Dr. S.S. Mishra*

Rapporteur : *Dr. K.K. Mirakhur*

1.1 PHYSICAL, CHEMICAL AND MECHANICAL PROPERTIES OF ORTHOPAEDIC BIOMATERIALS.

B.V. Shivaprakash and G.R. Singh,
Indian Veterinary Research Institute, Izatnagar.

Four implant materials i.e. industrial grade nylon, teflon, buffalo horn and cadaver bone were evaluated for physical, chemical and mechanical properties so as to use them as bone plates for femoral fracture repair and to compare them with standard stainless steel. Physical properties included density, percent ash content, effect of dry heat, moist heat, weather and friction. Chemical properties evaluated include effect of weak alkali and acid, strong alkali and acid, alcohol, acidified copper sulphate on implant materials. Mechanical properties determined were cross breaking strength, tensile strengths percent elongation and compressive strength. Density of nylon, teflon, horn and bone were 1.13, 2.19, 1.21 and 1.85 respectively. Percent ash of horn and bone were 0.3 and 63.0 respectively. Maximum usage temperature in air was highest for bone implant. Effect of repeated autoclaving was comparable in all but for nylon. Teflon was found most resistant to all the chemicals. Nylon was resistant to most of the chemicals. Horn was attacked by strong alkali and acid whereas bone was found sensitive to all the chemicals tested. Horn bone showed cross breaking strength of 18185 and 21895 psi respectively whereas nylon and teflon did not break at a given load. Tensile strength of nylon, teflon, horn and bone were 6735, 4000, 12160, and 6120 psi respectively. Percent elongation was highest for teflon (300) and lowest for bone. Nylon was found strongest in terms of compressive strength than teflon and horn. The mechanical properties evaluated were as per the ASTM standards and all the materials tested were found to be semirigid implants in comparison to stainless steel.

1.2 HAEMATO-BIOCHEMICAL CHANGES DURING FRACTURE REPAIR WITH HYDROXYAPATITE - FIBRILLAR COLLAGEN IMPLANTS IN CALVES.

Vinay Kumar, A.C. Varshney, Mohinder Singh, S.K. Sharma and J.M. Nigam
Department of Surgery and Radiology, College of Veterinary and Animal
Sciences, H.P. Krishi Vishvavidyalaya, Palampur - 176 062 (H.P.)

Eighteen male calves aged 8-12 months were subjected to mid shaft transverse metatarsal fractures and divided randomly in to two groups of 9

Session - I

animals each. Group I was kept as control whereas in group II, 3 cm long hydroxyapatite - fibrillar collagen implant was placed in the medullary cavity. The operated limbs were immobilized with plaster cast supported with aluminium splints. Total erythrocyts count (TEC), total leucocyte count (TLC) and differential leucocyte count (DLC), plasma calcium, phosphorus and alkaline phsphatase (ALP) were estimated before and after 15, 30, 45, 60, 75 and 90 days of fracture immobilization in both control and implanted groups. Bone tissue calcium and phosphorus were estimated on 0, 30, 60, and 90 days. The values of TEC, TLC and DLC remained within physiological limits. Plasma calcium remained high in control group up to 75 days and 45 to 90 days in implanted group. Plasma phosphorus concentrations remained higher up to 60th day in both the groups. The concentration of ALP remained elevated between 45 to 60 days in control group and between 15 to 30 days in implanted group. Tissue calcium and phosphorus gradually increased from 30 to 90 days in both the groups, however, the concentration of these minerals were significantly higher in implanted group as compared to control group at different time intervals till 90 days.

1.3 CLINICAL, RADIOLOGICAL, HEMATOLOGICAL AND SYNOVIAL FLUID OBSERVATIONS ON THE EFFECT OF THERAPEUTIC ULTRASOUND (1 WATT/CM²) IN EXPERIMENTAL ACUTE TRAUMATIC ARTHRITIS IN THE EQUINES.

K.I. Singh, V.K. Sobti, A.K. Arora and R. Bhatia

Punjab Agricultural University, Ludhiana - 141 004.

Acute aseptic arthritis was induced in left intercarpal joint with 0.5 ml of turpentine oil in 8 clinically healthy donkeys aged 3-4 years and weighing 80-100 kg. Group A (4 animals) served as a control whereas in group B (4 animals), pulsed ultrasound therapy was applied for 10 minutes daily @ 1 Watt/cm² starting 48 hours after the induction of arthritis for 7 days. The rectal temperature rose significantly for the first three consecutive days in both groups. There was an early return to normal stance and weight bearing in the treatment group. The degree of severity of lameness persisted for a longer time in control animals. Synovial TLC increased progressively in group A and was significantly high till day 20. In ultrasound treated animals, the synovial TLC decreased as the treatment started. Blood TLC and DLC did not show any significant variation in both the groups. Synovial total proteins increased significantly on

day 2 after induction of arthritis in all the animals and remained so at all subsequent intervals in control group. With the treatment of ultrasound therapy, it decreased and was near normal in the treatment group. Synovial alkaline phosphatase activity increased significantly at various recording intervals in both groups. Synovial and plasma LDH activity was found significantly increased in group A and no significant change was observed in group B.

1.4 GROSS AND HISTOMORPHOLOGICAL EFFECTS OF THERAPEUTIC ULTRASOUND (1 WATT/CM²) IN EXPERIMENTAL ACUTE TRAUMATIC ARTHRITIS IN DONKEYS.

K. I. Singh, V.K. Sobti, and K.S. Roy.

Punjab Agricultural University, Ludhiana - 141 004.

Acute aseptic arthritis was induced in 8 healthy donkeys aged 3-4 years and weighing 80-100 kg. The animals were divided into two groups A and B of four animals each. Acute aseptic arthritis was induced by injecting 0.5 ml turpentine in left intra carpal joint. Group A served as a control where as in group B pulsed ultrasound therapy was applied for 10 minutes @ 1 Watt/CM² from day 2 to 8 after induction of arthritis. The gross changes in joint capsule, synovial membrane and articular cartilage were quite mild in ultrasound treated animals as compared to controls. Microscopically, joint capsule showed complete sloughing of the intima layer and subintimal layer showed severe inflammatory reaction or even complete necrosis of the fibrous capsule and synovial membrane in untreated animals. Joint capsule of ultrasound treated animals showed advanced healing stage of synovial membrane though still some inflammatory reaction was present in subintimal layer. Synovial membrane of untreated animals showed less of AB material and was more PAS positive as compared to treated animals. Calcium deposition was not detectable in joint capsule of the treatment group. Degeneration of articular cartilage was observed microscopically in control animals as marked by fibrillation and desquamation of perichondrial tissue with necrosis of chondrocytes in different layers or even complete sloughing of the articular cartilage. Articular cartilage of ultrasound treated animals had mild changes in superficial (devoid of chondrocytes) and the rest of the cartilage layers were histologically normal.

1.5 REPAIR OF BILATERAL FRACTURE OF MANDIBLE BY INTRAMEDULLARY PINNING - A CASE REPORT

Dr. S.V. Upadhye

Veterinary Polyclinic, Nagpur.

A cow with bilateral fracture of horizontal rami of mandible was brought to the Government Veterinary Polyclinic. The cow had an open septic fracture of left horizontal ramus, close fracture of right horizontal ramus of mandible at interdental space, and severe laceration to buccal mucosa. The case was treated with unilateral intra-medullary pinning using 3 mm steinmanna pin. Suturing of the lacerated buccal mucosa was undertaken while the fracture of left mandible was treated as open septic wound. Uneventful recovery and complete bony union was achieved. The intramedullary pin was removed after 2½ months post operatively.

1.6 GROSS AND HISTOMORPHOLOGICAL OBSERVATIONS FOLLOWING HOMOLOGOUS DEEP FROZEN TENDON GRAFTING IN EQUINES

N.S. Saini, K.K. Mirakhur, and K.S. Roy.

Punjab Agricultural University, Ludhiana - 141 004.

Experimental tenectomies were performed in the mid metacarpal region of superficial digital flexor (SDF) tendon while the deep digital flexor (DDF) tendon was traumatized in 10 donkeys. In group I (n=8) the deep frozen tendons were used for grafting where as in group II (n=2) no grafting was done. Amniotic membrane casing was performed around grafted SDF and traumatized DDF tendons in group I only. Gross and histomorphological observations were recorded on last day of experiment i.e. on 15th (n=1), 30th (n=2), 60th (n=2), 90th (n=2) and 120th (n=1) postoperative days (POD) in group I and on 60th (n=1) and 120th (n=1) POD in group II. Gross intraoperative observations suggested the presence of only thin filamentous adhesions in all but three animals at 30 (two animals) and 60 (one animal) days which were present only in the limited area of grafted tendon as compared to tenectomized SDF tendon that showed thick fibrous adhesion and thickening at both the cut ends. However DDF tendon showed no adhesions in all except one animal of group I as compared to group II where adhesions were noticed in both the animals. Histological examination suggested increase in fibroblastic activity at 2 weeks after grafting. Extrinsic and intrinsic healing response was observed in grafted tendons, inflammatory reaction was reabsorbed by one

month. The bundle formation was observed from two to three months. The histological structure appeared near normal by 4 months. Observation suggested that homologous tendon grafts remain viable by all histological criteria and healing was at comparatively at an advanced stage than tenectomized tendon. However, the traumatized DDF tendon heal completely by two months. It is concluded that the tendon healing was more rapid in animals where deep frozen grafts has been used.

1.7 ULTRASONOGRAPHY OF MID-METACARPAL REGION OF CONTRALATERAL (UN-OPERATED) LIMB FOLLOWING TENDON GRAFTING IN EQUINE.

N. S. Saini and K. K. Mirakhur

Department of Surgery and Radiology,

Punjab Agricultural University, Ludhiana - 141 004, Punjab, India.

Serial longitudinal ultrasonographic examination of palmer surface of right contralateral (un-operated) limb in the mid- metacarpal region was performed before and after the tendon grafting of superficial digital flexor (SDF) tendon and traumatizing deep digital flexor (DDF) tendon on the left fore limb of 26 donkeys. Ultrasonographic findings on the contralateral (right) limb suggested the presence of anechoic fluid areas between SDF and DDF tendons, DDF tendon and suspensory ligament on 7th and 14th postoperative day (POD) in all the animals indicating the stress tendinitis and desmitis. However the fluid started decreasing by 21st POD and no fluid accumulation was observed beyond 42nd POD up to 120th POD. Ultrasonography helped in assessing the stress induced injury to the tendons and ligaments of the contralateral limb.

1.8 PERIPHERAL NERVE INJURIES; AN EXPERIMENTAL STUDY IN GOATS

I.V. Mogha, G.R. Singh, R. Kumar

DIVISION OF SURGERY, I.V.R.I., IZATNAGAR (U.P.)

The study was conducted in 12 adult indigenous goats, divided into two groups I and II of six animals each. In animals of group I, sciatic nerve was crushed at two places by applying haemostate for five minutes, whereas in group II, sciatic nerve was severed and then anastomosed using epineural suturing technique. All surgical manipulations were done under deep sedation and local infiltration analgesia.

In both groups, clinical signs comprising reluctance to move, dragging of leg, knuckling of fetlock, inability to bear weight on the affected leg and pointing of toe at rest were observed. In animals of group I, gradual improvement in clinical signs was seen from day 90 and complete recovery was observed by day 150. In animals of group II, complete recovery in clinical signs was not recorded even up to 200 days. Electrodiagnostic testing (EDT) parameters were suggestive of complete nerve damage in early stages and complete recovery by 150 days in group I. In group II, EDT parameters did not show marked improvement throughout the period (200 days) of study.

Histo-pathological observations revealed intraneural trauma, perineural fibrosis and abundance of focal mononuclear cells in early intervals. Formation of blood vessels and regeneration of axons were seen at later stages which was true in animals of group I.

1.9 EVALUATION OF POVIDONE-IODINE SCRUB DURING TENDON SURGERY IN EQUINES : A MICROBIOLOGICAL STUDY.

N. S. Saini and J.P.S. Gill

Department of Surgery & Radiology,

Punjab Agricultural University, Ludhiana - 141 004, Punjab, India.

Swab samples were collected from un-scrubbed and scrubbed skin of midmetacarpal region of donkeys before tendon surgery. Skin of donkeys was found to be contaminated with different types of microorganisms including *Bacillus* spp.; *E. coil*; *Staphylococcus aureus* ; *Staphylococcus intermedius* ; *Micrococcus* spp. *Proteus* spp.; *Klebsiella* spp.; *Pseudomonas* spp.; other Gram negative bacilli and yeast. Four scrubblings with Povidone Iodine scrub resulted in significant reduction of 99.8% bacterial count. However, yeast resisted scrubbing in one animal. It is concluded that procedure adopted for scrubbing skin with Povidone Iodine scrub in the present study was found to be satisfactory for tendon surgery in equines.

Session - II
ORTHOPAEDIC SURGERY - II
(SMALL ANIMALS)

Lead Paper : *Dr. V. Ramankumar*
Interpreneurship oriented veterinary
education in India..

Chairman : *Dr. O. Ramkrishna*

Rapporteur : *Dr. S. Thilagar*

2.1 PATHOMORPHOLOGICAL AND LABELLING STUDIES OF FRACTURE REPAIR USING BONE PLATES OF DIFFERENT BIOMATERIALS IN DOGS AND GOATS.

B.V. Shivaprakash, G.R. Singh, Kalicharan and O.P. Paliwal.

Indian Veterinary Research Institute, Izatnagar.

The study was conducted in fifteen goats and fifteen dogs. In all the animals, mid shaft femoral fractures were created and reconstructed with nylon plate (Gp.1), Teflon plate (Gp.2), horn plate (Gp.3), xenogeneic bone plate (Gp.4) and stainless steel plate (Gp.5). The progress of fracture healing was established by oxytetracycline labelling studies, gross and histopathological observations on days 60, 90 and 120. Oxytetracycline labelled ground bone sections showed extensive fluorescence on periosteal surface of fracture site in all the groups on day 60. On day 90, the osseous union was almost complete in group 1 and 5, and mainly consisted of cancellous bone. In these two groups, cortical bone formation was evident on day 120. However in other groups, the fracture gap was bridged by homogenous sea green tissue on day 60 and more of cancellous bone at subsequent intervals. Gross observation revealed strong union of fracture gap in all the groups due to external bridging callous. The callous was more organized at later periods of day 90 and 120. The size of the callous was comparatively bigger in the animals of groups 2, 3, and 4. Soft tissue adhesions were generally noticed in all the groups. However, the adhesions were very loosely attached to the smooth and gliding surface of nylon and teflon plates. The complications such as osteomyelitis, sinus formation or screw loosening and elevation were noticed in 1/6, 2/6, 2/6, 2/6 and 1/6 animals in groups 1, 2, 3, 4 and 5 respectively. Histologically, the fracture union was more of fibrocartilagenous type on day 60 and osseous at subsequent intervals. The undecalcified longitudinal ground bone sections of group 2, 3 and 4 showed improperly oriented tissue richly deposited with calcium as compared to properly oriented osteons and blood vessels in groups 1 and 5. No signs of extensive osteoporosis and cortical thinning was seen in groups 1, 2, 3 and 4 unlike the group 5 which showed slight cortical thinning on the plated surface in the sections of day 120.

2.2 SURGICAL REPAIR OF HUMERUS FRACTURE USING K WIRE AND CERCLAGE WIRE IN A DOG

S. Thilagar, B. Ramesh Kumar and D. Abraham Manickarajan
Department of Surgery, Veterinary College & Research Institute,
Namakkal, Tamilnadu.

A five year old male Doberman was presented with the history of accidental fall from a height and limping of right fore limb since 1 week. Clinical examination of the animal revealed painful swelling and crepitation of the right arm region. Radiological examination showed a complete oblique fracture of lower third of right humerus. Under general anaesthesia the right humerus was approached protecting the radial nerve. A. K. Wire was passed through the medullary canal and additional stability was achieved by cerclage wire using stainless steel wire (18 G). The muscle and skin incisions were closed by routine manner and the region was immobilised with plaster cast.

Periodical X-Rays were taken on the 7th, 21st and 45th postoperative days to assess the bone healing. The K. Wire was removed on the 21st postoperative day. The animal made an uneventful recovery without any complications with good callus formation and complete bone union on the 45th postoperative day.

2.3 USE OF NARROW DYNAMIC COMPRESSION PLATE FOR THE TREATMENT OF TIBIAL FRACTURE IN A DOG. **- A CASE REPORT.**

B. Ramesh Kumar, D. Abraham Manickarajan and S. Thilagar.
Department of Clinics, Veterinary College and Research Institute,
Namakkal, Tamilnadu.

Narrow Dynamic Compression plates are commonly used in human orthopaedic patients for the treatment of fore arm fractures. Usefulness of this type of plate for the treatment of tibial fracture was evaluated in a dog brought to Veterinary Hospital, Namakkal after an automobile accident. A male 2 year old Alsatian dog sustained fracture of right tibia in a road accident. Radiological examination showed a complete diaphyseal fracture of right tibia. Under general anaesthesia the fracture was reduced by open method and internal fixation was done using a 7 hole narrow dynamic compression plate. The plate was fixed on the medial aspect of the tibia using 24 mm, 4.5 mm cortical screws (6 Nos). The animal made an uneventful recovery with early weight bearing and restoration of normal gait by 3rd week.

2.4 BONE PLATING IN DOGS - A RETROSPECTIVE CLINICAL STUDY

T.N. Ganesh, S. Ayyappan, R. Jaya Prakash, L. Nagarajan,
W.P. Archibald David and N.N. Balasubramanian
Department of Clinics, Madras Veterinary College, Madras - 600 007.

Nine dogs were treated for fracture of bones (either Humerus, Femur or Tibia) and one dog for radial paralysis with carpal instability by bone plating. In six cases dynamic compression plates were fixed using AO techniques and in four cases sherman plates were used. Anaesthetic regimen, plating techniques adopted, post operative care provided, complications encountered were recorded.

2.5 MANAGEMENT OF FEMUR FRACTURES IN DOGS USING SINGLE AND DOUBLE INTRAMEDULLARY PINS - A CLINICAL STUDY

T.N. Ganesh, R. Jayaprakash, L. Nagarajan, R. Uma Rani,
R. Ganesh and N.N. Balasubramanian
Department of Clinics, Madras Veterinary College, Madras - 600 007.

Ten dogs with fracture of femur were utilized for this study. Seven dogs were treated with single Steinman intramedullary pin and three dogs with double Steinman intramedullary pin. The pins were inserted by retrograde method in seven cases and by normograde method in three cases. The results of intramedullary pinning were good in seven cases, satisfactory in two cases and poor in one case.

2.6 POLY - L - LACTIC ACID BIODEGRADABLE ROD IMPLANTATION FOR SUPRACONDYLAR FEMUR FRACTURE IN A DOG - A CASE REPORT.

Muralikrishna, B.V. Shivaprakash, B.V. and Dilipkumar. D.
Department of Surgery, Madras Veterinary College, Madras - 600 007.

A clinical case of a fortnight old supracondylar fracture of right femur in a German Shepherd (6 month old) dog was fixed with biodegradable self reinforced poly - L - lactic acid (SR - PLLA) implant (70 mm in stem length and 4.5 mm in diameter). The limb was examined radiographically immediately after surgery and at 8, 12 weeks later. By 8 weeks callus formation was intense with mature callus appearing almost dense as bone. At week 12 there was no fracture gap or lines, indicating complete resorption of callus at the fracture site. No appreciable deformity of the limb was observed.

2.4 BONE PLATING IN DOGS - A RETROSPECTIVE CLINICAL STUDY

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2.7 MANAGEMENT OF MANDIBULAR FRACTURES IN DOGS AND A CAT USING STAINLESS STEEL WIRES

T.N. Ganesh, R. Jayaprakash, C. Ramani and N.N. Balasubramanian
Department of Clinics, Madras Veterinary College, Madras - 600 007.

Mandible fractures in seven dogs and one cat were treated surgically by immobilizing the fragments using stainless steel wires. The results of wiring, were good in five dogs and a cat, satisfactory in one dog and poor in one dog.

2.8 MANAGEMENT OF FEMORAL SHAFT FRACTURES WITH A COMBINATION OF INTRAMEDULLARY PINNING AND EXTERNAL FIXATOR-A CLINICAL STUDY IN FOUR CATS.

S. Ayyappan, Daniel Savoldelti, Cornelius von werthern and P.M. Montavon
Small Animal Surgical Clinics, Veterinary Hospital,
University of Zurich, Switzerland.

Four cats referred to the Small Animal Surgical Clinic, Veterinary Hospital, University of Zurich, Switzerland with unstable transverse overriding femoral shaft fractures were subjected to the surgical procedure. Normograde intramedullary pinning using a smooth trocar pointed pin was carried out. Rotational force was counteracted by application of a single bar external fixation. Excellent results were obtained. Clinical, radiological and post operative features were analysed.

2.9 MANAGEMENT OF FRACTURE AND CRANIODORSAL LUXATION OF HEAD OF FEMUR IN A DOG - A CASE REPORT

S. Ayyappan, Henry L. Plattenier and P.M. Montavon
Small Animal Surgical Clinics, Veterinary Hospital,
University of Zurich, Switzerland.

An eight month old male Airedale terrier was referred to the Small Animal Surgical Clinics, Veterinary Hospital, University of Zurich, Switzerland with a history of trauma to the hind limb resulting from a fall. The limb was carried through out. Clinical and radiological observations revealed fracture and craniodorsal luxation of head of femur. Reduction of luxation and stabilization of fracture by application of a mm lag screw was performed through a medial approach. The limb was placed on a ehmer sling. The animal had an uneventful recovery. The clinical, radiographic, operative and post operative observations were analysed.

2.10 AMPUTATION OF LIMB IN DOGS AND CATS - A CLINICAL STUDY

T.N. Ganesh, R. Jayaprakash, C. Ramani, R. Jagadish Wilfred
and N.N. Balasubramanian

Department of Clinics, Madras Veterinary College, Madras - 600 007.

Amputation of either fore limb or hind limb was performed as salvage procedure in nine dogs and two cats for various reasons viz. crush injury, gangrenous wound, paralysis and bone tumour. Among dogs six cases underwent hind limb surgery and three underwent fore limb surgery. In both the cats hind limb amputation was carried out. Two dogs died during the post-operative period and the other animals recovered fully and were ambulatory.

2.11 TOTAL REPLACEMENT OF PROXIMAL END OF FEMUR WITH FORMALINE PRESERVED ALLOGRAFT IN CANINE.

Sharma A.K., Patil S.N., Marudwar S.S., Dhakate M.S., and B.M. Gahlod

Department of Surgery & Radiology,
Nagpur Veterinary College Nagpur - 440 006.

Total replacement of proximal end of femur with formaline preserved allograft of 3 weeks and 4 weeks was carried out on 8 clinically healthy non-discript female dogs of about 2-3 years of age.

Post operative clinical observations were made for 12 weeks and radiographic, angiographic, necropsy and histopathological changes were recorded at 3,6,9 and 12 weeks. Slight to moderate swelling was observed at post-operative site for first 10 days in 6 dogs. Dislocation was observed in 1 dog only and graft was in position in remaining 7 dogs. Angulation was observed in 2 dogs at 3 and 6 weeks post-operatively. There was inward rotation of operated limb in one dog while in another dog there was outward rotation.

The radiographic examination revealed visible callus by 3rd week in all dogs except one dog. Host-graft union was absent in 1 dogs, whereas a slight gap was visible at host-graft junction in 3 dogs at 3 and 6 weeks respectively. Whereas good amount of callus was seen in 4 dogs at 9 and 12 post-operative weeks. Graft was showing signs of acceptance in all dogs except one dog in which there was epiphyseal separation and fragmentation of the graft.

Session - II

Angiography at 9th and 12th weeks interval revealed blood supply to the operated limb and host-graft union.

On necropsy joint capsule was found intact in 4 dogs and synovial fluid was present. Joint capsule was either damaged or ruptured in 3 dogs. Articular cartilage appeared to be normal in 4 dogs while slight resorption was observed in 3 dogs and total resorption in one dog.

Histopathological examination of host-graft junction at 3 weeks revealed normal osseous tissue with early changes of callus formation while at 6 weeks there were many osseous trabeculae with numerous blood vessels were also seen. At 9th week host-graft union revealed thick fibrous tissue implanting towards cartilage and bone. Ossification of osseous trabeculae was not evident. There was centrally placed granulation tissue with minimum cartilagenous tissue. At 12 weeks osseous trabeculae with haversian spaces were evident and there was calcification of osseous trabeculae. The mineralised callus showed the presence of few chondroblast and numerous fibroblast with abundant collagen material.

Histopathological examination of articular cartilage after 3 weeks of implantation revealed 15% live cells in articular cartilage. The number of live cells in articular cartilage at 6, 9 and 12 weeks after implantation were 20-25%, 25-30% and 40-45% respectively.

The formaline preserved allograft thus maintained the viability of articular cartilage up to 4 weeks and does not change biochemical properties of the graft which is evidenced by the acceptance of graft in 7 dogs out of eight.

Session - III

RADIOLOGY

Chairman : *Dr. V. Ramakumar*

Rapporteur : *Dr. A.C. Varshney*

3.1 OSTEOMEDULLOGRAPHIC FINDINGS IN FRACTURE HEALING

Chawla, S.K., Singh, A.P., Singh, Jit and Krishnamurthy, D.
Dept. of Vety. Surgery and Radiology, College of Vety. Sciences,
C. C. S. HAU, Hissar - 125 004.

Importance of osteomedullography, a contrast radiographic technique, was assessed to evaluate fracture healing in different long bones. Intraosseous venous flow was reconstituted earlier in animals where rigid immobilization was achieved. Vein crossing the fracture gap, proximal sinusoidal network, periosteal veins of proximal fragment, ascending branch of main efferent vein and vein crossing the callus were the positive osteomedullographic signs observed in normally healing fractures. Presence of any one of these signs was considered as an indication of re-establishment of intraosseous venous circulation through the fracture. Complete reconstitution of venous connections was seen within 8 to 12 weeks. It is a useful technique to evaluate fracture healing in clinical cases.

3.2 CROSS SECTION RADIOGRAPHIC, PHOTOGRAPHIC ENLARGEMENT AND VASCULAR STUDIES OF FRACTURE REPAIR USING DIFFERENT BIOMATERIALS.

B.V. Shivaprakash, G.R. Singh and H.C. Setia
Indian Veterinary Research Institute, Izatnagar.

Five implant materials viz., nylon, teflon, horn, xenogeneic bone and stainless steel plates were used to repair experimental femoral fractures of thirty dogs and goats divided in to five equal groups. The progress of fracture healing was evaluated by angiographic, osteomedullographic, cross section radiographic and photographic enlargement studies on day 60, 90, and 120 post operatively. Angiographic studies revealed hypervascularity at the fracture site on day 60 in all the groups. Early cross over of medullary vessels across the fracture site was seen in nylon and stainless steel plated animals. Arterial regrowth was almost complete and comparable to normal contralateral limb in both nylon and stainless steel plated animals on day 120. Osteomedullographic studies performed on day 60 indicated pooling of contrast material in the distal fragment and its drainage by extraosseous and periosteal veins in all the groups. In osteomedullograms taken on day 90 and 120, the veins crossing across the fracture site were well visualized in nylon plated and stainless steel plated

animals as compared to others. Leakage of contrast material at the fracture site was evident in 2 out of 6 animals of teflon and horn plated animals which developed osteomyelitis. Cross section radiographic and photographic enlargement studies performed on days 60, 90 and 120 showed increase in the diameter of bones all along its length in all the groups. However, the size of external callus was comparatively bigger in teflon, horn and xenogeneic bone plated groups. Negligible external callus at the end of day 120 in nylon and stainless steel plated animals showed excellent remodelling. Osteoporosis and cortical thinning was conspicuous in stainless steel plated bones in enlarged sections of day 120.

3.3 RADIOGRAPHIC DIAGNOSIS OF PULMONARY DISEASES IN RUMINANTS.

A.P. Singh, Prem Singh and S.K. Chawla.
Department of Surgery and Radiology,
C.C.S., Harayana Agril. Uni. Hissar-125004.

Studies have been undertaken to standardise positioning and radiographic exposure factors for diagnosis of pulmonary diseases. The normal radiographic appearance of lung is described. Basic lung patterns were used as a reference to make radiographic diagnosis as accurate as possible. The thorax of adult sheep, goat and young calves could be imaged on a single large size x-ray film; while in adult cattle and buffaloes, only the diaphragmatic and cardiac lobes could be radiographed on one film. The common lung diseases diagnosed included pneumonia tuberculosis, lung cysts, abscesses, hydrothorax, pneumothorax, soft tissue mass and lodgement of foreign bodies. Interstitial pulmonary changes were encountered more often.

3.4 RADIOGRAPHIC EVALUATION OF LESIONS OF CRANIOVENTRAL ABDOMINAL REGION IN BUFFALOES

Subhash Chander, Kuldip Singh, Jit Singh, D. Krishnamurthy,
A.P. Singh and Rishi Tayal,
Dept. of Vety. Surgery & Radiology, COVS, HAU, Hisar.

In the present study, a retrospective analysis of 2500 radiographs of the cranioventral abdomen of adult buffaloes suspected to suffer from foreign body syndrome was made. Finally, 212 radiographs were selected to find out any abnormalities of raticulum and diaphragm other than diaphragmatic hernia.

Normal radiographic anatomy of the cranioventral abdomen was established in four buffaloes which did not show any signs of digestive disorders. The normal reticulum appeared as a soft tissue density of the abdominal floor with its caudal margin adjacent to xiphisternum in between sixth and ninth ribs. The cupula of the diaphragm was observed to be placed just cranial to the seventh sternebrae during peak inspiratory phase. Out of 212 radiographs, 174 had potential and non-potential foreign bodies, 51 had abnormal gas pockets, 17 had dorsal displacement of reticulum, 6 had 'small' and 4 had 'large' sized reticulum. In 7 cases, wide reticulo-diaphragmatic interface was recorded. Abnormalities of diaphragm i.e. presence of gas pockets, sacculations/sagging, flattening of cupula of diaphragm were detected in 12 cases.

The results of this study show that while interpreting radiographs of cranioventral abdomen in ruminants, serious consideration should be given to changes in the shape, size and location of the reticulum and to the presence and location of gas pockets for better diagnostic potential of a radiograph. Under such circumstances, absence of a foreign body should not be considered as a reliable indicator to over rule the possibility of traumatic reticuloperitonitis.

3.5 CONTRAST ARTHROGRAPHY OF SHOULDER JOINT IN CALVES

D.S. Bist, Rishi Tayal, A.P. Singh and S.M. Behl,

Dept. of Vety. Surgery & Radiology, COVS, HAU, HISAR.

Contrast arthrography of shoulder joint was done in 10 calves using sodium iothalamate (70 x w/v) to standardise the concentration and volume of the contrast material and the time of obtaining the arthrograms for clear delineation of articular structures. Medio lateral view provided good visualization of the joint structures. Two to three ml of 38% of the contrast material was considered optimum to obtain good quality arthrograms. Higher concentration and dose invariably superimposed the joint structures and thus were not considered good for arthrographic studies. However, for demonstration of soft tissue structures, higher volume of the contrast material is recommended. Double contrast arthrography provided no additional advantages.

3.6 CLINICAL AND RADIOLOGICAL STUDIES IN FRACTURE REPAIR WITH HYDROXYAPATITE - FIBRILLAR COLLAGEN IMPLANTS IN CALVES.

Vinay Kumar, A.G, Varshney, Mohinder Singh, S.K. Sharma and J.M. Nigam
Department of Surgery and Radiology, College of Veterinary and Animal Sciences, H.P. Krishi Vishvavidyalaya, Palampur - 176 062 (H.P.)

Mid shaft transverse metatarsal fractures were created in 18 male healthy calves ages 8-12 months and divided randomly in to two groups of 9 animals each. Group I was kept as control and in group II, a 3 cm long autoclaved hydroxyapatite-fibrillar collagen impant was impregnated in to the madullary cavity. The operated limbs were immobilized with plaster cast supported with aluminium splints. Weight bearing capacity, rectal temperature, respiration and cardiac rates and radiological studies were undertaken before and after 15, 30, 45, 75 and 90 days of fracture. Weight bearing restored progressively in both the groups, however, the restoration of complete weight bearing was earlier in the animals of implanted groups. Rectal temperature, respiration rate and cardiac rate remained within physiological limits. Radiographically, periosteal and endosteal reactions were relatively more in implanted group than that of control group up to 45 days of fracture immobilization. Complete bridging of the fracture gap with osseous callus, continuity of the medullary cavity and restoration of the normal cortical contour were observed early in group II at 90 days as compared to group I.

3.7 ULTRASONIC THERAPEUTICS EFFECT ON METACARPAL FRACTURE HEALING IN EQUINE, (Radiological Study)

Davood Sharifi, P. Mehrjeu, A. Veshkini, and I. Nowrouzian
Faculty of Verterinary Medicine, Tehran University - Tehran-IRAN
Faculty of Veterinary Medicine, Sahid Chamran University, Ahvaz-IRAN.

A study was undertaken to evaluate radiographically the effect of ultrasound therapy after creating "wedge fracture" in the left metacarpal bone in 12 clinically adult donkeys between 4 to 6 years of age and 150 to 300 Kg/B.W. These animals were randomly divided into group I & II were further divided into two subgroups of Ia, IIa of one month and Ib, IIb of two months duration of 3 animals each.

The animals of group I (Ia & Ib) as a control were stall fed and given no ultrasound therapy, whereas, the animals of group II (IIa & IIb) as a experimental, after a week from fracture creation were given ultrasound therapy of frequency 1 MHz and intensity of $1W/cm^2$ for 10 minutes for 10 days. The radiographs of both the groups of 0, 15, 30, 45 and 60 post fracture days were evaluated for percentage of callus formation or gap filled, and radiographic density of fracture site. The percent of gap filled in 15 and 30 days in Ia were 27.6 q 0.7 and 50.4 q 3.62, where as in IIa were about 34.61 q 2.67, 76.77 q 2.32 but in subgroup of Ib the percentages were 25.24 q 1.69, 65.1 q 1.52 and 74.63 q 2.45, 94.26 q 0.52 for 45 and 60 days. In experimental IIb the data were obtained as 33.14 q 1.5, 77.30 q 2.14, 92.55 q 0.68 for 45 days and 100% in 60 days animals. In comparison between these two groups there was significant change ($p < 0.05$) with linear regression which showed the acceleration rate of callus formation in experimental group. The radiographs on 15 days did not show any density differences but it was obviously clear on 30 days. These density and percentage changes in group II indicated the positive effect of ultrasound therapy for well organised and compact callus formation at the fracture-site within 60 post fracture days.

3.8 ULTRASONOGRAPHY (USG) OF THE CANINE PROSTATE

V.M. Chariar and C.C. Wakankar

Ultrasonography was used in ten clinical cases to make a diagnosis of prostatic disease. The dogs were selected based on clinical evidence indicating an underlying prostatic pathology. viz. Urinary tract infections, urinary calculi, Recurrent gastro- entero-colitis, Recurrent tenesmus or Perineal hernia. A trans-abdominal, ante-pubic ultrasound scan enabled visualisation of the prostate gland. USG afforded study of size, shape and internal architecture of the prostate and overcame the subjectivity of current methods for investigating prostate disease. USG offers advantages in being a non-injuring, non-invasive diagnostic tool. USG compared favourably with radiography for accuracy and sensitivity in the four cases where both were undertaken. Diagnosis was based on the echotexture of the prostate and orchidectomy instituted as treatment. Clinical and when possible USG follow-up was undertaken to validate the diagnosis and treatment.

Session - IV

LARGE ANIMAL SURGERY

Lead Paper : *Dr. Jit Singh*
Functional stomach disorders
(Vagal indigestion) in buffalo and cattle
: New Concept

Chairman : *Dr. J. Mohanty*

Rapporteur : *Dr. T.K. Gahlot*

4.1 CLINICAL STUDIES ON RETICULO-OMASAL AND PYLORIC FUNCTIONAL DISORDERS IN BUFFALOES

S.M. Behl, Jit Singh and D. Krishnamurthy
CCS Haryana Agricultural University, Hissar.

A study was conducted on 15 clinical cases of buffaloes suspected to have functional disorders of the stomach. In addition, preoperative status of 15 buffaloes having diaphragmatic hernia was evaluated to diagnose functional disorders of the stomach, if any. Clinical cases having functional stomach disorders had the history of anorexia, reduction or absence of faeces, and distended abdomen, and had failed to respond to conventional therapy. The functional disorder of the abomasum was suspected in nine cases on the basis of development of hypochloraemic hypokalemic alkalosis and presence of abomasal reflux (plasma chloride / 75 mmol/l, plasma potassium / 3.5 mmol/l, plasma bicarbonate 28 mmol/l, and rumen fluid chloride 30 mmol/l. Apart from treatment of primary cause, these animals received I/V 5L of hypertonic saline solution to which 5 gm of potassium chloride was added, and broadspectrum antibiotics daily till recovery. Two of these cases were in advanced pregnancy and two were positive for traumatic reticulo-peritonitis, and peritonitis and metritis were present in one case each. Five of these animals recovered completely after the treatment, one died during treatment, while in three complete flow up was not available and were considered to have poor response. Only three of these cases had typical apple shaped appearance of the abdomen, when viewed from behind.

Six of 15 clinical cases had no hypochloraemic hypokalemic alkalosis and there was no evidence of abomasal reflux although there was slight reduction in buffering capacity of rumen fluid. They were categorised to have cranial functional disorder (rumeno reticulum). None of them had apple shape appearance though left side distention was present. All of them responded favourably to treatment which was same as given to animals with abomasal disorder.

Out of fifteen cases of diaphragmatic hernia, six had evidence of considerable abomasal reflux along with development of hypochloraemic

Session - IV
hypokalemic alkalosis. The buffering capacity of rumen in these cases was considerably reduced.

4.2 EXPERIMENTAL STUDIES ON RETICULO-OMASAL AND PYLORIC FUNCTIONAL DISORDERS IN BUFFALOES.

S.M. Behl, D. Krishnamurthy, J. Singh, Sarbjit Singh and K. Singh
CCS Haryana Agriculture University, Hissar.

This study was conducted on twelve experimental buffalo calves. The reticulo-omasal orifice obstruction or pylorus obstruction was created in six animals each. Parameters investigated during the study included clinical signs, haematology (Hb, PCV, TLC, DLC), bicarbonate and inorganic phosphorus of saliva, and certain biochemical constituents of blood and rumen fluid. Buffering capacity and pH of the rumen fluid were also determined. Clinical signs of anorexia, distended abdomen, reduced rumen motility, reduced faecal output and staggering gait were observed in experimental animals of both the groups, with intensity of signs being more in animals with pyloric obstruction. Buffalo calves with pyloric obstruction developed hypochloraemic hypokalemic alkalosis and were azotaemic. There was significant increase in chloride and potassium concentrations of rumen fluid along with significant reduction in buffering capacity. There was significant increase in haemoglobin and packed cell volume after induction of the obstruction. Survival time of these animals ranged from 48-84 hours. Animals with reticulo-omasal obstruction were also azotaemic but hypochloraemic hypokalemic alkalosis did not develop. The survival time of these animals ranged from 96- 144 hours. Inorganic phosphorus to bicarbonate ratio of saliva decreased significantly in both groups, the change being more prominent after pyloric obstruction. Significant increases in urea nitrogen and creatinine concentration were observed in saliva of both the groups. However, no significant variation in salivary concentrate of sodium, chloride, potassium and bicarbonate in animals with reticuloomasal obstruction. In animals with pyloric obstruction, concentrations of saliva bicarbonate and potassium were significantly decreased at terminal stage. However, the change in sodium concentrations were not significant.

4.3 RECURRENT CYSTOCERVICO-VAGINAL PROLAPSE IN BOVINES AND ITS MANAGEMENT - A CLINICAL STUDY.

S.S. Misra

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Vaginal, cervicovaginal prolapse is invariably complicated with urinary bladder displacement in such a manner, that leads to an unusual type of cystocervicovaginal prolapse.

Such a complicated prolapse has been encountered in both the preparturient and postparturient bovines. In a closely monitored clinical study in 36 animals (14 preparturient and 21 postparturient buffaloes and one cow) in Mathura.

After adequate disinfection of the prolapsed mass, cystocentesis across the overlying vaginal wall is performed ventrolaterally with a specialized canula like needle (3.5 cm OD 15 cm length) taking care to avoid blood vessel puncture. A bilateral cystocentesis may be done. The urine gushes out leading to collapse of the prolapsed mass, the latter can easily be repositioned in the normal position. In case recurrence is there (noted in only 10 percent of cases) Misra's pervaginal transfixation technique is resorted to. Parenterally, antibiotics and antispasmodics (Anafortan, Khandelwal) are mandatory as per the requirement in the case. An indwelling catheterization technique for the surgical management of this condition obviating the cystocentesis is in progress.

4.4 ACUPUNCTURE THERAPY FOR POSTERIOR PARESIS IN BOVINE (A preliminary report)

G.V. Lakshmipathi,

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Tirupati - 517 502. (A.P.)

Posterior paresis in bovine species is not uncommon. Most of the cases fail to respond to the conventional treatment and is always trouble some to make the animal again to stand square on the ground because of the prolonged recumbency and the consequent complications.

Posterior peresis in the bovine species which were refractory to the conventional treatment responded well to the acupuncture therapy. Acupuncture points of the Governor vessel, stomach and Urinary bladder meridians were stimulated with the help of a Multy purpose Electronic Acupuncture unit. This was followed by Acuinations of Vit. B₁, B₆ and B₁₂ (Neurovet) at the acupuncture points.

On conclusion of the treatment, excellent (75-100%) in 3, Good (50-75%) in 4, fair (25-50%) in 2, Poor (upto 25%) in 3, results were obtained while in buffaloes they were 1,1,1,2 respectively whereas in one buffalo no response was seen.

4.5 CLINICAL STUDIES ON OBSTRUCTIVE THELITIS IN BUFFALOES AT NAMAKKAL AREA.

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Department of Clinics, Veterinary College and Research Institute, Namakkal -
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Obstructive thelitis is a progressive muco-cutaneous disease affecting one or more teats in primiparous buffaloes. A clinical study was conducted at Veterinary Hospital, Namakkal between 94- 96 to identify the etiology if any and standardisation of the treatment regimen. Totally 20 animals were taken for the study. The affected animals showed symptoms of severe pain and swelling of one or more teats, cessation of milk flow from the affected teat, and progressive necrosis of the teat tissue. Untreated cases led to gangrene and sloughing of teat leading to permanent disability. Milk samples collected from the affected animals did not reveal any bacterial organisms of etiological importance on cultural examination. However, 2 animals showed the presence of fungal growth (*Candida albicans*).

The treatment regimen consisted of parenteral administration of anti-inflammatory and anti-histamine agents. External application of emollient ointments was indicated. Restriction of roughage feeding which might be the source of fungal infection was advised to the owners. The prognosis was favourable when the treatment was commenced early. However, in advanced cases prognosis was unfavourable due to complete sloughing of the teat tissues.

4.6 EVALUATION OF TYPHA ANGUSTATA, PROSOPIS JULIFLORA AND SWELLNILL OINTMENT AS WOUND HEALING AGENT IN CATTLE - CLINICAL, HISTOLOGICAL, HISTOCHEMICAL AND BIOMECHANICAL STUDIES.

R.S. Patel, R.R. Parsania, P.V. Parikh and N.H. Kelawala.

Department of Surgery, Veterinary College,
Gujrat Agricultural University, Anand.

Each of 12 healthy crossbred male cow-calves were subjected to ten excisional wounds, five on each side of thoraco-lumbar region to evaluate wound healing property of *T. angustata*, *P. juliflora* and ayurvedic ointment swellnill. The wound healing was evaluated grossly and by histomorphological, histochemical and biomechanical examination of excised healed tissue collected at 7, 4, and 28 days. Effects of various treatments on wound healing have also been studied in selected clinical cases comprising of 17 wounds in each treatment group. No significant difference was observed in any of the treated group of animals.

4.7 SUCCESSFUL TREATMENT OF BOVINE OCULAR SQUAMOUS CELL CARCINOMA BY SURGERY AND IMMUNOTHERAPY - A REPORT OF TWO CASES.

C. Radhakrishnan, B.J. William, L. Nagarajan, S. Dharmaseelan and
D. Selvakumaran.

Madras Veterinary College, Madras - 600 007.

Two Cows - one a Jersey cross with growth on the left eye and the other a Friesian cross with growth on the right eye - were reported to Madras Veterinary College Hospital. Examination of the eyes of both the animals revealed the presence of growth on the lower eyelid and eye balls were intact. In the case of Jersey Cow the growth was very extensive and surgery was performed to reduced the size of the mass. In the other cow the size of the growth was very small and it did not warrant any surgery. Histo-pathological examination of the biopsy material confirm to be bovine ocular squamous cell carcinoma. Immunotherapy was resorted to in both the cases and BCG vaccine was directly injected into the tumour mass followed by intramuscular injection of levamisole to augment the effect of BCG. This treatment was repeated twice at an interval of 21 days and both the animals showed complete regression of the mass and were discharged. Monthly review of the condition did not reveal the recurrence of the condition till date.

4.8 EVALUATION OF BIOLOGICAL DRESSING MATERIAL (MODIFIED GELATIN POWDER, BOVINE AMNIOTIC MEMBRANE) AND 0.5% SILVER NITRATE FOR MANAGEMENT OF THIRD DEGREE THERMAL INJURIES IN BUFFALO CALVES.

P.V. Parikh, Amresh Kumar, S.K. Tiwari and S.N. Sharma.

Department of Surgery and Radiology,

College of Veterinary Sciences,

G.B. Pant Uni. of Agril. & Tech. Pantnager (U.P.) 263 145.

Five uniform full thickness thermal injuries (4x3 cm) were created experimentally on either side of dorso lumbar region in 12, 1 to 2 years old, buffalo calves divided into three groups A, B and C comprising of 4 animals each, under deep sedation of triflupromazine hydrochloride (@ 0.5mg/kg body weight) I.M followed 10 minutes later by epidural detomidine hydrochloride (@ 50 ug/kg body weight). Modified gelatin powder (A), preserved bovine amniotic membrane (B) and 0.5% silver nitrates (C) application were evaluated on full thickness burn wounds.

Clinically all the treated wounds showed no infection at the site. Oozing of exudate was minimum in gelatin followed by amnion and 0.5% silver nitrate treated wounds. Burn eschar was formed in all the wounds within 10 days of thermal injury. Percent area of healing was significantly ($p < 0.05$) more in treated wounds at 20, 30 and 60 days compared to controls.

Clinical, histopathological, histochemical and biochemical examination of treated wounds at 10, 20 30 and 60 days revealed faster healing in gelatin followed by amnion and silver nitrate treatment.

4.9 STANDARDIZATION OF TECHNIQUE FOR PERITONEAL DIALYSIS IN BOVINE

B.B. Gupta, Marudwar S.S., Patil, S.N., Dhakate, M.S. and B.M. Gahlod

Department of Surgery, Nagpur Veterinary College, Nagpur - 440 006.

Three animals were utilized for the standardization of technique for peritoneal dialysis by fixing dialysis catheters at three different sites :

1. Rt. paramedian 15 cm behind umbilicus.
2. Rt. paramedian just in front of pubis.
3. Rt. paramedian post xiphoid.

Under local anaesthesia a P.V.C. fenestrated tube having 6 mm inner diameter, 14 mm outer diameter and 25 cm length was fixed as dialysis catheter at different sites. Retrograde peritoneal dialysis was carried out in all the animals using different concentrations of heparin in dialysis fluid i.e. 1000 iu/L, 1500 iu/L & 2000 iu/L. Dwelling time of 30 minutes was allowed. Dialysate harvested after each dialysis was collected and measured.

It was observed that the drainage of dialysate was much more in case of site 1 as compared to site 2 & 3. The drainage at first dialysis was much more at all the sites in all the animals and in all compositions of dialysis fluid tried but in subsequent dialysis difficulties were observed due to blockage of catheter with fibrin shreds except during the use of dialysis fluid containing heparin @ 2000 iu/L.

Post umbilical site for the fixation of dialysis catheter and dialysis fluid having 2000 iu/L of heparin was found to be superior in respect of yield of dialysate.

4.10 EXPERIMENTAL MODEL FOR THE STUDY OF BOVINE UROPERITONITIS URAEMIA

Gupta B.B., Marudwar S.S., Patil, S.N., Dhakate, M.S. and B.M. Gahlod

Department of Surgery, Nagpur Veterinary College, Nagpur - 440 006.

Penis was exteriorised through a mid line incision in between the prepuce orifice and scrotum under local anaesthesia. A 55 No. P.V.C. catheter was placed in to penile urethra through the urethral opening on glans. The catheter was kept in situ with a tourniquette around penis taking periurethral bites. The penis was put to its original position and free end of catheter was taken out through the corner of skin incision. This end of catheter was connected to the dialysis catheter placed 15 cm behind umbilicus with an intention to divert total flow of urine in to the peritoneal cavity.

Advantages of the model :

1. An easy and simple access to the urethral lumen with least invasive surgery.
2. Total diversion of urine flow in to the peritoneal cavity or outside the body takes place by simply connecting and disconnecting two catheters respectively.

3. No damage to the urinary bladder and kidneys as a result of retrograde pressure take place as in other models.
4. An excellent model to assess the efficacy of peritoneal dialysis alone as a mean of extra renal purification of blood, as renal status in both groups i.e. control and treatment remains same.

4.11 ACTIVATION OF B-CELL RESPONSE AGAINST CANINE RBCS AFTER RECEIVING ELECTROACUPUNCTURE THERAPY IN CALVES.

A. M. Pawde, O.P. Gupta, G.R. Singh, K. Pratap & Lavleen K. Gupta.
Division of Surgery

Indian Veterinary Research Institute Izatnagar (UP)

The effect of few acupoint combinations on haemoagglutination (HA) activity against canine RBCs in calves were studied. Four healthy calves 1 - 2 year old were injected with 5 ml of 5% canine RBCs suspension in phosphate buffer saline (PBS) intravenously on the day '0'. The combined electro stimulation of acupoints G.V. 14, Liv-4, Sp6 and St36 was done in 2 calves at day 0, 5, 15, 20, 25 & 30 post inoculation whereas other two calves were injected with the same dose and route of canine RBCs without any electroacupuncture stimulation to serve as control. The HA, test on day 0, 5, 15, 20, and 30 post inoculation showed initiation of agglutinating antibodies at day 5 and increased up to 25 days and maintained up to 30 days of observation. Calves receiving combined electroacupuncture stimulation showed significant increase in the titre ($P < 0.05$) on day 15 while ($P < 0.01$) on day 20, 25 and 30 which showed the activation of general immune status of the treatment group than the control one.

4.12 SURGICAL CASES ENCOUNTERED IN CAMEL (Camelus dromedarius)

P.V. Parikh, D.R. Barwalia, N.H. Kelawala, R.R. Parsania and B.M. Jani.
Department of Surgery & Radiology, Veterinary College, Anand.

Surgical management of twenty clinical cases viz. chest pad tumour (3), osteosarcoma of metatarsal bone (3), rupture of nasal septum, (4) preputial prolapse (1), mandibular fracture (2), oesophageal fistula (1) and orchitis requiring unilateral castration (1) will be discussed.

4.13 INCIDENCE OF CLINICAL CASES TREATED DURING 1975-96 IN A AMBULATORY CLINIC SET UP COVERING THREE VILLAGES OF ANAND TALUKA.

R.R. Parsania, K. Sukumaran, D.R. Barwalin, N.H. Kelawala,
P.V. Parikh and D.B. Patil.

Department of Surgery & Radiology, College of Vet. Sci. & A.H.,G.A.U., Anand.

A total number of 2,10,000 cases were treated at ambulatory clinic centres viz. Gamdi, Bedva and Chikhodra of Anand Taluka of Kheda district over a period from July, 1975 to April, 1996. Disease, species and sex wise distribution of medicinal, gynaecological and surgical cases will be discussed in details.

4.14 UNUSUAL CASE OF FOREIGN BODY IN THE KNEE JOINT OF A COW - A CASE REPORT

R. Ganesh, B. Ramesh Kumar, S. Thilagar and V. Ramasamy.

Department of Clinics, Veterinary College & Research Institute,
Namakkal, Tamilnadu.

A six year old non-descript cow was brought to the Veterinary College Hospital, Namakkal with the history of sudden lameness of left forelimb with shivering of the arm and forearm region. The animal was administered with conventional antibiotics and analgesics for a week and discharged after some improvement in the condition. The animal was brought again after 1 week with severe painful swelling of left forearm region and marked lameness. Radiological examination showed a sharp radio opaque foreign body in the postero-lateral aspect of the knee joint. Under sedation and local infiltration analgesia the foreign body a sharp metallic wire about 3 cms long was removed surgically. The animal made an uneventful recovery after conventional treatment with antibiotics and analgesics.

4.15 DYSTOKIA DUE TO FOETAL KYPHOSCOLIOSIS AND ARTHOGRYPOSIS IN A GOAT

R.W. Ashturkar, V.D. Aher and A.P. Bhokre

Department of Animal Husbandry, Zilla Parishad, Nanded - 431 601.

A she goat was presented to the Veterinary Dispensary, Dharmabad Dist. Nanded on 10.12.92. with the history of dystokia since last 24 hours. On per

vaginal examination it revealed that the foetus was abnormal and normal delivery was impossible. Caesarian section was performed under local infiltration anaesthesia. A fully developed dead monster kid was removed and the surgical wound was closed in routine manner. The monster was having dorsal and lateral deviation of vertebral column (kyphoscoliosis) with fused vertebrae and permanent joint contracture present at birth (arthrogryposis).

4.16 SURGICAL CORECTION OF TRIOPTHALMIA IN A BUFFALO CALF

S.M. Usturge and B.V. Shivaprakash

Dept. of Surgery and Radiology, Veterinary College, Bidar. (M.P.)

A two month old buffalo calf was presented with a complaint of injury to eye ball. The contents of the eye ball and clots were seen protruding out of the orbit. History revealed normal vision before injury and two completely developed eyeballs in their respective orbits. Eneucleation operation was undertaken using local analgesia. While dissecting the damaged eye ball one more normal eye ball was found in the same orbit deeper to the first eye ball. The damaged eye ball was carefully removed and the underneath extra eyeball was protected. The operated site was temporarily closed with third eye lid flap and daily treatment was carried out. The excised eyeball had completely developed cornea, sclera, retina and optic nerve in addition to ruptured lens and other ocular contents. The animal had normal vision from remaining two eyeball and observed for 3 months post-operatively.

4.17 EVALUATION OF GELATIN-RESORCINOL-FORMALDEHYDE AS A TISSUE ADHESIVE AND HAEMOSTATIC AGENT IN EXPERIMENTAL ASEPTIC SPLEENIC WOUNDS IN BUFFALO CALVES.

P.B. Patel, S.C. Ojha, D.B. Patil and G.S. Rao

Gujarat Agricultural University, Sardar Krushinagar - 385 506

Gelatin - Resorcinol - Formaldehyde (5:1:1). a tissue adhesive with haemostatic property was applied following 4 inch long aseptic incision over the spleen in five buffalo calves. Satisfactory haemostasis was achieved. Histologically, near total healing was appreciable by second intention. Presence of adhesions warranted its judicious use.

4.18 EXPERIMENTAL STUDIES ON PREVENTION OF INDUCED PERITONEAL ADHESIONS BY SODIUM CARBOXYMETHYLCELLULOSE IN BOVINES.

H.M. Thakker, R.R. Parsania, N.H. Kclawala and P.V. Parikh.

Department of Surgery & Radiology,

College of Vet. Sci. & A.H., G.A.U., Anand Campus, Anand.

Experimentally induced crushing injury on the jejunal serosa produced peritoneal adhesion in all the control animals (Group I, n = 6), and was almost prevented by infusing 1% sodium carboxymethylcellulose @ 7ml/kg body weight in the peritoneal cavity immediately following crushing injury in all the animals of treatment group (Group II, n = 6). Findings of various clinical (Heart rate, Respiration rate, Rectal Temperature, Ruminal motility and Demeanour). Haemato-biochemical (Total Leucocytic Count, Blood Glucose, Serum Sodium and Potassium) and Histomorphological studies were recorded.

4.19 MULTIPLE WARTS IN CROSSBRED HEIFERS

S.K. Maiti & T.P. Parai

Division Of Surgery

Indian Veterinary Research Institute, Izatnagar (U.P.)

Four (2-3 years old) Crossbred heifers of Institute dairy farm was presented with numerous (more than 25) warts of various sizes (pedunculated and sessile) located on head, conjunctive, neck, shoulder and flank regions. Pedunculated warts were surgically excised with 2% Lignocaine HCl (ring-block). Small sessile warts were completely regressed after 4-5 injections of 5 ml deep I/M of Anthiomaline (M & B) and 5 ml s/c Lemasol-75 (Ranbaxy Ltd.) at 2 days interval.

4.20 ABOMASAL DISPLACEMENT IN A BULLOCK - A CASE REPORT

D.D. Ghorpade, C.G. Apsinge and S.P. Sawargaonkar

Veterinary Polyclinic, Solapur

Right side abomasal displacement was revealed on diagnostic laparotomy in a bullock aged about 12 years with a complaint of diarrhoea was followed by sudden cessation of faecal output. Surgical intervention was not successful due to development of firm adhesions with the intestinal loops.

4.21 INTUSSUSCEPTION IN A BULLOCK : A CASE REPORT

Dhakate M.S., Patil S.N., Marudwar S.S. and B.M. Gahlod

Department of Surgery & Radiology,
Nagpur Veterinary College, Nagpur - 440 006.

A non-discript bullock aged about 7½ years was brought to the college veterinary hospital, N.V.C. Nagpur with history of off- feed since last 3 days. The animal appeared dull, walking with dufficulty and was in hide bound condition.

On clinical examination the eyes were found sunken, and animal was dehydrated. The animal revealed pain on palpation at right flank. Per rectal examination revealed hard stool glazed with mucus. The ascultation of heart revealed tachycardia, there was no history of recurrent tympany and body temperature was subnormal. The leucopenia together with neutropenia was observed on haematological investigation. The case was diagnosed for intestinal obstruction.

Parental administration of 1000 ml of 10% Dextrose - (I/V) was given to correct the dehydration. The exploratory laparotomy of right flank was performed under local anaesthesia. On examination of loops of intestine, the intussusception of large intestine was confirmed. The telescoping part appeared swollen and necrosed. Enterectomy was carried out for removing recrosed segment and end toend anastomosis was performed. The laparotomy incision was closed in routine manner.

Post operatively a course of antibiotic was given for 5 days and Dextrose 10% - 1 lit. was given daily for 2 days. The owner was advised to give liquid diet for 10 days. The animal showed uneventful recovery without any complication.

4.22 URODYNAMIC CHANGES FOLLOWING ONE THIRD RESECTION AND REPAIR OF URINARY BLADDER IN BOVINE - EXPERIMENTAL STUDY.

Thakre N.R., Marudwar S.S., Patil S.N., Dhakate M.S. and B.M. Gahlod

Department of Surgery & Radiology,
Nagpur Veterinary College, Nagpur - 640 006.

Present study was conducted on six healthy bullocks of the age group of 2-4 years. One third resection and repair of the urinary bladder was carried out through para-anal approach under local infiltration anaesthesia.

Clinical parameters viz body temperature, heart rate, respiration rate, ruminal motility and biochemical investigation i.e, Blood Urea Nitrogen were studied prior to surgical intervention and after 24,48,72 hours and 5th, 10th, 15th days and at the end of 6th and 12th weeks postoperatively. Above parameters were found to be fluctuating within normal physiological range.

Micturition pressure and the capacity of urinary bladder were also studied prior to the experiment then at the end of 3,6 and 12th weeks while micturition frequency was recorded prior to surgical intervention and thereafter at 24,48,72 hours, 5th, 10th, 15th days and at the end of 6th and 12th weeks.

Bursting pressure and histomorphological changes in the bladder were studied at the end of 3,6 and 12 weeks postoperatively while histopathological changes were studied in the kidney at the end of 3,6 and 12 weeks.

The average micturition pressure in all the animals before one third resection of bladder were found to be 33.84 mm Hg. in relation to average volume to produce micturition reflex which was 118.34 ml. The micturition pressure recorded at the end of 3,6 and 12th weeks was found to be 33 mm Hg., 32 mm Hg. and 33.5 mm Hg respectively in relation to volume of 87.5 ml, 105 ml and 117.5 ml respectively. The micturition pressure and volume recorded at the end of 3rd week was found to be lower than normal values which subsequently approached near normal at the end of 12th week.

The bursting pressure recorded at the end of 3,6 and 12 weeks was found to be 194 mm Hg., 238 mm Hg and 254 mm Hg. respectively and that of normal bursting pressure of bladder was 200.6 mm Hg. The bursting pressure recorded at the end of 6th and 12th week showed marked increase in bursting pressure than that of normal bursting pressure.

Histomorphological changes from the kidney and the bladder tissue collected at the end of 3 weeks of resection and repair showed inflammatory and degenerative changes whereas tissues collected from kidney and bladder at the end of 6th and 12th weeks revealed reparative changes with normal kidney structure and bladder musculature showed large number of fibroblasts and newly formed blood vessels.

4.23 URODYNAMIC CHANGES FOLLOWING TWO THIRD RESECTION AND REPAIR OF URINARY BLADDER IN BOVINE - AN EXPERIMENTAL STUDY.

Isad R.R., Marudwar S.S., Dhakate M.S., Patil S.N., and B.M. Gahlod

Department of Surgery & Radiology,
Nagpur Veterinary College, Nagpur - 440 006.

The present investigation was carried out in six bullocks between the age group of 2-4 years. All the animals were subjected for two third resection and repair of urinary bladder via para anal approach and under local infiltration anaesthesia.

The temperature, respiration rate, ruminal motility interval RMI, micturition frequency and BUN were studied before resection and repair of bladder and after 24, 48, 72 hours and 5th, 10th, 15th and 21st days and at the end of 6th and 12th week postoperatively.

No appreciable variation in temperature, heart rate, respiration rate, ruminal motility interval (RMI) and BUN was observed except micturition frequency which was increased 24 hours post operatively but returned to near normal on 21st days.

Capacity of urinary bladder, micturition pressure were studied prior to and at the end of 3rd, 6th and 12th weeks of experimentation. The average capacity of urinary bladder to produce micturition reflex in all the animals was 101.67 ml. and micturition pressure was 32.5 mm Hg on an average before two third resection and repair of urinary bladder.

Micturition pressure observed at the end of 3rd, 6th and 12th week were found to be 35 mm Hg, 33 mm Hg and 34 mm Hg respectively in relation to volume of 75 ml, 95 ml and 99 ml. The volume to produce micturition reflex was lower than normal values but subsequently returned towards normal at the end of 12th week. The bursting pressure and histopathological changes were studied in two animals each at 3rd, 6th, and 12th week after two third resection of bladder. Bursting pressure recorded at the end of 3rd, 6th and 12th week were found to be 180 mm Hg, 270 mm Hg. and 300 mm Hg. respectively.

Histopathological changes revealed inflammatory changes in kidney and bladder tissues at third week. No inflammatory changes were seen in bladder except in kidney at the end of 6th week. The kidney showed congestion and there was large number of fibroblasts in bladder along with newly formed blood vessels.

4.24 DILATATION AND RIGHT SIDE DISPLACEMENT OF ABOMASUM IN A SHE BUFFALO - A CASE REPORT.

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Department of Surgery & Radiology,

College of Veterinary & Animal Sciences M.A.U. Parbhani - 431 402.

A she buffalo aged 7 years was presented in Veterinary Polyclinic, M.A.U. Parbhani with the history of straining and suspended defaecation for 7 days. The animal was off-feed since 5 days. Rumen was fully impacted. Rectal temperature was 103°F. Per-rectal examination revealed empty rectum with blood stained mucus. The animal was pregnant about 7 months.

Lower right flank laparotomy was performed under local analgesia with 2% Lignocaine hydrochloride. The loops of intestines and abomasum were examined. The intestines were empty and no intestinal obstruction was detected. The abomasum was impacted and dilated to extra large size and displaced to very right side of abdomen and backward up to the level of 9th rib. Abomasum was squeezed intermittently with pressure for 5-10 minutes so as to breakdown the ingesta present in it. Attempts were made to push the abomasum forward and towards left side i.e. to its original anatomical position. The abdominal cavity was closed routinely. Buffalo was treated post-operatively with antibiotic Streptopenicillin @ dose 2.5 gm by intramuscular route daily for 5 days and one litre of Dextrose 20% was administered for 3 days.

After about 30 hours of operation, buffalo started to take the feed and defaecating normally. Ruminal motility reached to 1 per minute and temperature was normal i.e. 100°F. On 3rd day buffalo looked very alert and healthy.

4.25 INTUSSUSCEPTION IN A KID

N.P. Dakshinkar, D.B. Sarode, S.S. Marudwar, M.S. Dhakate and S.N. Patil

Nagpur Veterinary College, Nagpur.

A kid suspected for intestinal obstruction in the cranial abdomen was subjected to diagnostic laparotomy, which revealed an intussusception of recent duration at the junction of jejunum and ileum. The intussusception was relieved manually resulting in an uneventful recovery.

Session - V
POSTER PRESENTATION

5.1 SOME UNUSUALLY LARGE TUMOURS IN DOGS

Badgujar C.L.

Bombay Veterinary College, Mumbai - 400 012.

Dogs with abnormally increasing swelling at various regions like neck, abdomen and scrotum were presented. On gross examination tumours were encountered for which surgical treatment was undertaken. These cases are presented.

5.2 THE ILIZAROV FIXATOR IN VETERINARY ORTHOPAEDICS

C.C. Wakankar and V.M. Chariar

The ILIZAROV technique for external skeletal fixation i.e. ring fixator was adapted for the treatment of various orthopaedic disorders in small as well as large animals. It was successfully used to create fibrous arthrodeses in septic arthritis and open joint at carpus in one dog and a similar lesion in a bovine fetlock. The technique yielded itself well to treating old compound and infected fractures with osteomyelitis in a canine tibia and a bovine metatarsus. Stability and strength of the fixator permitted early weight bearing and ambulation in large as well as small animals. The fixation consisted of trans-osseous wires at sites remote from the infected site of the lesion. These two factors played an important role in successful use of the fixator in the cases cited.

Session - VI

SMALL ANIMAL SURGERY

Lead Paper : *Dr. C.C. Wakankar*

*Surgical affections of Urogenital System in
pet animals.*

Chairman : *Dr. P.N. Sahay*

Rapporteur : *Dr. M.S. Vasanth*

6.1 GASTRIC DILATATION - VOLVULUS SYNDROME IN DOGS - SURGICAL CORRECTION AND MANAGEMENT - A STUDY IN EIGHT CASES

S. Ayyappan, Daniel Savoldelli, Rico Vannini and Fredrre Brumm
Small Animal Surgical Clinic, Veterinary Hospital,
University of Zurich, Switzerland.

Eight canine patients referred to the Small Animal Surgical Clinic, Veterinary Hospital, University of Zurich, Switzerland diagnosed with gastric dilatation - volvulus syndrome were used for the study. The animals were stabilized prior to surgery. Gastrocentesis was initially carried out. Detortion and gastropexy were carried out through a midline incision. Intensive post operative monitoring and critical care was carried out. One animal died prior to the surgical correction. The clinical, radiographic, anaesthetic, operative and post operative features and complications were analysed.

6.2 OESOPHAGEAL DIVERTICULUM DUE TO PERSISTENT AORTIC ARCH IN A PUP

S.K. Sharma, J.M. Nigam, Vinay Kumar, A.C. Varshney, Mohinder Singh and
R.S. Kishtwaria.

College of Veterinary and Animal Sciences,
H.P. Krishi Vishvavidyalaya, Palampur - 176 062 (H.P.)

A 1¹/₂ month old German shephard male pup was presented with the history of anorexia and persistent vomition. Rectal temperature, heart rate, haemoglbin and PCV were within normal range. Differential laucocytic count revealed lymphocytopenia and neutrophilia. Treatment with antiemetic drugs, antibiotics and fluid therapy did not show any improvement. Positive contrast radiography revealed oesophageal diverticulum at the level of 4th and 5th intercostal space. The animal collapsed before any surgery could be attempted. Autopsy findings revealed massive dialatation of oesophagus in a pouch form towards ventral side which measured 5.8 cm in diameter. This anomaly was due to the presence of persistent right aortic arch which was constricting the oesophagus just above the base of heart.

6.3 UNUSUAL CASES OF DIAPHRAGMATIC HERNIA ACCOMPANIED WITH EITHER UMBILICAL OR VENTRAL HERNIA - A CLINICAL REPORT OF THREE CASES.

R.R. Parsania, N.H. Kelawala, D.R. Barwalia, P.V. Parikh and B.M. Jani,
Department of Surgery & Radiology, Veterinary College, Anand.

Two Alsation young dogs with congenital umbilical hernia and one adult Pomeranian with traumatic ventral hernia were presented to College hospital for surgical treatment. On the basis of clinical symptoms, size and location of hernial ring cases were also suspected for diaphragmatic hernia. Accordingly, surgical intervention was decided to counteract any emergencies. While performing surgery, all the three cases revealed diaphragmatic hernia, hence, herniorrhaphy was done as per usual technique using 1/0 vicryl under intermittent positive pressure ventilation. All the cases recovered uneventfully after routine follow up postoperative treatment.

6.4 PYOMETRA IN BITCHES - STUDY OF SIX CLINICAL CASES.

R.R. Parsania, P.V. Parikh, N.H. Kelawala, D.R. Barwalia and B.M. Jani,
Department of Surgery & Radiology, Veterinary College, Anand.

Six cases of pyometra in bitches (3 Pomeranian, 2 Alsation and 1 mongrel) were admitted to the College Hospital and were diagnosed on the basis of history, clinical findings, haematological and radiological examinations. Out of 6 cases (2 open cervix and 4 closed cervix) four cases had history of estrus 2 months back. Surgical manoeuvre in five cases was done by performing hysterectomy; whereas, one toxæmic Pomeranian bitch died before any treatment. All the operated cases recovered uneventfully.

6.5 PROGNOSTIC EVALUATION OF CEHPC IN BITCHES

C.C. Wakankar
Department of Surgery and Radiology,
Bombay Veterinary College, Mumbai - 400 012.

The Cystic Endometria Hyperplasia Pyometra Complex (CEHPC), a commonly confronting disease of bitches is exhibited as a variable spectrum of clinical signs. A surgeon is often handicapped in employing a rational treatment for want of accurate clinical assessment. A method of clinical scoring (Grading) based on clinical signs, laboratory investigations and radiographic/ultra-sonographic findings was evolved and proved beneficial in the prognostic evaluation and therapeutic decision.

6.6 SQUAMOUS CELL CARCINOMA OF THE DIGIT AND ITS SURGICAL MANAGEMENT IN A DOG

T.N. Ganesh, R. Jayaprakash, R. Sridhar, A. Sundararaj
and N.N. Balasubramanian

Department of Clinics, Madras Veterinary College, Madras - 600 007.

A Dalmatian bitch aged about 8 years was reported with an ulcerated tumour involving the 3rd digit in the left forelimb since 3 months. The dog was severely lame and was constantly licking the growth resulting in bleeding. Involvement of pharyngeal bones was ruled out by radiographic examination. Amputation of the affected digit was carried out under thiopentone general anaesthesia. The recovery was uneventful and the animal regained its normal gait by two weeks after surgery. On histopathological examination of the tumour it was found to be a squamous cell carcinoma.

6.7 CLINICAL REPORT ON OVARIAN CYSTS IN BITCHES

T.N. Ganesh, S. Balasubramanian, Cecelia Christopher, N.N. Balasubramanian,
A. Sudararaj and S.R. Pattabiraman

Department of Clinics, Madras Veterinary College, Madras - 600 007

Case 1 :

A 10 years old Spitz cross bitch with foul smelling mucopurulent vaginal discharge since two weeks was referred for surgical treatment. After routine haematological and radiological examination the condition was diagnosed as pyometra and the bitch was subjected for hysterectomy. Under general anaesthesia right flank laparotomy was done and on exploration the right ovary revealed a large cyst measuring 4.7 cm/4 cm. The laparotomy incision was extended to permit ovariohysterectomy. Following surgery the animal had uneventful recovery.

Case 2 :

A six and a half year old Spitz bitch was presented with the complaint of inappetance and cloudy vaginal discharge since 10 days. Based on clinical investigation and radiological examination the case was diagnosed as pyometra. Ovariohysterectomy was performed under general anaesthesia through right flank approach. During surgery two cysts of size 4/3.5 cm and 4.5/3 cm were observed on the right ovary and a small cyst measuring 1.5/2.5 cm was present on the left ovary. The animal recovered uneventfully following surgery.

6.8 MANAGEMENT OF GUN SHOT INJURIES IN CANINE

Mohinder Singh., A.C. Varshney, S.K. Sharma, Vinay Kumar and J.M. Nigam
Department of Surgery and Radiology,
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H.P. Krishi Vishvavidyalaya, Palampur - 176 062 (H.P.)

Three male dogs of different breeds aged one, three and six years respectively were brought to Veterinary Clinics with the history of gunshot injuries. The duration of the injuries varied from one to four days. Clinical and radiographic examination revealed the crushed fracture of distal radius ulna with massive soft tissue trauma in 1st case, proximal fracture of humerus in 2nd case and presence of few metal pellets in the soft tissue on either side of radius ulna in 3rd case. Surgery was performed in 1st case by using 5% thiopental sodium whereas in remaining two cases anaesthetic combination of xylazine ketamine was employed in single syringe. In 1st case, amputation was performed, since the prognosis was poor and the dog was in toxaemic state. Internal fixation using bone plate was employed for repair of humerus fracture in 2nd case, whereas metal pellets were recovered from the soft tissue in 3rd case. Postoperatively follow up showed uneventful recovery in all the cases.

6.9 SURGICAL TECHNIQUES OF PERINEAL HERNIA REPAIR IN DOGS

Badgujar C.L. and Pawar L.D.
Bombay Veterinary College, Mumbai - 400 012.

Fourteen dogs were grouped in Group A, B and C of five each (14th dog was operated twice), for repair of perineal hernia. Three different techniques viz. A - conventional B - internal obturator muscle transposition and C - Prolene mesh grafting, were utilised in these groups respectively. Dogs were observed until clinical healing for three months. The suitability of these techniques were assessed from clinical observations, ease to close the hernial vent, firmness to perineal diaphragm, elevation of urinary and faecal incontinence and comforts to the dog.

6.10 CANINE TRANSMISSIBLE VENEREAL TUMOUR - A STUDY OF 89 CASES

Dr. S.V. Upadhye
Veterinary Polyclinic, Nagpur.

Study was conducted on 89 clinical cases of Canine Transmissible Venereal Tumour (CTVT) at the Govt. Polyclinic, Nagpur, during 1993-95. Three methods of treatment were followed by dividing the animals into three groups. In group I (15 males & 15 females) surgical method using sub Mucosal resection technique was carried out. In group II (15 males & 14 females), medicinal treatment was carried out with intravenous injections of Vincristin Sulphate at the dose rate of 0.025 mg/kg bd. Wt. at weekly interval for 3-5 times as required, and in group III (15 males & 15 females), surgical treatment followed by medicinal treatment was undertaken. The combination of the surgical and medicinal treatment (group III) was found superior as it gave complete cure with no recurrence. Moreover it is economical as compared to other method.

6.11 AN UNUSUAL CASE OF INGUINAL HERNIA IN A BITCH - A CASE REPORT

Dr. S.V. Upadhye
Govt. Veterinary Polyclinic, Nagpur.

An eleven month old Spitz bitch was brought to the Hospital with the history of lump in the inguinal region since birth and showed gradual tendency of increase in size since last 15 days. On clinical examination, inguinal hernia with hysterocele was diagnosed and operated for the same. The gravid horn was returned to the abdominal cavity and the herniorrhaphy was done. Uneventful recovery was noted with the bitch delivering two normal healthy puppies after completing full term pregnancy.

6.12 A RETROSPECTIVE STUDY ON THE INCIDENCE OF SURGICAL CONDITIONS AT SMALL ANIMAL INPATIENT CLINIC OF MADRAS VETERINARY COLLEGE HOSPITAL

T.N. Ganesh, S. Dharmaceelan, S. Ayyappan, N.N. Balasubramanian, and S.R. Pattabiraman.

Department of Clinics, Madras Veterinary College.

The common surgical conditons encounted among dogs and cats admitted to the small animal Inpatient Clinic of Madras Veterinary College Hospital were

Session - VI

analysed and documented. The study was carried out for a period of 2 years (April 1994 to March, 1996). The surgical problems were broadly classified in to nine categories as follows. Eye and Ear affections, Wounds, abscess, and related cases, Neoplastic conditions, Musculo skeletal and nervous system disorders, Gastro-intestinal disorders, Hernias, Urinary system disorders, Genital system disorders, cosmetic and elective surgeries. A total of 346 cases of various breeds of dogs and cats were subjected to the study.

6.13 A CASE OF CUTANEOUS METASTATIC VENEREAL GRANULOMA IN A BITCH AND ITS SUCCESSFUL TREATMENT WITH SURGERY AND CHEMOTHERAPY

T.N. Ganesh, L. Nagarajan, M.M. Chaudhari, R. Sridhar, S.R. Pattarbiraman and N.N. Balasubramanian.

Department of Clinics, Madras Veterinary College.

A 11 month old Doberman bitch was reported with history of Vaginal bleeding and cutaneous lumps around the chest, neck and abdomen. Vaginal tumour was excised under epidural anaesthesia by performing episiotomy and subjected for histopathological studies along with two cutaneous tumours removed by incisional biopsy. Tumours of both vagina and skin were confirmed as transmissible venereal tumour. Chemotherapy with vincristin at the rate of 0.025 mg per Kg body weight was instituted and there was complete regression of the cutaneous masses by four injections given at weekly intervals. The dog was reported again after 3 months with much bigger cutaneous lumps which were also ulcerated. Chemotherapy was repeated with supportive therapy. After five injections of vincristin there was complete remission of growth and no sign of recurrence noticed after 2 months observation.

6.14 CYSTIC CALCULI IN A SILKY TERRIER FEMALE DOG.

D. Dilip Kumar, T.V. Jayamohanam, Md. Riazuddin, W.P. Archibald David and N.N. Balasubramanian.

Department of Surgery, Madras Veterinary College, Madras - 600 007.

A female Silky Terrier dog aged six years and weighing five kilogram was presented to Madras Veterinary college hospital with the history of chronic haematuria. Plain radiograph of the abdomen showed two unusually large sized Cystic calculi. The calculi were removed by Cystotomy. The animal showed uneventful recovery.

6.15 OVARIAN FIBROSARCOMA IN A BITCH - A CASE REPORT

Revathi Mukkavilli

Bombay Veterinary College, Mumbai - 400 012.

A 14 year old Pomeranian bitch was presented with clinical signs simulating pyometra. Radiography revealed a large, round soft tissue shadow in the mid abdomen. Laparotomy revealed a moderately distended uterus and enlarged, cystic ovaries. Ovariohysterectomy was performed and the bitch made an uneventful recovery. Histopathology revealed a fibrosarcoma of the left ovary and cystic endometrial hyperplasia of uterus.

6.16 TESTICULAR TUMORS IN CANINES - BEHAVIOURAL, CLINICO HISTOPATHOLOGICAL AND POST OPERATIVE STUDY.

Utpal Das

L.S. Yard, Deptt. of Health,
Calcutta Municipal Corporation, Calcutta - 700 015.

Testicular tumours of four dogs are recorded here. Signs and symptoms exhibited by them were carefully observed and described.

A nine year old Lhasa Apso dog with bilateral big swelling of the testes was amongst the cases in this study. Both the enlarged testes were firm, hard in consistency. On palpation there was lack of uniformity. The growths were suspected as a tumour. Following open orchiectomy, histopathological findings confirmed it as "Sertoli cell tumour".

The other three monorchid Spitz dogs aged 6 to 9 years having the history of growth on the ventral side of the abdomen were examined. The mass was detected a year back which gradually enlarged in all the cases. Examination revealed presence of tumour involving the undescended testes.

Those extra-scrotal testes were surgically removed. Histopathologically, all the growths were found to be "seminoma".

6.17 CLINICAL AND SURGICAL MANAGEMENT OF ANAL-SAC IMPACTION VIS-A-VIS ABSCESS IN CANINES.

Utpal Das

L.S. Yard, Deptt. of Health,

Calcutta Municipal Corporation, Calcutta - 700 015.

Impaction or inflammation of the anal sacs were observed in 54% of the dogs examined during one calendar year, irrespective of age, sex and breed. Relief was mainly provided by evacuating the distended sacs through squeezing. Besides this, other various therapeutic measures were adopted depending on the type of anal impaction. Sometimes abscessation occurred generally as a sequel to self mutilated trauma or chronic impaction. In only 4% of cases the anal sacs were exercised surgically.

6.18 OESOPHAGEAL DILATATION IN DOG

D.B. Sarode, N.P. Dakshinkar, S.S. Marudwar and B.M. Gahalod

Nagpur Veterinary College, Nagpur.

Dogs with a complaint of prolonged regurgitation was clinically suspected for oesophageal dilatation. Barium meal study confirmed the diagnosis.

Surgical intervention in this case did not resulted in regressing the clinical symptoms.

Session - VII

ANAESTHESIOLOGY

Lead Paper : *Dr. Amresh Kumar*
Newer Concepts and Techniques in
Veterinary Anaesthesiology

Chairman : *Dr. A.P. Singh*

Rapporteur : *Dr. Sujjad Hussain*

7.1 CARDIOPULMONARY EFFECTS OF EPIDURAL XYLAZINE AND DETOMIDINE WITH AND WITHOUT LOCAL ANAESTHETICS IN BUFFALO CALVES

S.K. Tiwari and Amresh Kumar

College of Veterinary Science & A.H. Pantnager,
G.B. Pant University of Agriculture and Technology,
Pantnager Distt. - Nainital (U.P.) 263 145.

Epidural administration of xylazine (@ 0.10 mg/kg) or detomidine (@50 µg/kg) with and without lignocaine (@0.22 mg/kg) or bupivacaine (@ 0.11 mg/kg) in 35 healthy male buffalo calves, caused an initial non-significant increase followed by a significant ($P < 0.01$) decrease in mean arterial pressure in all the groups of animals. The central venous pressure showed a significant ($P < 0.01$) increase while the tidal volume and minute volume showed a significant ($P < 0.05$) decrease in all the treatment groups. However, their values returned towards normal level by 120 minutes.

7.2 REVERSAL OF SEDATIVE AND CLINICOPHYSIOLOGICAL EFFECTS OF EPIDURAL XYLAZINE AND DETOMIDINE BY ATIPAMEZOLE AND YOHIMBINE IN BUFFALO CALVES

S.K. Tiwari and Amresh Kumar

College of Veterinary Science & A.H. Pantnagar,
G.B. Pant University of Agriculture and Technology,
Pantnagar Distt. - Nainital (U.P.) 263 145.

Epidural xylazine (@ 0.10 mg/kg) or detomidine (@ 50 µg/kg) induced sedative and clinico-physiological effects were reversed by using normal saline (group I & IV) yohimbine @ 0.125 mg/kg (group II & V) or I/V atipamezole @ 10 µg/kg (group III & VI) in 30 buffalo calves divided into 6 groups of 5 animals each.

The mean arousal time (MAT) recorded were 37.40 ± 1.77 , 2.26 ± 0.21 , 0.98 ± 0.13 , 47.60 ± 2.50 , 3.30 ± 0.25 and 0.92 ± 0.12 minutes in animals of groups I, II, III, IV, V, and VI respectively. The mean walking time (MWT) was significantly ($P < 0.01$) reduced to 4.90 ± 0.46 , 1.47 ± 0.15 , 4.44 ± 0.58 and 1.37 ± 0.12 minutes in animals of groups II, III, V and VI as compared to 65.00 ± 6.60 and 69.60 ± 3.18 minutes in control animals of group I & IV. Atipamezole induced MAT, and MWT were significantly ($P < 0.01$) shorter than

yohimbine. Epidural xylazine or detomidine induced bradycardia, respiratory depression and hypothermia were significantly ($P < 0.01$) lowered and completely reversed in 15 minutes after IV administration of atipamezole or yohimbine. Atipamezole caused more rapid reversal as compared to yohimbine.

7.3 CLINICAL, PHYSIOLOGICAL AND CARDIOPULMONARY EFFECTS OF ELECTROACUPUNCTURE IN DOGS (Canis domestica).

N.H. Kelawala and Amresh Kumar

Department of Surgery & Radiology,

College of Vet. Sci., G. B. Pant Uni. of Agril. & Tech.,

Pantnager (U.P.)

Fifteen adult dogs, randomly divided into three groups were given electroacupuncture (EA) treatment for producing electroacupuncture analgesia (EAA) of abdomino-pelvic region at GV 20, ST 36 and SP 6 along with BL 23, GV 6 (Group I), TW 8 (Group II) and LU 1, TW 8, GV 6 (Group III) using a current of 3 - 5 volts intensity in adjustable wave form at the frequency of 130 - 150 Hz for 30 minutes. EAA was rated as complete in 4, 3 and 4 animals in groups, I, II and III, respectively. Comparatively early onset, longer duration and quicker recovery along with better muscle relaxation was observed in animals of group I and III than group II. Significant increase in heart and respiration rates were compensated within 90 - 180 minutes after EA, whereas, rectal temperature, ECG, CVP, MAP, TV and MV remained statistically unchanged throughout the period of study up to 180 minutes after EA.

7.4 CLINICAL EFFECTS OF ALPHA-2 AGONISTS WITH DIAZEPAM AS PREANAESTHETICS TO KETAMINE ANAESTHESIA IN GOATS.

Dipalee Chitale, K. Pratap, Amar Pal, O.P. Gupta and G.R. Singh.

Division Of Surgery

Indian Veterinary Research Institute, Izatnagar (U.P.)

The clinical effects of alpha-2 agonists diazepam as preanaesthetic to ketamine anaesthesia was evaluated in 24 goats divided into four groups of six animals each. They were premedicated with atropine (0.5 mg/kg S.C.) followed, after 15 min., by diazepam (0.25 mg/kg IM), along with xylazine (25 ug/kg IV) in group A, medetomidine (5 ug/kg IV) in B, romifidine (12 ug/kg IV) in group C and alone in group D. ketamine (IV) was administered in each group till anesthetic effect was achieved.

Shortest weak time and down time were observed in group C followed by groups B, A and D. Duration of Surgical anesthesia showed a reverse pattern i.e. longest in group C followed by groups B, A and D. The recovery time was more in group C than group B followed by groups D and A.

Muscle relaxation was better in groups C and B than group A. Palpebral, swallowing and tail flick reflexes were not abolished completely in any group. Salivation and polyurea were more frequent in groups A, B and C than group D. Ruminal atony was more prominent in group A.

7.5 ALPHA-2 AGONISTS WITH DIAZEPAM AS PREANAESTHETIC TO KETAMINE ANAESTHESIA IN GOATS : PHYSIOLOGICAL EFFECTS.

Dipalee Chitale, K. Pratap, Amar Pal, O.P. Gupta and G.R. Singh.

Division Of Surgery

Indian Veterinary Research Institute, Izatnagar (U.P.)

Preanaesthetic and haemodynamic effects of alpha-2 agonists with diazepam to ketamine anaesthesia was evaluated in 24 goats divided into 4 groups of 6 animals each. After 15 min. of atropinization (0.5 mg/kg SC), diazepam (0.25 mg/kg IM) was administered along with xylazine (25 ug/kg IV) medetomidine (5 ug/kg IV), romifidine 12 ug/kg IV) and alone in groups A,B,C and D respectively. Ketamine was administered (IV) in each groups till anesthetic effect.

Heart rate reduced in all the groups initially, except slight rise in group B with maximum reduction in group C. Induction of anaesthesia with ketamine caused transient increase in heart rate. Thereafter, gradual decrease was seen in groups A, B and C, but not much in group D. Respiration rate remained within normal range after premeditation in all groups but an insignificant rise after ketamine injection was seen within 5 min. in all the groups. Thereafter, a gradual fall was observed in all groups except, slight rapid fall in group C. Rectal temperature reduced in all groups after premeditation. It further reduced after ketamine administration which came to normal at the end of observation period except in group C. Bradycardia was observed in all groups except in group C. Gradual hypertension followed by hypotension was seen after ketamine anaesthesia in groups A, B and C but was not significant in groups D. CVP initially increased after induction of anaesthesia then it gradually fell in groups A, B, and C, except in group D. ECG changes were minimal. Arterioventricular block and ventricular premature complex was observed in one animal of groups B and C.

7.6 CLINICOHEMATOLOGICAL EFFECTS OF DIAZEPAM MEDETOMIDINE ANAESTHESIA IN ATROPINIZED DOGS

H.P. Aithal, Amar Pal, S.P. Tyagi, G.R. Singh and I.V. Mogha

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The adult mongrel dogs of either sex (10) were divided randomly into two groups, A and B, of 5 animals each. Atropine (0.6 mg) was administered in all the animals. 10 minutes later, diazepam (1.5 mg/kg) was administered I.M. in group A and a combination of diazepam (1.5 mg/kg) and medetomidine (30 ug/kg) in group B. The animals were observed for pedal, pin prick and cough reflexes, heart and respiration rates, CVP and arterial pressure at 0, 5, 10, 15, 20, 30, 45, 60 and 90 min after the drug administration. Blood samples were collected at 0, 30, 60 and 90 min to estimate Hb, PCV, TEC and TLC.

In group A, pin prick, pedal and cough reflexes were sluggish but not abolished at any stage of observation indicating moderate sedation and analgesia. Whereas in group B, all the animals attained surgical anaesthesia by 10 min., which persisted up to the end of observation period. Heart rate showed significant increase for 15-30 min. in group A and 60 min. in group B. Thereafter, it reduced and reached near base line values in group A, but remained slightly elevated in group B. Respiration rate reduced in both the groups, however, bradypnea was more pronounced in group B. Increase in CVP was recorded in both the groups during initial 20-30 min. thereafter it gradually reduced to reach normal level by 90 min. Arterial pressure showed a transient (10-15 min.) but significant increase in both the groups, but it was more marked in group B. Thereafter a gradual decline was recorded up to the end of observation period to reach below normal level. No significant change in Hb and PCV values were recorded in both the groups. TLC level showed slight decrease in both the groups between 30 and 60 min., however TEC levels fluctuated within the normal physiological range.

It is concluded that, addition of diazepam potentiated the analgesic and sedative effects of medetomidine in dogs, however, it also enhanced cardiopulmonary depressant effects of medetomidine.

7.7 COMPARISON OF DIFFERENT DOSE LEVELS OF ROMIFIDINE (ALPHA₂ AGONIST) FOR SEDATION AND ANALGESIA IN DOGS.

Amar Pal, Aithal H.P., Kinjavdekar P., Sharma A.K. and Pawde A.M.

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Twelve mongrel dogs of either sex were randomly divided into 3 equal groups, A, B, and C. All the animals were premedicated with atropine sulphate (@ 0.6 mg i.m.) and 10 minutes later, romifidine was administered intramuscularly @ 50, 75 and 100 µg/kg in groups A, B and C respectively. The animals were observed for heart rate, respiration rate, rectal temperature, relaxation of jaw, cough and pedal reflexes, posture, pin prick response and sedation.

In group A, heart rate decreased gradually to reach maximum effect by 45 min. Thereafter heart rate slightly improved but remained below base value by 90 min. In group B and C, reduction in heart rate was more marked and it remained decreasing till the end of observation period. Respiration rate showed transient decrease up to 30 min. in group A. Whereas in group B and C, the reduction was more in extent and duration. Rectal temperature did not show any significant change in group A and C. In group B, however, marginal reduction in rectal temperature was recorded at later stages. Severe incoordination was seen in animals of all 3 groups from 10 to 30 min. Pedal reflex was sluggish, but not abolished in any of the group. Relaxation of jaw was mild in group A, whereas in groups B and C it was slightly more and remained up to 60 min. Pin prick response abolished from flank and thigh, but not from digits in all the groups. In groups B and C, however, it persisted relatively for longer period (60 min.). Sedation was mild in groups A and B, and it persisted up to 10-45 min. whereas in group C, moderate sedation was seen up to 60 min. It can be concluded that romifidine produced mild to moderate analgesia and sedation at 50 µg/kg dose rate. As the dosage increased, no marked change in analgesia was observed, but cardiopulmonary side effects increased. The romifidine @ 50 µg/kg may be used for clinical examination in dogs as preanaesthetic to different general anaesthetics.

7.8 PETHIDINE POTENTIATES ACTION OF MEDETOMIDINE IN DOGS

Amar, Pal; Aithal, H.P., Kinjavdekar, P., Gupta, O.P. and Maiti, S.K.

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The present study was conducted on 10 adult mongrel dogs of either sex. The animals were equally divided into two groups A and B. All the animals were administered with atropine sulphate (0.6 mg S.C.). 10 minutes later, medetomidine was administered (30 ug/kg i.m.) in group A and a combination of medetomidine (30 ug/kg i.m.) and pethidine (2 mg/kg i.m.) in group B. The animals were observed for pedal, pin prick and cough reflexes, jaw muscle relaxation, heart and respiration rates, CVP and arterial pressure at 0, 5, 10, 15, 20, 30, 45, 60, 75 and 90 min. after the drug administration. Blood samples were also collected at 0, 30, 60 and 90 min. to estimate Hb, PCV, TEC and TLC.

In group A, none of the animals could be intubated and all the reflexes remained intact, but moderately depressed. Whereas in group B, all the animals could be intubated by 10 min. and surgical anaesthesia was recorded up to 45 to 60 min. Heart rate significantly increased in both the groups, however, tachycardia was prolonged in group B. Respiration rate showed gradual decrease up to 45 to 60 min. in both the groups. Significant increase was recorded in CVP and arterial pressure for 15-20 min. in both the groups, however, increase was more marked in group B. Haemoglobin (Hb), PCV and TEC did not vary significantly at different intervals in both the groups. However, a decrease in TLC was recorded at 30 and 60 min. in both the groups. It may be concluded that, pethidine and medetomidine provided surgical anaesthesia for 35 to 50 min. without clinically alarming side effects.

7.9 LUMBAR EPIDURAL ANAESTHESIA WITH KETAMINE AND XYLAZINE IN GOATS

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The study was conducted in 10 adult goats of either sex, divided randomly in 2 equal groups. A and B. In group A, xylazine @ 0.05 mg/kg body weight (2 ml.) was administered epidurally at first lumbar intervertebral space. In group B, a combination of xylazine (0.05 mg/kg) and ketamine (2.5 mg/kg) was

administered (2 ml.) epidurally at the same site as in group A. Animals were observed for heart rate, respiration rate, rectal temperature, salivation, posture, sedation and analgesia at thorax, flank, ventral abdomen and hind limbs up to 90 min.

Heart rate showed marked reduction up to 60-75 min. in group A. Thereafter it gradually increased but remained below normal at 90 min. whereas in group B, reduction in heart rate was lesser in extent and duration (20-30 min.) and it reached near normal level by 90 min. Respiration rate also decreased up to 30 min. in both the groups, however, the reduction was relatively less in group B. Rectal temperature did not show any change in either groups. In group A, moderate analgesia was recorded at 5 min. at thorax, flank, ventral abdomen and hind limbs, and it persisted up to 45 to 60 min. In group B, however, complete analgesia was recorded from 10 to 45/60 min. and moderate analgesia persisted throughout the observation period. All the animals of group A remained standing with severe incoordination during the peak effect. But most of the animals in group B remained recumbent from 10 to 45/60 min. Sedation and salivation were mild in both the groups. It is concluded that ketamine and xylazine combination provides excellent analgesia of flank, thorax, ventral abdomen and hind limbs used at the first lumbar epidural space without clinically evident side effects.

7.10 EFFECTS OF ROMIFIDINE IN ATROPINE PREMEDICATED GOATS.

Apra Saxena and A.K. Sharma,

Division of Surgery,

Indian Veterinary Research Institute, Izatnagar (U.P.)

After 15 min. of atropine (0.5 mg/kg - S.C.) administration romifidine was injected @ 25 mg/kg intravenously. The animals showed weak time of 55.00 ± 22.59 Sec. and down time of 4.25 ± 1.40 minutes. Animals remained in lateral recumbency for 112.5 ± 10.60 minutes. Frequent urination was observed in all the animals during the period of observation. Recovery was smooth and uncomplicated.

Different parameters viz. heart rate, respiration rate, rectal temperature, arterial blood pressure, CVP and ECG were studied till recovery. Different haematological and biochemical parameters were studied before and at 1 hour, 21, 48 and 72 hours.

7.11 ROMIFIDINE AS A PREANAESTHETIC TO THIOPENTAL ANAESTHESIA IN GOATS.

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Romifidine was given intravenously @ 12.5 ug/kg. in atropine sulphate (0.5 mg/kg - S.C.) premedicated goats. After 5 minutes thiopental sodium was injected for anaesthetic induction. The dose of thiopental was significantly reduced to 10.00 - 15.8 mg/kg. Animals remained in lateral recumbency for 115.00 ± 22.98 min and the recovery occurred in 152.50 ± 24.24 min. Muscle relaxation was excellent. Various physiological and haemodynamic parameters were observed up to 180 minutes. Haematological and biochemical studies were conducted before and at 1 hour, 24, 48 and 72 hours of anaesthetic induction. Recovery was smooth and uncomplicated in all the animals.

7.12 EFFECTS OF XYLAZINE AS AN EPIDURAL ANAESTHETIC AGENT IN BUFFALO CALVES (B. Bubalis)

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A study on epidural analgesia using xylazine @ 0.06 mg./kg. (Group I) 0.08 mg./kg. (Group II) and 0.1 mg./kg. (Group III) was conducted in 18 healthy calves divided in three groups of six animals each. In all the animals, clinical (induction time, onset of salivation, sitting time, standing time, duration and quality of anaesthesia and complete recovery time) physiological (heart rate, respiration rate and rectal temperature), haematological (TEC, TLC, PCV, Hb) and biochemical (blood glucose, BUN, creatinine, SGOT, SGPT, AKP and ACP) parameters were investigated. This study indicated that the xylazine is an effective analgesic agent which can be safely used by epidural administration.

7.13 PRELIMINARY STUDIES ON TELAZOLE AS A GENERAL ANAESTHETIC WITH OR WITHOUT TRANQUILIZATION IN DOGS (Canis domestica).

N.H. Kelawala, D.R. Barwalia, P.V. Parikh and R.R. Parsania.
Department of Surgery & Radiology, Veterinary College, Anand.

Eight dogs used in this study were equally divided in two groups. The animals of group I were given 2.5% freshly prepared telazole @ 5 mg/kg body

weight, intramuscularly, whereas, in animals of group II, administration of telazole preceded with tranquilization using largactil' @ 1 mg/kg body weight intravenously. All the dogs were subjected to clinical (onset, duration, complete recovery time, extent of salivation, extent of muscle relaxation and different reflexes), physiological (heart and respiration rate, rectal temperature and capillary refill time) studies up to 120 minutes after telazole administration. Additional subjective evaluation was done by performing experimental surgery in four dogs viz. ventral hernia, castration, gastrotomy and laparotomy which revealed optimum analgesia without any complications during surgery; however, incremental dose @ 3 mg/kg, IM, required if duration exceeds 25- 27 minutes.

7.14 HAEMATOLOGICAL AND BIOCHEMICAL STUDIES ON ELECTROACUPUNCTURE ANALGESIA (EAA) IN DOGS (Canis domestica).

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**Department of Surgery & Radiology,
College of Vet. Sci., G.B.Pant Uni. of Agril. & Tech.,
Pantnagar (U.P.)**

Fifteen adult dogs, randomly divided into three groups were given electroacupuncture (EA) treatment for producing EAA of abdomino- pelvic region at GV 20, St 36 and SP 6 along with BL 23, GV6 (Group I), TW 8 (Group II) and LU 1, TW 8, GV6 (Group III) using a current of 3-5 volts intensity in adjustable wave form at the frequency of 130 - 150 Hz for 30 minutes. Significant increase in TEC, TLC, Hb, PCV, neutrophils, blood glucose, total protein, globulin and decrease in lymphocytes, albumin. A : G ratio were compensated in 48 - 72 hours, whereas, serum cholesterol, creatinine, electrolytes (Na^+ , K^+ , and Cl^-), enzymes (ALT, AST, AKP) eosinophils, monocytes and basophils showed insignificant changes throughout the period of study and remained within their physiological limits.

7.15 THERAPEUTIC EFFECTS OF EPIPLEURAL AND VISCERAL PROCAINE BLOCKADE IN PRIMARY INDIGESTION CASES OF BUFFALOES (*B. bubalis*)

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College of Vet. Sci. & A.H.,

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Fifty cases of primary indigestion were assigned randomly and equally into 5 treatment groups viz. a) epipleural procaine blockade b) visceral procaine blockade c) conventional method supplemented with epipleural procaine blockade d) conventional method supplemented with visceral procaine blockade and e) conventional method only.

Clinical observations regarding overall behaviour of the animal, its expression, ruminal motility, heart rate, respiration rate and rectal temperature were studied before and 48 hours after treatment in all the five groups of buffaloes. Haematological parameters (Hb, TEC, TLC, PCV and DLC), biochemical parameters (blood glucose, BUN) and rumen fluid analysis (colour, odour, pH, protozoal motility and total volatile fatty acid concentration) were also studied before and 48 hours after the treatment.

Present study indicated that the procaine blockade treatment was better than conventional treatment. Among procaine blockades visceral procaine blockade was found superior and practical method for treating cases of primary indigestion.

7.16 HAEMODYNAMIC RESPONSES FOLLOWING FENTANYL AND DROPERIDOL INDUCED NEUROLEPTANALGESIA IN CALVES.

P.N. Sahay and L.L. Dass

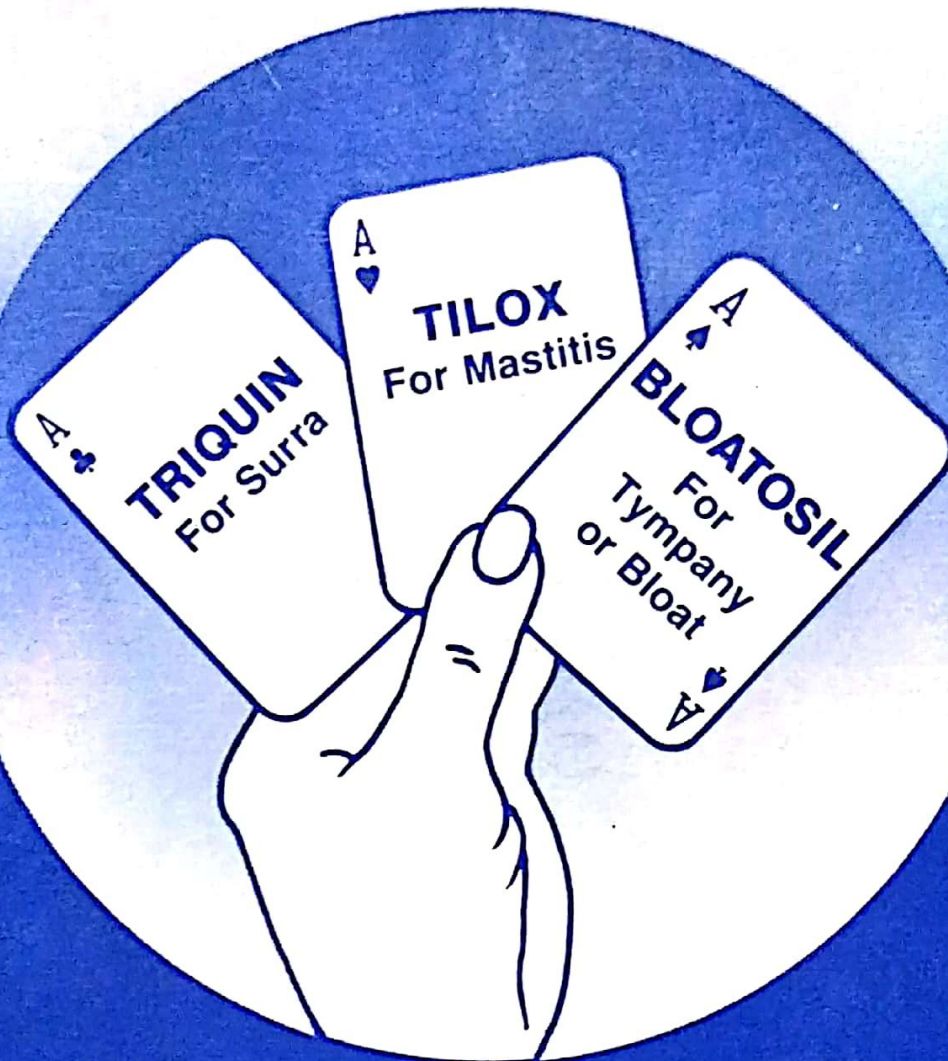
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Induction of neuroleptanalgesia in 6 calves by i/v administration of fentanyl and droperidol combination (Innovar-Vet) @ 0.5 ml/10 kg body weight elicited specific haemodynamic responses. The overall variations in MAP and CVP were significant ($p < 0.01$) with former exhibiting transient fall while uniform fall till 120 minutes was observed in the latter. A significant ($p < 0.05$)

rise in HR was recorded at 5 and 15 minutes post injection. Cardiac Output and Cardiac Index exhibited significant ($p < 0.05$) variations with significant rise at 5 minutes and fall at 30 and 120 minutes of anaesthesia. Stroke Volume and Stroke Index showed non-significant ($p > 0.05$) alterations, while Total Peripheral Resistance manifested significant ($p < 0.01$) overall variations. The values of all parameteres measured, except CVP and Cardiac Output returned almost to preinjection level by 120 minutes.

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