

TECHNICAL BULLETIN & SOUVENIR

seventh
annual symposium and conference
of the indian society for
veterinary surgery
december 19 to 21, 1983



DEPARTMENT OF SURGERY
COLLEGE OF VETERINARY AND ANIMAL SCIENCES
KERALA AGRICULTURAL UNIVERSITY, MANNUTHY

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തിരുവനന്തപുരം

26. 11. 1983

കെ. പി. നൂറുപ്പാലിൽ

വനംവകുപ്പ് മന്ത്രി

സന്ദേശം

ഇന്ത്യൻ സൊസൈറ്റി ട്രസ്റ്റ് ലിമിറ്റഡിന്റെ സർജിക്കൽ വാർഷിക സ. 7-ാം സിയവു. സെമിനാറു. ഡിസംബർ 1983-ൽ 21 വരെ നടത്താൻ നിശ്ചയിച്ചതറിഞ്ഞു സന്തോഷിക്കുന്നു.

സെമിനാറിനും അനുബന്ധിച്ച പ്രസിദ്ധീകരിക്കുന്ന സോവനീറിനും എല്ലാകാര്യങ്ങളും നേരുന്നു.

സ്നേഹപൂർവ്വം

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A. L. JACOB

MINISTER FOR AGRICULTURE

TRIVANDRUM

November 28, 1983

MESSAGE

I am extremely happy to learn that the Indian society for veterinary Surgery is holding its Annual Symposium and Seminar on the theme, 'Affections of the Musculo-skeletal system of bovines in relation to production' from 19th to 21st December, 1983 at the College of veterinary and Animal Sciences, Mannuthy. I am sure that the symposium and the seminar will bring forth valuable discussion on the latest development in this area. I am also glad to note that a souvenir is proposed to be released to commemorate this august occasion. I hope the souvenir will be a valuable record of the research papers being presented at the seminar to be cherished for all times to come. I wish the seminar and the souvenir all the best.

(Sd/-)

(A. L. JACOB)

Convener Writes:

Friends,

Welcome to you all, to the College of Veterinary and Animal Sciences, Mannuthy, for the seventh Annual Convention and Symposium of our Society. Gauhati (Assam) should have been the venue for this Symposium. But the situation prevailing there, was not felt congenial to hold the Symposium there this year. Let us hope that normalcy would be restored there soon. Even though it was our cherished wish to hold the Symposium much earlier, it could materialise only now, and we meet here today, under the banner of ISVS.

Trichur, the cultural head quarters of Kerala, is famous for its temples, churches and the zoo. GURUVAYOOR temple and the elephant camp attached to the temple; St. Thomas Museum at Palayoor and Chattakulam, a tank associated with St. Thomas, are nearby places. Advaita Asram at Kaladi associated with Adi Sankaracharya; the wild life sanctuary at Thekkady (Kottayam District). Cape Comerin, the meeting place of Indian Ocean, Bay of Bengal and Arabian Sea, the Vivekananda Rock and the panoramic sunset and sunrise there, Trivandrum, the capital of Kerala State, famous for its zoo, Ravi Varma Art Gallery and Sri Chitra Tirunal Institute for Medical Sciences; are all places, worth visiting.

ABOUT OUR COLLEGE :

The Kerala Veterinary College was established at Mannuthy in the year 1955, offering the B. V. Sc. degree programme.

In the year 1964, Master's Degree programmes were instituted in the disciplines of Physiology, Parasitology and Animal Nutrition. Subsequently, Master's and Doctorate programmes were started in other disciplines also in stages. At present, Master's programmes are offered in all the 18 teaching departments of the college and Doctorate programmes in the disciplines of Pathology, Physiology, Animal Nutrition, Parasitology, Animal Breeding and Genetics and Dairy Science.

Besides the various undergraduate and Postgraduate degree programmes, the faculty offers **Diploma Courses** and Inservice training programmes for the Officers of the State Animal Husbandry Department.

The College became a constituent unit of the Kerala Agricultural University in the year 1972 and has been named: 'College of Veterinary and Animal Sciences'. The basic degree offered has been retitled: B. V. Sc. & A. H. and the Post graduate degree as M. V. Sc. All the teaching programmes are under the Trimester System. The minimum duration of the undergraduate and Postgraduate programmes are fifteen and six trimesters respectively. The last two trimesters of the B. V. Sc. & A. H. curriculum are allotted to internship programme.

OUR DEPARTMENT:

Dr. M. N. Menon was the first Professor and Head of the Department of Surgery. He later became the Director of Animal Husbandry of Kerala State and then the Animal Husbandry Commissioner to the Government of India. Dr. K. P. D. Nair, Head of the Department of Pharmacology was in additional charge of the Department from 1961 when Dr. Menon left this institution. Dr. A. Venugopalan assumed charge as Professor and Head of the Department in 1964 and continued as such till 1978 when he was appointed as the Professor, Research Co-ordination of the Faculty. Dr. P. O. George was appointed as Professor and Head of the Department in 1978.

The Department offers undergraduate and Postgraduate programmes and imparts clinical instruction in the two Veterinary Hospitals attached to the College. Field extension programmes also forms part of the activity of the Department.

The present teaching staff of the department are :

Professor and Head	:	Dr. P. O. GEORGE
Associate Professors	:	Dr. K. N. MURALEEDHARAN NAIR Dr. A. M. JALALUDDIN Dr. S. RAVINDRAN NAIR
Assistant Professors	:	Dr. C. ABRAHAM VARKEY Dr. T. SARADA AMMA
Jr. Assistant Professor	:	Dr. K. RAJANKUTTY

AND THE SYMPOSIUM

During the three days of the Symposium, we are to discuss about 114 technical papers in 11 sessions. For the conduct of the symposium, we had been helped by our University, friends and colleagues within and outside, and the students of our Faculty.

I thank them all.

P. O. GEORGE

KEY NOTE ADDRESS

Dr. M. N. MENON

Ladies and Gentlemen,

I feel honoured that I have been invited to present the Key note address to this exclusive gathering of scientists on the occasion of this year's annual session of The Indian Society for Veterinary Surgery. As an Honorary member of the Society it is a matter of special pride to me that you have chosen the Kerala Veterinary College, Mannuthy as the alternate venue in the place of Gauhati presently the capital city of unfortunately the most troubled state of Assam. We pray, that normalcy be restored for the benefit of all Assam at the very earliest in the name of our professional fraternity.

Scire Ut Servatur

Lest you may have failed to take note of the Monogram 'Scire Ut Servatur' imprinted in the Kerala Veterinary College crest and emblem, let us remind ourselves that we seek to learn, to serve or to acquire knowledge for rendering service.

Members of profession dedicated to the pursuit of adding knowledge and skill to the particular and to manual therapeutics in general, for alleviation of animal suffering and pain. This could as well be our own Moto. Often I repeat the saying that as men of Science, either one should do some thing worth writing about or write something worth reading in the life span given to us.

The origin of Veterinary Surgery has its own hoary past when the hot-iron was freely in use in the hands of farriers' just as much as barber surgeons were the practitioners of surgery in Medical practice:

Professional Etiquette:

A profession as distinct from a vocation carries with it certain social obligations in that the members have to bring to bear in the discharge of their duties and performance of functions the dignity of character and the austerity attached to their self-imposed ethical standards which has an ennobling effect, elevating them to a position of respect in society

In India as a whole Veterinary Scientists and Specialists are by and large in Government or Quasi Government Employment just as most Medical practitioners were almost till the end of the 2nd World War. This is not a very happy situation since in the Service of Government as we all know, much time is lost in exercises inherent in the system for career improvement leaving only small scope for attaining professional excellence, though there will always be exceptions, to prove the rule.

PROGRAMME

Monday, 19-12-1983.

8.00 a. m. to 9. 15 a. m.

10.00 a.m.

12.00 noon

Registration of delegates

Inaugural Function

Guest Lecture: The Debt of Cardiac

Surgery to Laboratory Animals'

Dr. M. S. Valiathan, Director, Sree Chitra

Thirunal Institute for Medical Sciences and Technology,

Trivandrum

Chairman: Dr. S. J. Angelo

2 15 p. m. Session I - EXPERIMENTAL SURGERY I

Chairman: Dr. E. I. Rajendran

Rapporteur: Dr. V. Ramkumar

3. 30 pm. Session II- ORTHOPAEDICS

Chairman: Dr. O. Ramakrishna

Rapporteur Dr. A. P. Singh

4. 30 p.m. Session III- GENERAL

Chairman: Dr. V. Umamaheswaran

Rapporteur: Dr. A. P. Bhokre

5. 00 p.m. Session IV- RADIOLOGY

Chairman: Dr. A. K. Bhargava

Rapporteur; Dr. Godfrey David

7. 00 p.m. Film show and Cultural Programme

Tuesday; 20-12-83

9.00 a. m. Session V- THEME SYMPOSIUM: Surgical Affections of Musculo-skeletal system in bovines in Relation to Production'

Lead Paper: Dr. P. E. Kulkarni

Chairman: Dr. S. S. Rathore

Rapporteur: Dr. A. K. Sharma

11.00 a. m. Session VI- CLINICAL SURGERY I

Chairman: Dr. F. D. Wilson

Rapporteur: Dr. O. Ramakrishna

2.00 p. m. Session VII- CLINICAL SURGERY II

Chairman: Dr. A. A. Khan

Rapporteur: Dr. D. K. Murthy

4.30 p. m. Session VIII ANAESTHESIOLOGY I

Chairman: Dr. S. C. Pathak

Rapporteur: Dr. R. L. N. Rao

Wednesday, 21-12-83

9.00 a. m. Session IX- EXPERIMENTAL SURGERY II

Chairman: Dr. A. Venugopalan

Rapporteur: Dr. Gajraj Singh

10.30 a. m. Session X- CLINICAL SURGERY III

Chairman: Dr. B. Prasad

Rapporteur: Dr. S. K' Pandey

11.45 a. m. Session XI- ANAESTHESIOLOGY II

Chairman: Dr. P. H. T. Reddy

Rapporteur: Dr. D. S. Chouhan

2.00 p. m. Plenary Session.

Science And Technology

Events in the last two to three decades in the field of science and Technology have moved so fast and so kaleidoscopically that even to remain stationary one has perforce to keep forging fast ahead. If the aim is excellence a climate of unfettered activity must emerge, or has to be created.

Past Experience:

As Professor of Surgery and Head of the Department of teaching in the Veterinary College for over ten years and as an alumnus of that centre of higher Veterinary knowledge, I had taught what I had faithfully learnt. What was good then will not pass muster today since surgery has advanced by leaps and bounds. One aspect of advanced studies carried out then, was on providing a clinical cure in dogs by transthoracic partial oesophagectomy under positive pressure ventilation, for removal of Spirocerca nests from the oesophageal wall caudal to the base of the heart, it being the seat of predilection of this helminth parasite. This was also the subject matter on which the Fellowship of the Royal College of Veterinary Surgeons of Great Britain was conferred on me. To be one of the 138 Fellows in the world register of the Royal College, gave me personally some joy and won for the Veterinary profession in India a pride of place

Experimental Medicine And Surgery:

This was the time I had attempted to set up a unit of experimental medicine and surgery and, failed, for want of priority on Government's financial resources!. It was also at that time that I joined the Kerala Veterinary College here, as Head of the Department of Surgery and as Principal, immediately after.

Agricultural University And Vice-Chancellors:

This Institution which has since celebrated its Silver Jubilee has grown from strength to strength to gain pride of place for itself, abreast or even ahead of much older faculties, chiefly because of the support given to it by successive Vice-Chancellors (ALL BUT ONE OF WHOM WERE THE PRODUCTS OF THE INDIAN ADMINISTRATIVE SERVICE) consequent on the college becoming a constituent unit of the Kerala University of Agricultural Sciences. The academic council of the University had approved a proposal to create a new department of Experimental Medicine and Surgery. It seems time stood still in this matter as in many others with us, since any tangible progress on it is yet to materialise. This new department of teaching if and when it stands created must have on its panel of specialists, those who are skilled themselves and who can impart special skills to others. Also this department should have adequate resources at its disposal and relative autonomy to pursue projects, success in which can be measured only in the long term and not by the application of common yardsticks in which Government's accountants and audit staff are greater specialists.

It is in the same context that I see among those assembled here scientists and specialists of many disciplines of whom I am happy to single out for special mention the Professor of the EM & S division of the IVRI/ICAR, in Izatnagar Dr. Bhargava and the Director of Sri Chira Thirunal Institute of Medical Sciences and Technology, Dr. Vallathan the former in the Ministry of Agriculture and the latter part of the department of Science and Technology of the Government of India,

Both these units have achieved a record of excellent performance internationally comparable with many parallel organisations, of which the country has reason to be specially proud of. But, unhappily I am aware that the rate of growth and well being of the former. The EM & S division has already been affected adversely largely because of certain organisational problems affecting the employees of the Agricultural Research service of the ICAR. I believe that separate remedies will be found, sooner than later for this malaise.

National Institute of Experimental Medicine And Surgery :

I have no doubt in my mind when I say that the time is opportune for an independent institute of Experimental Medicine and Surgery being set up at the National level as another arm of the department of Science and Technology. The departments of EM & S in the Agricultural Universities could then profitably interact with it, as soon as these new departments get organised.

Biotechnology And Foreign Technical Collaboration :

Bio-engineering and Biotechnology are comparatively new fields to us, in which speedy progress would depend on international participation at the highest level. This is a matter on which there can be no difference of opinion whatever, as we are yet to learn to develop clear vision and act with foresight, free from narrow professional or individual scientific jealousies.

The Indian Society for Veterinary Surgery is an infant organisation of Veterinarians dedicated to the cause of practising the Veterinary Surgical Art. Within a period of less than ten years it has grown in size and strength. Its birth and rate of growth is proof of the need for greater and greater specialisation, in keeping with the fast advancing frontiers of scientific knowledge and the need for newer and newer technology to deal with many emerging problems.

Scientific Curiosity And Progress :

Time was, when scientific curiosity in deviation of popular ecclesiastic opinion was deemed a punishable offence, by the state and so looked upon by the men of science as well, Galen the Greek Physician (A. D. 130-200) who practised in Rome, wrote and described human anatomy on the basis of only dissections on animal bodies. Vesalius of Brussels was ostracised for having conducted unauthorisedly dissections on the human

body, clandestinely. The reason was that he had to differ from Galen on facts - Had not Galen's Anatomy held ground for fourteen hundred years!

Microscope Discovered :

It may seem strange to us today that it needed Jansen's microscope which was discovered in 1664, to confirm Harvey's findings on blood circulation to prove that arteries carried blood away from the heart and veins in the reverse direction, with capillary network between, providing the missing link for ensuring continuity of blood flow from and to the heart. Before Harvey in the 17th century, it was in fact believed that arteries were air channels since they were found empty upon death!

Antiseptics Discovered :

Two centuries after the microscope was discovered it became possible for Joseph Lister to establish, that wound healing is delayed by bacteriae in the same parallel as Louis Pasteur's discovery that wines got deteriorated because of bacterial contamination and undesired fermentation. Lister used phenol as an antiseptic and, who has not heard of phenol coefficient since then.

Anaesthetics Discovered : Surgical Precision Enabled :

Precision in surgery and sophistication of technology became possible in real life Medical practice only after the anaesthetic property of Ether was discovered by William Morton the U. S. Dentist who demonstrated it on himself and later assisted Dr. Warren of the Massachusetts General Hospital at a major surgery under general anaesthesia, using Ether. With Sir James Simpson's discovery of Chloroform for anesthetic use, many other chemicals volatile and non-volatile have become available for use, making surgery safe to the patient. This was some twenty years before Lister came into the scene.

Age of Antibiotics :

After antiseptics came the concept of asepsis and since the thirties of this century, antibacterials like Sulpha drugs followed by antibiotics like Penicillin discovered by Sir Alexander Fleming have made all kinds of major surgical interventions fully feasible. The antibiotic revolution has of course created its own peculiar problems, too much dependence being placed on it tending to make Veterinary surgical specialists and Medical men sometimes too complacent and callously careless. This must be avoided.

Pace Of Progress And Microsurgery :

We are almost on the threshold of the 21st Century and after the struggle through the centuries from the time of Sushruta of ancient Indian history, the founder of manual therapeutics and from that time when the Company of Barber Surgeons was founded in London in A. D. 1540, we are now in the age of microsurgery, when victims of accidents

to reach higher spheres of excellence and utility. Perhaps the squatting leg for human amputees is one long example and this could be a good pointer.

Organ Transplants and Artificial Heart Implants :

In the field of organ transplants and prosthetic surgery our specialists are able to offer service at much lower costs for similar efficiency. What is needed is a sense of national pride. It is said of (Late) Jawaharlal Nehru that he did not wish to avail of any Medical Facility which his own country could not offer to him.

It is not just kidney transplants, but, liver transplants too are in the process of being perfected. If newspaper versions are to be relied upon very soon there may be victims of potential cardiac failure walking about with artificial hearts complete with power source implanted. Experiments on sheep are said to have been completed and clinical trials in suitable volunteer patients pending a green signal after clearance of certain legal hurdles.

I have narrated some of these real life happenings only to indicate how science & technology has gained momentum in recent years. Earlier what took a century or more before a discovery made could be put into practical use, it now takes only as many years or less and Posthumous awards of Nobel-Prizes in fact have gone out of date.

In the newer field of neurosciences and neurosurgery also much is happening with which perhaps collaborative ventures between medical and veterinary scientists may share some relative priority. For a proper appreciation of bio-chemical responses and clinical enzymology, animal experimentations will be indeed indispensable.

Clinical Departments of Teaching and Ag. University Syllabi and Curriculum:

If excellence is our aim then we must also be prepared to pay the price for it. The face of surgery has changed unrecognisably from the the time I learnt animal surgery and taught several generations of students in that discipline. A matter for special concern however is whether in the present set up of Indian Universities of Agricultural Science, Clinical Departments of teaching and research will continue to get the priority they deserve. From the way postgraduate degree holders are mass produced in these subjects too, it seems quality has given room to quantity and what is more the urge to acquire wealth has affected Veterinary scientists also to such an extent that faculty positions of teaching and research are failing to attract the right candidates. These are portents which will have to be closely studied and science saved from the lure of money and material goods.

A. R. S. Status:

In this context a reference to the constitution by the ICAR in 1975 of its Agricultural Research Service, may merit mention. The aim was to provide necessary motivation for research scientists to stay on the job with a greater sense of dedication since the service offered quinquennial assessments of work done and results achieved and granting of promotions to higher grades of salary, IN THE SAME DISCIPLINE. But in effect it seems that there has been total disgruntlement in the manner that job assignments are made to

can expect to get the benefit of reconstructive surgery to reconnect all parts severed from the Institute, 'S. O. S. Hands' in Paris, where a team of specialists are devoted to working round the clock as we are given to understand. The rate of success in reconnecting and remodelling of parts severed, improves in direct proportion to the speed with which the victim is delivered on the spot with the part also collected and cleanly preserved in as much a state of freshness as possible under given circumstances. A delay of longer than 24 hours renders the effort largely fruitless except in very rare cases, as should be expected.

Viewing Lenses and Precision in Training:

First the arteries, next the veins and then the nerves are reconnected using needles of the diameter of one fiftieth of a mm, by super specialists in plastic and orthopedic surgery very carefully viewing the structures under powerful lenses of viewing microscopes. After basic Medical training careful selection is made for training potential specialist material for periods of intensive instruction extending over a period of two years and, another six months only on suturing. These experts on the job keep up their nimbleness of fingers and keenness of vision by further refresher exercises each week end and naturally take pride and pleasure in the work they do which enables near perfect normalcy being restored to the patient. The costs involved may be equivalent of over Rs. 50,000/- in uncomplicated cases, for reasons which are quite obvious. Our experts should be able to provide as good services at much lower costs.

Cess Fund Collection as a Fiscal Resource:

For service such as this resources will have to be found and specifically committed if 'HEALTH FOR ALL' is to be translated into action plans. In a welfare state where social services are given free of cost, some payment in the form of service cesses will have to be collected from every citizen so that we too can develop institution and service facilities which are second to none.

Veterinary and Medical Collaboration and Modern Surgical Innovations:

Surgical specialists assembled here may have all heard of flexible carbon fibres now more popularly known as Jenkin's Ligaments-being used in rebuilding crippled joints and restructuring of ligaments and tendons of fabulously priced race horses and racing Greyhounds, among animal patients. This became possible only because of true collaboration between the industry and, Medical and Veterinary scientists, in Britain in the recent past. The cost of treatment can be high but not unequal to the restoration of return to sporting life man and animal alike.

A more recent collaborative exercise is in the field of artificial skin produced from basic raw material like cowhide and shark's cartilages for prosthetic purpose, in the treatment of severe burns and scalds, substituting skin grafts, which has its own peculiar set of clinical problems. While the surface layer is made up of silicon plastic material which is to be peeled off after the take the deeper organic layer stays on.

Indian Institutes of Technology:

This is a technology developed by the Massachusetts Institute of Technology. Indian Institutes of Technology which have been developed on the MIT parallel could also enter into such collaborative ventures, provided due encouragement is offered by the state

ABSTRACTS

begin with and evaluations later carried out. This is a malady for which proper non-surgical remedies have to be found, before it become too late.

Ladies and gentlemen, before I conclude let me offer a word of thanks to the organisers of this annual assembly of specialist Veterinarians for inviting me to participate actively in your proceedings even though I may be termed a 'defector' scientist, in that I walked away to graze in other pastures, some two decades ago. I am aware that my long-term friendship with the President of the Society and with the organising Secretary of this year's session have been factors which influenced my presence here. My thanks are to them and to you all for your very patient hearing.

We are indeed happy that we have with us today The Chancellor of the University His Excellency Sri. P. Ramachandran and the Vice-Chancellor, Sri. T. Madhava Menon both of whom have shown special interest in our field of work and from whom greater and greater support in the years ahead can be expected to continue to come forth in good measures.

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G. R. ...
Columbia University

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EXPERIMENTAL SURGERY-I

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EFFECT OF ELECTRICAL STIMULATION ON THE CARBOHYDRATE METABOLISM OF DENERVATED MUSCLE OF DOG

O. Ramakrishna, E. David, V. Jayasree, S. Govindappa and P. Reddanna
College of Veterinary Science, Tirupati & S. V. University, Tirupati

Gastrocnemius muscle was denervated in 12 dogs. Following atrophy of the muscle electrical stimulation was given at different intervals. Changes in the carbohydrate metabolism of the control, the denervated, and the electrically stimulated denervated muscles, were studied. Electrical stimulation restored utilization of hexose-mono- and di-phosphates through HMP shunt and glycogenolysis, glycolysis and oxidative metabolism.

ELECTRODIAGNOSTIC TESTING IN GOATS: LOCALISATION OF POINTS OF STIMULATION AND DETERMINATION OF ACCOMODATION QUOTIENT, STRENGTH-DURATION CURVES, AND CHRONAXY VALUES, OF PRINCIPAL PERIPHERAL NERVES

Gaj Raj Singh; A. K. Bhargava; Adilakshmi Lakshmanan and I. V. Mogha
Division of Experimental Medicine & Surgery, IVRI, Izatnagar

Electrodiagnostic testing (E.D.T.) may be defined as the use of electrical stimuli to test the nerve and the muscle function when pathologic alteration in these tissues is suspected. E.D.T. had not found its widespread use in veterinary practice as the details of the technique and the normal sites of stimulation in different species of animals have not been described adequately. The present study is an attempt to localize the sites of stimulation for different nerves and to determine the normal values of various parameters related to E. D. T. in goats.

Six adult Black Bengal goats of either sex weighing 20-30 Kg. were utilized. The animals were tranquilized with 40-50 mg of triflupromazine hydrochloride given intravenously and controlled in lateral recumbency. The stimulator used in this study was Neuropan-9 that is intended for electro-diagnostic therapy and analgesia. Surface electrodes were used throughout the study. The indifferent electrode, a metal plate connected to anode (Positive terminal) was applied between the stimulating electrode (Negative terminal) and the brain or spinal column. A probe with insulated handle and round tip (1 cm) connected to cathode or negative terminal was used as a stimulating electrode. The output pulse wave forms used were rectangular and exponential (saw tooth-like) currents. The detailed method for determination of various parameters will be described during presentation.

In all, fourteen peripheral nerves were subjected for electrodiagnostic testing and the sites for their stimulation were determined after repeated examination. These sites were anatomically described. The accommodation quotient of different nerves varied between 2.50 to 3.88. The rheobase values for triangular and rectangular pulse characteristics were recorded between 2.7 to 12.37 and 0.72 to 3.85 respectively. The pattern of strength duration curve remained constant for all the nerves; however, the stimulus threshold at different pulse durations varied. The chronaxy values always remained less than 1 m. sec.

INFLUENCE OF GLUCOSE SALINE AND HAEMACCEL ON HISTAMINE AND HISTAMINASE LEVEL IN HAEMORRHAGE IN DOG

S. K. Pandey and V. Rai
College of Veterinary Science and Animal Husbandry, Jabalpur

Total blood volume of 18 normal unanaesthetised male mongrel dogs weighing 19 to 13 Kg were determined by isotopic dilution method using I-131 human serum albumen. The dogs were bled 40 per cent of their total blood volume through jugular vein puncture. The animals were then divided randomly into three groups consisting of 6 animals in each group.

In group I, blood samples before haemorrhage and after 1/2, 1, 3, 6, 24, 48, and 72 hours of haemorrhage were collected for histamine and histaminase estimation. This group acted as control and no treatment was given.

In group II, Gluco-saline (5%) was given intravenously after 1 hour of bleeding in the same quantity as bled. The sample collection and estimation procedures were the same as in group I.

In group III, Haemacel (polymer of degraded gelation) was given intravenously after one hour of the bleeding in the same quantity as bled.

In the control animals histamine decreased insignificantly 1 hour after bleeding and then started increasing until it remained significantly high between 5 to 24 hours after bleeding.

In glucose-saline treated animals, after an initial drop at 1 hour, histamine remained significantly high between 5 to 24 hours after bleeding.

In haemacel treated animals the drop in histamine level noticed at 1 hour was significantly high only at 5 hours after bleeding.

The histamine values were significantly below normal upto 5 hours in the control and glucose saline treated animals, whereas in haemacel treated animals it was significant only up to 3 hours.

STUDIES OF NEUROMUSCULAR FUNCTION IN THE HIND LIMB OF DOG AFTER FEMORAL ARTERIAL OBSTRUCTION

P. K. Samanta and B. N. Kolay
Electrophysiology Unit Department of physiology University of Calcutta.

In twelve sexually matured mongrel dogs of both sexes the twitch response of the hind limb to the stimulation of the peroneal nerve were monitored quantitatively before and after femoral arterial occlusion.

The experiments were designed for electrophysiologic studies to examine the motor function of the hind limb of the dog before and after such occlusion for a period of about two weeks

HISTOPATHOLOGICAL STUDY OF URINARY BLADDER WALL AFTER SUB-TOTAL CYSTECTOMY IN CANINE

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Department of Clinics

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Calcutta - 700 037, West Bengal

Subtotal cystectomy was done on six adult, male, mongrel dogs. The experimental animals were divided, on the basis of percentage of resection of urinary bladder, into group A and group B with three having 75% resection and three animals having 50% resection respectively. Just prior to the time of resection every experimental animal served as its control.

Against the normal transitional nature of the epithelium as has been generally held, the present findings are of interest; as in place of transitional epithelium the author has found stratified squamous epithelium in the bladder wall of both normal as well as experimental animals. The reigning controversy around the actual character of the normal epithelium of urinary bladder of canines gathers momentum from the present work. The present work, therefore, opens the question and advocates more elaborate work because of its obvious bearings.

A NON-ADDICTIVE BENZOMORPHAN COMPOUND, PENTAZOCINE, AS A SUITABLE ANALGESIC SUBSTITUTE FOR PETHIDINE IN PIGS SUBJECTED TO THORACIC SURGERY

G. Arthur Vijayan Lal., S. Bhaskara Rao., Ravi Prakash., and G. S. Bhuvaneshwar
Sree Chitra Tirunal Institute for Medical Science and Technology, Trivandrum

Pigs by virtue of the fact that they are fast growing animals, are ideal subjects for conducting experimental cardiovascular surgery. Their anatomical and physiological resemblance to human cardiovascular system has attracted great interest among research workers who have investigated different combinations of drugs for premedication (including restraint), induction, intubation, and maintenance of anaesthesia.

In our laboratory, more than 100 thoracotomies were carried out in pigs for the *in vivo* evaluation of prosthetic vascular grafts. Of those, 10 thoracotomies were utilised to evaluate the suitability of pentazocine, a non-addictive benzomorphan analgesic, as Pethidine is a narcotic analgesic with no freedom of use in veterinary practice.

The heart rate, ECG, arterial pressure (both systolic and diastolic) oesophageal temperature, blood pH, and blood gases were monitored.

It was found that the action of pentazocine as an analgesic was comparable to Pethidine during porcine anaesthesia, in terms of the measured parameters. The period of recovery was marginally increased due to the depressant effect of the drug on the respiratory system. The changes in the physiological variables and the level and quality of anaesthesia obtained, are discussed in this paper.

It is concluded that pentazocine is a good non-narcotic substitute for Pethidine.

PREOPERATIVE, INTRAOPERATIVE AND POSTOPERATIVE MANAGEMENT OF PIGS UNDERGOING THORACIC SURGERY - PROSTHETIC GRAFT IMPLANTATION IN THE DESCENDING THORACIC AORTA

G. Arthur Vijayan Lal., G. S. Bhuvaneshwar., Ravi Prakash.,
S. Bhaskara Rao and M. S. Valiathan
Sree Chitra Tirunal Institute for Medical Science and Technology, Trivandrum

Sus scrofa (the domestic pig) is an ideal animal model for various biomedical research procedures due to its similarity in physiological and anatomical characteristics to that of man. Pig was selected as our animal model as Wesolowski had originally noted that the healing rate of a 20 kg pig over a period of three months was comparable to the life of human body for three years. The preoperative, intraoperative and postoperative managements were documented in a series of 100 implantations. All the implantations performed in this laboratory were recorded from the initial trials with set backs, to the present successful and simplified techniques. This experience may be of use to various investigators and research workers who are interested in the use of a porcine model for cardiovascular experiments.

A NOTE ON THE THROMBIN CHARACTERISTICS OF ANIMALS AND MAN

B. J. Dare, S. Mahadevan., S. Dravidamani and V. Vijayasekaran
Madras Medical College, Madras-3

Thrombin is a vital cog in the wheel of clotting mechanism. It can be prepared from fresh plasma using a simple technic. This thrombin can be used not only for the clinical evaluation of various factors involved in the clotting of blood, but also for experimental studies.

The technic involved in the preparation of thrombin is to collect fresh citrated plasma and after proper dilution to gas it with CO₂ for 10 minutes in the cold. The turbid solution is spun in a centrifuge. The precipitate is collected and dissolved in saline. When the desired pH is obtained with sodium carbonate, addition of calcium chloride at 37° C produces a clot which is removed with a rod. The remaining clear solution is thrombin.

This study deals with the thrombin characteristics of various species of animals and man in the production of the clot. The results obtained in the study are discussed.

FURTHER STUDIES ON MODIFIED MARKOWITZ TECHNIC OF PANCREATECTOMY IN DOGS

B. J. Dare., S. Dravidamani., N. S. Vyas and S. Mahadevan
Madras Medical College, Madras-3

Although non-invasive methods are available for the induction of diabetes, pancreatectomy continues to be the choice in the experimental induction of diabetes in animals for diabetic research.

The technic of pancreatectomy as described by Markowitz was found to have certain difficulties in dogs and hence a simple technic was described earlier as a modified Markowitz

technic. In this modified technic the pancreas was not 'peeled off' as indicated by Markowitz but an improved method was advocated. Thus it was possible to maintain a 'clean' surgical field throughout the surgery.

In this study the different technics of pancreatectomy are evaluated both clinically and biochemically. The results are discussed.

RESPONSE TO SUPEROVULATION IN THE EXOTIC (M X P) EWES

S. G. Zanwar and B. R. Deshpande
Bombay Veterinary College, Bombay

Superovulation, fertilization and embryo transfer studies were conducted in 85 ewes. Oestrus was controlled in the animals with administration of Progesterone (12.5 mg) for 12 to 22 days and ovulation was induced with PMSG (Seragon/Folligon), administered one day prior to last dose of progesterone. Surgical insemination was done and the embryos were collected. Embryo transfer was done surgically in prepared recipients. The ovarian response was better with the administration of Seragon.

53 lambs were born out of 93 transfers from the Seragon group (56.98%) whereas 8 lambs were born from 25 transfers in the Folligon group (32.0%). Further studies are in progress.

ORTHOPAEDICS

BIOCHEMICAL STUDIES DURING DIFFERENT METHODS OF OSTEOSYNTHESIS FOR REPAIR OF TIBIAL FRACTURES IN BOVINE.

D. S. Vijaykumar., J. M. Nigam., and A. P. Singh
Department of Surgery & Radiology, College of Veterinary Science
Haryana Agricultural University, Hissar

Hanging pin cast (control), K-nailing and double stainless steel plating were performed following experimental tibial osteotomies in buffalo calves. Plasma concentration of proline, hydroxyproline, ascorbic acid, zinc, cortisol and glycoproteins were estimated one day prior to operation; and on the 1st, 3rd, 7th days, and the 2nd, 3rd, 4th, 6th, 8th, 10th and 12th weeks, post-fracture.

Increased activity of adrenocortical system was noticed immediately following fracture and immobilization. However, rigid internal fixation brought down such hyperactivity of adrenal cortex earlier than the other two methods of osteosynthesis. Zinc deficiency induced by trauma was found to be significant only in control group animals. Lower levels of ascorbic acid were observed in control and K-nail groups. Elevated levels of proline of plasma in control and plating groups indicated the rate of collagen turnover. Rise in serum levels of mucoprotein and glycoproteins at initial stages of fracture healing indicated the process of tissue destruction and depolymerization of ground substance.

EXPERIMENTAL STUDIES ON THE REPAIR OF FEMORAL FRACTURE IN CALVES

Prem Singh., Jit Singh., S. K. Chawla., A. P. Singh and P. K. Peshin
Department of Surgery & Radiology, College of Veterinary Sciences, Hissar

Studies were conducted on 12 calves, aged one to two years, divided equally into two groups, for comparison of K-nailing and double intramedullary pinning for repair of femoral fracture. The results were analysed on the basis of clinical signs and radiographic and angiographic observations.

Analysis of clinical signs showed that animals with K-nailing attained weight-bearing capacity of operated limbs earlier than that of double intra-medullary pinning. The post-operative complications like infection at the pin point, upward migration of pins and rotation of limb, were encountered more often in animals with double pinning than with K-nailing.

Radiographs demonstrated early and better callus formation bridging the fracture gap in animal with K-nailing. However, K-nailing resulted in generalised periosteal reaction and erosion of the cortical surface of distal fragment which was not seen in animals with double pinning.

Angiographic observations demonstrated comparatively more intense soft tissue hypervascularity at early stages and better vascularisation of fracture site at subsequent interval in animals with K-nailing than that of animals with double pinning.

BOVINE HORN PLATES IN INTERNAL FIXATION OF FEMORAL FRACTURE IN SMALL RUMINANTS : AN EXPERIMENTAL STUDY.

Gaj Raj Singh., A.K. Bhargava., and I. V. Mogha.
Division of Experimental Medicine & Surgery, IVRI, Izatnagar.

The traditional metallic bone plates have unfavourable effects on bone remodelling because they prevent the underlying bone being subjected to normal stresses. This so called stress shielding effect can be reduced by the use of plates made of more flexible composite material. In this study the plates prepared from bovine horn were evaluated in the femoral fracture of goats.

The plates were prepared easily on table grinder to desired size and shape and were kept in 70% alcohol at least for 24 hours before their use. Mid shaft transverse fracture of femur was created in six goats and the plates were fixed unilaterally with the help of stainless steel screws.

The animals started bearing weight on the affected limb on the following day of surgery, however, the animals remained lame for about a week. No abnormal external swelling or infection was observed in all the animals.

The radiograph taken at different intervals showed undisturbed fracture-healing with well-defined osseous callus. Since the horn plates were radiolucent, the changes in the bone plates could not be observed radiographically. No periosteal reaction or thinning of cortex at the site of contact with the bone was seen. The overall radiographic observations suggested that the plates prepared from horn did not cause any unfavourable reaction in the host-bone at the site of contact and were capable of maintaining undisturbed alignment leading to early healthy fracture union.

FRACTURE HEALING FOLLOWING ELECTRIC STIMULATION IN BUFFALO CALVES: A RADIOLOGICAL AND HISTOPATHOLOGICAL STUDY.

J. Saika., A.P. Singh., and I.S. Chandna.
College of Veterinary and Animal Sciences, Gauhati.

Fracture gap in the mid shaft of ulna was created experimentally in 21 male buffalo calves by open method under chloral hydrate narcosis and local infiltration analgesia. The animals were divided into two groups. In one group (Group-A) the fracture gap was left as such to heal on its own accord, while the other group (Group-B) was given exposure to Direct constant current of 20^{uA} into the fracture gap. Plastercast covering the full length of the bone was applied in all the animals. The animals were maintained for varying periods upto six months. The healing process was assessed on the basis of Roentgenological and histopathologic examinations.

Early bridging of the bone defect with dense callus was noticed in the animals given electrical stimulation. The bone defects healed completely in all the animals of this group by the sixth week of observation, whereas only three-fourths of the gap was filled up by less dense callus in the control group.

INFLUENCE OF CERTAIN HORMONES ON HISTOLOGICAL AND BIOCHEMICAL CHANGES IN CALLUS FORMATION IN THE DOG

S. K. Pandey

College of Veterinary and Animal Husbandry, Jabalpur

Twenty four male mongrel dogs weighing between 7 to 10Kg were used for the experiment. An artificial fracture of tibia was created in each of these animals and the fracture was immobilised by intramedullary nailing and plaster cast. The dogs were divided into 4 groups consisting of 6 animals in each group.

In Group I, after fracture and immobilisation, no other treatment was given and the animals were treated as control.

In Group II, growth hormone was injected intramuscularly at the rate of 0.3 mg/kg body weight at weekly intervals upto 23 day. The first injection was given immediately after the fracture.

In Group III, anabolic hormone was injected intramuscularly, at the rate of 25 mg per dog per week up to 23rd day.

In Group IV, Betamethasone injected at the rate of 8 mg per dog on first day and then 4 mg on second and third day. From fourth day onwards Insulin-zinc was injected (2 units per kg body weight) intramuscularly upto 23rd day.

Three animals from each group were sacrificed on 30th and 60th day and the callus was removed for histochemical (Hale's colloidal iron stains) and biochemical estimation of collagen (Neuman and Logan, 1950) and muco-polysaccharides (Rondle and Morgan, 1955).

The treatment with growth hormone, anabolic hormone, and Betamethasone-Insulin-Zinc, showed rapid endochondral ossification due to excessive proliferation of all cellular components. Increased osteoblastic activity was apparent in all the groups. However, better healing pattern could be seen in Betamethasone-Insulin-Zinc treated animals. Total collagen and mucopolysaccharide contents did not show significant difference between the various treatment groups.

PERONEAL PARALYSIS IN A GOAT

S. S. Misra, S. J. Angelo

Department of Surgery & Radiology

College of Veterinary Science & Animal Husbandry, Uthar Pradesh, Mathura

Paralysis of the peroneal nerve in caprine has not been encountered in the perused literature so frequently.

A buck aged 3 years was brought to the departmental clinic with pronounced physical manifestation of dragging its right hind limb. The ailment was noticed all of a sudden in the early hours of the day by the attendant. The buck, otherwise was normal. Anamnesis led to

some evidence of physical trauma of the affected hind limb having been caught in the wire netting of the enclosure. The sensory perception in the affected limb was normal but physical incapacitation of the limb characterized by loss of motor control was pronounced. The animal invariably bore weight on its pastern of the limb. The limb appeared longer vis-a-vis contralateral limb.

Peroneal paralysis was diagnosed on the basis of cardinal manifestation. Treatment consisted of providing adequate dosage of Tonophosphan and Neurobion biweekly and daily respectively for adequate period. The affected limb was encased in a light plaster of Paris cast right from the mid tibia to the pastern. A five day course of Siganril tablets, twice daily was concurrently administered.

A dramatic relief leading to recognizable recovery was noticed on the 7 day of treatment; the weight-bearing on the limb was significantly improved. The case was removed on 18th day and the buck made an uneventful recovery.

INCIDENCE OF PULMONARY EMBOLISM IN SURGICALLY INDUCED FRACTURES AND INTRAMEDULLARY PINNING

Sabitri Debi, Rama Kumar V. and V. K. Sobti
Department of Surgery and Radiology
Punjab Agricultural University, Ludhiana

Study was conducted in 24 clinically healthy dogs, by inflicting regular fractures on surgically exposed tibiae. In 12 of these animals (group I) intramedullary pinning was carried out immediately after fracture. Blood samples were collected from catheterised carotid artery and jugular vein at 5 mts, 10 mts, 30 mts, 1 hr, 2 hrs, 24 hrs, 48 hrs and 72 hrs following creation of fracture and compared with pre-operative values. In group II, Samples were collected just after pinning as well. E. C. G. recordings were also made upto 2 hrs. post fracture. There was no evidence of arterial hypoxemia except when anaesthesia was induced. However, in group II there was evidence of arterial hypoxemia. The possibility of exhalation of pulmonary embolism as a result of intramedullary pinning is discussed.

STUDIES ON THE REGIONAL OXYGENATION AND CELLULAR ACTIVITY DURING EARLY PHASE OF FRACTURE HEALING IN DOGS

Sabitri Debi, Rama Kumar V. and Nagpal, S. K.
Department of Surgery and Radiology
Punjab Agricultural University Ludhiana

Uniform transverse fractures were created on tibia in 24 clinically healthy dogs. Animals were divided into 2 groups of 12 each. Immobilisation of fracture was done with simple coaptation in one group and by intramedullary pinning in the other. Blood samples were collected from exteriorised femoral artery and vein before induction of anaesthesia, before creation of fracture and at 24, 48 and 72 hrs interval post-fracture. Four animals from each

group were sacrificed at 24, 48 and 72 hrs and the callus collected for histomorphologic and histoenzymologic studies.

It was observed that oxygen transport of affected limb showed a varied trend when compared to the rest of the body. At 72 hrs post-fracture SaO_2 of femoral vein showed a significant reduction, independent of SaO_2 of corresponding artery; elevating D. E. R. significantly. This phenomenon was accompanied by an elevated cellular activity and a proportionate enzymic activity. Conversely early healing was comparatively poor in the group in which intramedullary pinning was done.

ECONOMIC EVALUATION OF THE VETERINARY SERVICE

- C -

A. J. ...
Department of ...
College of ...

Major Veterinary Service ...
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MUZZLE PRINTOMETRY VS. MUZZLE PHOTOGRAPHY FOR IDENTIFYING CATTLE AND SWINE

S. N. Pankey
General Veterinary College, ...



Muzzle prints have been found valuable for identification of persons and animals (Pankey, 1970). Cattle and swine muzzle prints have been differentiated; the ridge characters of identical and non-identical prints have been studied and procedure of registration of prints by muzzle printometry and grain analysis (Pankey, 1972). Despite satisfactory occurrence results of previous experiments, a number of difficulties were encountered in obtaining full clear prints.

GENERAL PAPERS

- i) ...
- ii) ...
- iii) moisture effect blurred the prints and ...
- iv) ...
- v) ...

Muzzle photography was therefore, successfully tried in order to determine whether this could detect all defects of prints and also furnished a new method for making accurate study of muzzle characters. By studying arrangements of ridge prints, the exact size of prints, the size of the pleura and ... The observations found in previous studies were confirmed by the study of muzzle photographs.

MANAGEMENT OF ...

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ECONOMIC EVALUATION OF MAJOR VETERINARY SURGERY

A. R. Rao and D. Krishnamurthy,
Department of Veterinary physiology & Surgery,
College of Veterinary Sciences, Hissar.

Major Veterinary Surgery is carried out mostly in institutions where cost accountability is not strictly practised. All the major inputs like equipment, skilled man-power, supportive therapy and loss of working time during convalescence have been counted as inputs and weighed against returns. (as milk output in buffaloes treated for diaphragmatic hernia.) Comparisons with other major surgery like rumenotomy, caesarean section, repair of urinary bladder, etc. are discussed.

MUZZLE PRINTOMETRY VS MUZZLE PHOTOGRAPHY FOR IDENTIFYING CATTLE AND BUFFALO

S. N. Pandey
Ranchi Veterinary College, Ranchi

Muzzle prints have been found suitable for identification of cattle and buffalo (Pandey, 1979). Cattle and buffalo muzzle prints have been differentiated; the ridge-characters of identical and non-identical prints have been studied and possibility of age-determination of animals by muzzleprintometry has been explored (Pandey 1981, 1982). Despite surprisingly accurate results of previous experiments, a number of difficulties were encountered in obtaining full clear prints;

- i) a full clear print could hardly be obtained;
- ii) minute structures were not represented on prints;
- iii) moisture-effect blurred the prints and furnished erroneous dissimilar structures;
- iv) Smudge formation was one of the major drawbacks of muzzle prints; and
- v) muzzle prints suffered inaccuracy in drawing the base line.

Muzzle photography was, therefore, successfully tried in place of muzzle printometry. This ruled out all defects of prints and also furnished a new useful land mark for accurate study of muzzle characters. By adjusting enlargement of photographs to the exact size of muzzles, the area of the planum nasolabiale was assessed. The indications found in previous studies were confirmed by the study of muzzle photographs.

MANAGEMENT OF FOALING IN MARES AND DISEASES OF THE NEW-BORN

S. S. Rathore

The signs exhibited by the mare before calving and the common diseases encountered in the new-born foal are listed.

A. Signs of "near-foaling" (A few days before foaling)

1. **Development of udder:**
 - i) Let down of milk
 - ii) Dripping of milk (some mares)
 - iii) Swelling or oedema of udder
 - iv) Waxing of udder and teats
 - v) Enlargement of vulval lips
2. **Relaxation of Sacrosciatic ligaments:**
 - i) Bilateral depression at the root of the tail
 - ii) When the animal walks a distinct looseness is seen
3. **Drooping of abdomen (relaxation of muscles).**
4. **Animal becomes dull and depressed, feels uncomfortable while walking.**

B. Signs of foaling:

- Animal shows signs of colic
- Pawing
- Looking at the belly
- Sits and stands frequently
- Moving in circle
- Frequent urination
- Defecation
- Sits down (some mares may remain standing)
- Straining starts. (Cut the suture line if the Casslick operation had been performed.)
- Water bag protrudes from the vagina
- Mare at this stage lies sideways and strains
- Both fore limbs of the foetus, one after the other, travels through the birth canal.
- Head starts coming out if in normal position.
- (At this stage the head position should be checked for any abnormality.)
- Let the mare strain and expell the foetus out.
- Mare may be helped by applying gentle traction to the foal without putting hands in the birth canal.
- Open up the bag if already not ruptured so that foal can come out and breath.
- Foal comes out and lies on ground with placenta still attached to it.

Do not cut the naval for 15 minutes or till the foal or mother moves and it is torn off on its own (This gives extra blood to foal).

Mare starts licking the foal.

Placenta may hang on to the mare at this stage or will start coming out soon.

Tie a knot to the hanging part of the placenta or bag.

Foal will start attempting to stand up after 10-15 minutes and may stand up, or take as much as 2 hrs

As soon as the naval is torn apply Tr. Iod. liberally or soak the stump in Tr. Iod.

Do not help the foal till it is confirmed that he can't stand up on his own.

Once the foal stands up, it will start approaching the udder for sucking.

Wash the teats with luke warm water and apply Glycerin on teats after stripping some milk.

Let the foal suck. Make sure that there is milk in udder, if not, feed artificially other mare's milk by bottle.

Let the mare remain sitting. Do not make her stand, but if she does stand up on her own, let her do so.

During all this process the mare may pass out the placenta. Remove placenta from the foaling box and examine if it is complete or part of it is broken and is still inside the uterus.

Placenta should be buried in the ground.

Put 4 Furea Bolus in uterus. Inject antibiotic to the mare and foal.

Doctor incharge should not leave the place till the foal has passed meconium. If it is delayed give luke warm soap water and liquid paraffin enema and see that balls of meconium does pass out.

If the mare needs suturing it should be done just after foaling while the mare is sitting or if not may be after covering on foal heat.

Mare should be washed (hind parts) with luke warm water and soap. Do not use pressure pipe water on vulval lips, as water may get into the cavity.

DISEASES OF FOAL

1. Premature foal

2. Inherited, congenital anomalies:-

Atresia Ani, Eye deformities, cleft palate, torticollis, umbilical and scrotal hernias, cryptorchid, bowed tendons, contracted tendons, patellar luxation, pervious urachus, urachus-ruptured urinary bladder.

3. Traumatic injuries, torsion of intestines, joint ill, intussuception, volvulus, retention of meconium.

4. Bacterial.-

E. Coli, klebsella, salmonellosis, streptococcus equi, corynebacterium equi, necrotic hepatitis and icterus enterotoxemia, Neonatal isoerythrolysis.

5. **Viral :-**

E. I. A., Rhinopneumonitis.

6. **Unknown causes :-**

Interstitial Pneumonia. Poly arthritis, shaker foal syndrome. Wobblers syndrome.

THE BLOW GUN PIPE-AN IDEAL EQUIPMENT FOR CHEMICAL IMMOBILISATION OF ANIMALS



B. M. Arora

Scientist (WL), Wildlife Section, Division of Epidemiology, I.V.R.I., Izatnagar

A five feet long ordinary aluminium pipe and dart/projectile syringe of 2 ml capacity (filled with 'Rompun' and/or 'Ketamine'), was used to immobilise the animals. Twelve wild captive animals, three cattle, and four stray dogs were subjected for the study. Immobilisation/tranquilisation was accomplished without any noticeable untoward effect.

The operation of the equipment does not produce any sound. The animal is not frightened or disturbed except for a brief defensive reflex observed in sensitive animals.

The equipment is therefore, useful for:

- i) restraint / immobilisation of animals for clinical procedures.
- ii) vaccination programmes and
- iii) destruction of stray dogs.

- D -

Dr. R. E. Collins

State University College, Albany, New York

It is a pleasure to have your attention and appreciation that we are going to have a number of papers on the subject of the use of the microscope in the study of the structure of the cell. The use of the microscope in the study of the structure of the cell is a subject of great importance and one which has attracted the attention of many workers in the field.

Some of the papers in this volume are on the use of the microscope in the study of the structure of the cell. Some are on the use of the microscope in the study of the structure of the cell. Some are on the use of the microscope in the study of the structure of the cell. Some are on the use of the microscope in the study of the structure of the cell.

These papers are a valuable contribution to the study of the structure of the cell. They are a valuable contribution to the study of the structure of the cell. They are a valuable contribution to the study of the structure of the cell.

THEME PAPERS

The first paper in this volume is on the use of the microscope in the study of the structure of the cell. It is a valuable contribution to the study of the structure of the cell. It is a valuable contribution to the study of the structure of the cell.

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The third paper in this volume is on the use of the microscope in the study of the structure of the cell. It is a valuable contribution to the study of the structure of the cell. It is a valuable contribution to the study of the structure of the cell.

LEAD PAPER ON SURGICAL AFFECTIONS OF MUSCULO-SKELETAL SYSTEM OF BOVINES

Dr. P. E. Kulkarni

Nagpur Veterinary College, Nagpur-440 006

It is a matter of great satisfaction and appreciation that we are going to have detailed discussions on the orthopedic diseases of cattle as a main theme of our symposium. Selection of this theme for the 7th Symposium of Indian Society for Veterinary Surgery is a distinct indication of the awareness of the Society to live upto its objectives inuniciated in its constitution.

Surgical affections of bones, tendons, joints ligaments, nerves and blood vessels of limbs of cattle are receiving due attention of Veterinary Surgeons through out the World, during the recent past. The conditions falling under this category may not be of such a great importance to the Veterinary Surgeons in the developed countries as they are to those in the developing countries like ours where cattle is the major power for agricultural operations and transportation. It would be interesting to quote the immense magnitude of contribution extended by the dumb creatures in transportation without any noise or pollution.

India proudly possess a high rank in the World in so far as the milage of rail tract is concerned. The total tonne kilo meterage handled by this gigantic organization is 2,25,000 per day which is again a World record. It is however, established that tonne kilo meterage carried out by the bullock carts, and to little extent on the backs of animals, is distinctly higher, and perhaps the highest in the whole World.

Animals, which are the locomotive power for transportation of such an immense magnitude, deserve a special attention for maintaining their locomotor system in sound condition so as to keep up the agricultural operations and transportation going uninterrupted.

Systematic study of various aspects of the affections of orthopaedic system of bovines has been undertaken during the past two decades in India. Appreciably good work has been reported throughout the country. A review of the work done in our country indicates that the work is comparatively more concentrated on the treatment aspects of the various ailments of the locomotor system of cattle, though during the past 10-15 years a few papers reported the deep and indepth study of these conditions.

The most commonly occurring condition is fracture of long bones. The types of fracture, bones involved, animals affected and other such points of study is valuable from statistical point of view, for suggesting the relative importance of specific type and bone affected. This in term may demand more attention to the techniques of reduction and retention of fractured bone.

Reduction of fractured fragments of bones, particularly in over riding type, pose a difficult problem especially when more than a week has passed after the injury. Breaking of adhesions demands a careful approach especially in cases where the bones are deeply embedded in thick bellias of muscles, or in the vicinity of important nerves and major blood vessels. Another impediment in effecting reduction is immense contractile power of the

skeletal muscles. A potent and safe muscle relaxant is therefore an immediate requirement for the field Veterinary Surgeons who would not be able to undertake the fracture treatment under general anaesthesia. Deep sedation, light anaesthesia, and use of muscle relaxants such as xylazine have been reported to help in reduction of the fractured fragments the bones. Large scale trials are still awaited for its acceptance in the field. It is necessary if a mechanical device could be evolved to effect the reduction without much struggling and traumatising the adjacent tissues.

A large number of papers have been published in India and abroad on methods for retaining the fractured bone pieces in proper position. Various techniques have been reported with varying degree of success. An interesting finding in this regard is that most of these techniques have been first tried in human surgery and subsequently adopted with some inevitable modifications for large animal surgery. Non-co-operation of the patient, managerial practices, size of bones, anatomical variations and finally the tremendous muscular power have either singly or in combination reduced the degree of success of the techniques. It is the experience that bone plates often fail and on trigger method may lead to some infection in the bones. Large size of medullary cavity has posed problems for intra-medullary pinning techniques. In the 5th symposium of our Society a nice paper was presented in which various complications encountered in fracture healing have been described.

Another important factor deserving serious attention is the cost of treatment. The present high cost of treatment of fracture will have to be reduced so that the benefits of improved techniques would be within the reach of the poorer rural livestock owners. Attempts in this regard are being made by substituting the costlier plaster of paris by easily available cheap resin, replacing stainless steel pins by motor cycle spokes in on trigger method and such others. These attempts are too meagre and need be expanded so that a substantial benefit would be accrued by the farmers and livestock owners.

A valuable contribution in the field of fracture treatment, would be revolutionary, if a successful line of treatment is found out to reduce the time required for bone healing. The present day period of a minimum of three weeks is not only keeping the animal stationary but also directly and indirectly contributes in development of complications after the surgical treatment. Serious efforts are therefore warranted to stimulate bone healing and thus reducing the period of healing creating hypoxic condition at fracture site, local applications of attenuated staphylococcal culture, parenteral administration of colloidal calcium along with anabolic hormones, use of herbal medicines and electric stimulation are some of the efforts made in this field. Further research in this field is indicated so that commendable success could be achieved and working as well as productive capacity of bovines restored at an early date.

Alongwith the exotic bread (imported for cross breeding of our indigenous cattle) we have knowingly or unknowingly imported the diseases hitherto unknown in our country. To quote an example 'Hyaena Disease' is recorded in Western European Countries in Friesian cattle, characterised by hypertrophy of fore quarters and atrophy of hind quarters. There may be a possibility that this condition may make its appearance at any time in our country also. Perhaps with the increasing importance of the bovines in rural economy and also due to progress made during the past two decades in the clinical fields, diagnostic skill has improved. The world in true sense has been smaller and knowledge and information has been flowing rather more freely. These factors do compell us to keep a watch on the disorders investigated and reported in other parts of the world.

Correlation of naturally occurring deficiencies of certain salts, minerals or trace elements or presence of excessive quantity of the other, with the development of musculo skeletal disorders, is scarcely reported in bovines. Contribution of these factors in the development of disorders of locomotor system in certain areas of the country will have to be studied through a multi-disciplinary approach. Such projects will have to be taken on a priority basis.

Luxation of joints has been considered as a disorder of great importance. Luxation of shoulder joint is considered as of rare occurrence in most of the parts of the world but during past three years we have encountered as may as 16 cases. Investigations on such a higher incidence is on hand and the results would throw light on its etiology and other aspects. Luxation of hip joint has been a condition difficult to tackle in large animals. Though diagnosis of the condition is not difficult, the treatment is always challenging. Here again reduction of the joint could be achieved with comparative greater care but retention of components of joint in their normal position is a problem and hence demands a serious attention. Immobilization of the affected area is necessary to avoid weight bearing by the affected joint. Such an immobilization is also a great asset in the treatment of fracture and other conditions. Immobilization of the limb with the help of body sling and further improvement in this method, is just the beginning in this particular field. Further improvement in the technique and introduction of some new methods is the need of the day.

Luxation of coxofemoral joint in bovines has always been a difficult condition to treat, the acetabular cavity being comparatively more shallow than that seen in equines. Reduction of the luxated joint becomes more and more difficult as the time passes off, due perhaps to the adhesions and haematoma in the acetabular cavity getting organised. Passive movements of the joint and slow traction of the affected joint do help in reduction of the joint. Retention of the joint again is problematic as with movements and bearing of body weight results in recurrence in most of the cases. Attempts to immobilise the limb with figure of eight bandage over stifle and hock joints are not successful in large animals. Body slings and their modifications do provide satisfactory results but a lot is required to be done in this regard to make this technique sophisticated and more reliable.

Luxation of other joints is not of common occurrence and very little work appears to have been done in this regard.

Septic arthritis consequent to punctured wound is commonly encountered. Success in the treatment of the condition largely depends upon response to antibiotic coverage provided both parenterally and locally. An important factor whether the affected animal should be given exercise or not deserves a detailed study as controversy still exists in this regard.

Rheumatic arthritis and muscular dystrophies are now being paid attention to. Especially during the period of change of season, the owners complaint that the working bullock has stiff gait during first few minutes of work, which may be considered as suggestive of these conditions. There exists a good scope for research in this field.

A fairly large quantum of work has been done on upward fixation of patella since three decades. With the exception of a few papers on possibility of genetic inheritance, biochemical changes in the synovia of the affected joint, most of the papers are on the techniques of desmotomy. Probably due to the introduction of simple, quick, safe and effective surgical technique, not much attention is given to the etiology of this condition. It would

probably be interesting to search the exact reason why animals in particular tracts are more commonly affected. Whether it has something to do with the soil composition or quality is not yet investigated.

Contracted tendons and accidental cutting of tendons are the two surgical conditions of the digital flexor tendons in bovines. Partial tenotomy with passive extension of the limb has produced satisfactory results in congenital contracted tendons. Many reports have appeared in Veterinary press, on the surgical tenorrhaphy. An important factor in the treatment of ruptured tendon is to avoid tension on suture line. Moreover indepth study is necessary to know the pathological changes in the injured tendon as well as the process of healing of tendon. An encouraging success has been achieved in latest technique of xenografting. Further work on this aspect will confirm the earlier report and probably may simplify the process of reduction in antigenicity of the grafts and thus eliminating the possibility of rejection.

With the introduction of crossbreeding programme in our country, affections of foot have made their appearance and hence deserve a place in course curriculum. It is a matter of satisfaction that the work in this field has been initiated in the area where the incidence of foot affections is fairly high. Diagnosis and treatment of foot affections are not so easy. Constant contact with dung, urine and soil makes the medicament less effective. Techniques will have to be introduced to keep the affected foot clear off the soiling agents so as to bring about not only, early healing but also, to prevent the upward travelling of the infection in the tendon sheath resulting into tenovaginitis.

It is needless to state that the affections of the musculoskeletal system mentioned earlier adversely affect productivity of draught and milch animals. Reduction in the draftability of working bullock should also be considered as the loss in productivity of the particular animal as the work put in by the animal gets adversely affected. This view point, it is hoped, would be given a special attention in the light of great contribution of the bullocks as the power behind agricultural operations and in the transportation of persons and goods in the developing country like India amongst rural masses.

It is hoped that some food for thought is provided in this attempt and some good work would be reported in the near future by the young, enthusiastic and intelligent member brothers of this active society.

PROLENE AND PGA AS SUTURE MATERIALS FOR TENORRHAPHY IN BUFFALO

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Prolene (a non-absorbable suture material) and polyglycolic acid (PGA - a synthetic absorbable suture material) were used for tenorrhaphy of superficial flexor tendon and they were compared with linen suture material. The healing was evaluated by clinical examination; macroscopic and microscopic examination of biopsy specimens collected at 8, 15, 30 and 60 days; and by evaluation of tensile strength of the healed tendon. There was uneventful

healing in all the groups of animals and no complications were observed. There were no signs of lameness except in one buffalo calf of linen group, which had accidentally injured the limb. The healing of tendon and organization of fibroblasts and connective tissue were better in prolene and PGA groups. The tissue reaction produced by linen was maximum followed by PGA and prolene. There was a gradual increase in tensile strength upto 60th day and stimulated the laying down of fibroblasts and collagen fibres.

Prolene and PGA can be successfully used for tenorrhaphy.

VASCULAR DEFORMITIES OF THE LIMBS

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Different kinds of arterial injuries can occur secondary to trauma to the limb. These may be accompanied by external bleeding and may result in ischemia. There may be contusion of the arterial wall and thrombosis which can lead to aneurysm (true or false) and arteriovenous fistulas. If the extent and location of the injury is diagnosed at an early stage the whole limb can be prevented from undergoing ischemic changes. Repair of artery can be done by end-to-end anastomosis, interpositional grafting or bypass grafting. Diuretic like mannitol or lasix should be used to avoid hemodynamic load.

Arterial occlusion or arteriovenous fistula has been recorded in cattle causing hoof deformities, avascular necrosis or gangrenous tail. The conditions remain undiagnosed and thus it either leads to irreparable changes or formation of shunts as compensatory mechanism.

Varicose veins are frequently seen in cattle secondary to hoof injuries. There may not also be primary injuries to vein, on the basis of spontaneously occurring cases of unknown etiologies. There had been incidences of arteriovenous shunt. Blood flowing from arteries to vein may also show as its varicosity.

Plough-head injuries, or sharp cuts can lead to arteriotomy where ligation remains the answer. Prognosis in such cases will depend on how much arterial supply is compensated. Arterial injuries causing lameness in animals can be of various types:

1. Lateral laceration of the artery may present with external blood loss in an open wound or as a pulsating hematoma in a closed wound.
2. An artery may be totally transected either by sharp division or traction.
3. Traction or direct blunt trauma may cause contusion or intimal fracture with thrombosis.
4. Traction may cause aneurysm as shown in animal models that aneurysm can be induced following disruption of intima
5. False aneurysm always results from either external or internal penetration from a fracture with disruption of the side of the vessel.

6. An arteriovenous fistula-usually associate with a penetrating injury, but may not be apparent until several days. Such cases may not produce even ischemia, but it is not difficult to diagnose such fistula if a surgeon is well aware of the clinical syndrome (Pulsation in vein). Ligation of the communication will lead to cessation of blood flow in vein & stimulate early establishment of collaterals.

Angiography should be carried out to establish the site of lesion pre-operatively & post operatively to ensure that distal flow is adequate. Periodic angiography of bovines foot revealing very interesting observations will be presented along with 35 mm transparencies. Experimental trials to account for secondary changes following volar arterial ligation, which failed to induce navicular disease in horses, will be discussed.

It is desirable to explore the possibility of arterial injury in any case of major trauma, specially blunt trauma below the hock. The absence of pulse distal to injury, pulsation of vein, and varicose vein in the extremities in the presence of hemodynamic stability, demands angiography or surgical exploration. Early immobilization of skeletal injuries can minimize vascular damages. Lack of arterial supply specially following arteriovenous fistula, may lead to avascular necrosis and sloughing of hoof in bovines & equines.

LAMENESS IN BULLOCKS

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Clinical study on lameness in bullocks as regards the prevalence, aetiology, symptoms, pathogenesis, radiographic study, estimation of serum and synovial fluid values, and treatment was conducted by the department of Surgery at Veterinary Polyclinic, M.A.U. Parbhani from the period 1979 - 83. A total of 392 clinical cases of lameness in bullocks brought at veterinary polyclinic for investigation and treatment formed the material for this study.

Prevalence of lameness was more common in bullocks than in other domesticated animals. Out of 514 cases, 392 cases were observed in bullocks only. Maximum cases of lameness were reported in the month of May & June when agricultural operations are at peak. Involvement of fetlock joint was more common, followed by shoulder, elbow, stifle and other joints of leg. The forelimb was affected in the majority of cases than the hind limb, but involvements of right and left limbs were similar. No breed predisposition was observed; bullocks between 5-10 years of age group were affected mostly.

The prominent aetiological factor responsible for lameness was trauma like: hit against hard object, pulling of heavy load on uneven ground resulting in severe sprain. Allergic reaction due to insect bite caused lameness in some cases. Infectious arthritis due to staphylococci, streptococci and pseudomonas organisms was evident in a few cases. Symptoms of varying degrees of lameness were seen. Radiographic study of the affected joint revealed no information in traumatic lameness. In chronic cases of lameness, marked osteoarthritic changes with bony exostosis of fetlock, pastern and coffin joints, with periosteal reaction and proliferation of osteoblasts, were observed.

Biochemical study of serum calcium, phosphorus and total protein values were done in osteoarthritic cases of lameness. All the values were within the normal range. Study of

synovial fluid for pH, glucose, alkaline phosphatase, protein and mucin content were conducted. The pH, alkaline phosphatase and mucin test were within the normal range. The glucose and protein values were found to be elevated suggesting traumatic damage.

Treatment of lameness was based on aetiological factors for traumatic lameness (sprain) and treatment with phenylbutazone and amydopyrin injection, analgin injections and local application of anti-inflammatory agents improved the cases. In those cases where joint was affected, an intrasynovial injection of corticosteroid 12-18 mg cured the condition. For allergic lameness a combination of antihistaminic, diuretic and anti-inflammatory treatment was advocated.

In infectious cases the synovial fluid was aspirated and cultured for antibiotic sensitivity tests. Intrasynovial treatment of the drug to which the bacteria were sensitive was used with corticosteroid. Chronic cases of lameness where osteoarthritis had developed, did not respond to any of the above treatments.

INTRA-ARTICULAR INJECTION TECHNIQUES FOR THE MANAGEMENT OF OMARTHITIS AND COXITIS IN BOVINE

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Acute/chronic inflammatory conditions of scapulohumeral joint (omarthritis) and coxofemoral joints (coxitis) are quite frequently encountered in the clinics and pose a serious therapeutic concern to the Surgeon/Clinician. Omarshritis and coxitis are pronounced clinical entities in draught animals and milch animals; and cows, calves, bulls and she-buffalo are not exceptions. The productivity of the affected milch animal/work bullock is adversely affected in most cases.

Diagnostic aberrations with regard to exact location of the seat of lameness are not rare. Extensive quackery is predominately encountered in such situations leading to occasional invalidation of the affected animals.

In partial dislocations, leading to traumatic injury to the articular and periarticular structures of these joints, external treatment with counterirritants are trivially resorted to, with varied results. Radiography of these joints in heavy animals is also not a practical proposition *vis-a-vis* clinical diagnosis.

Intra-articular injection of antiinflammatory drugs such as Triamcinolone mixed with adequate quantity of antibiotic was found to be very effective in 14 clinical cases (4 cows, 6 bullocks and 4 working male buffalo bullocks). These cases were clinically diagnosed to be cases of omarshritis and coxitis (Omarshritis: 3 cows, 3 bullocks, 1 working male buffaloes and Coxitis: 1 cow, 3 bullocks and 3 working male buffaloes).

The technique of intra-articular injection into the scapulo humeral joint consists of using a 15 cm long (16 BWG) needle which is inserted into the joint capsule. The site selection is done by digital manipulation of the depression, dorsoposterior to the greater tuberosity of humerus. The needle direction is kept ventro-medially; needle penetration can

be possible in the 10 O'clock position to 2 O'clock position. Moderate manoeuvring helps introduce the needle bevel in the joint capsule confirmed by the free flow of synovia. Desired drugs are subsequently administered.

In the case of coxo-femoral joint identical needle is employed and the direction of penetration of the needle is also similar. The region for needle penetration is confirmed by digital palpation of the trochanter major. Arthrocentesis can be accomplished right from 10 O'clock to 2 O'clock position. Synovial exit confirms the location of the needle, when drugs can be administered.

Strict asepsis is mandatory in both the procedures, involving arthrocentesis and intra-articular injection. The depth of the needle penetration varies according to the size and bulk of the muscles in the region in different animals under report.



RUPTURED GASTROCNEMIUS TENDON IN A BUFFALO

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A buffalo got swellings on both hocks during violent efforts to rise, while recovering from epidural anaesthesia. The animal started walking on flexed hocks but could not rise completely. Clinical examination revealed a swelling between stifle and hock of both limbs. Pin-prick stimulation at the perineal region made the animal to move on flexed hocks. It was diagnosed as ruptured gastrocnemius tendon. A conservative treatment was started by putting one limb in plastercast and administration of anti-inflammatory agents; but unfortunately the animal died due to accidental administration of Inj. Esqipyryn intravenously.

FRACTURE OF THE ILIUM AND 'KNOCKED-DOWN HIP' IN A BUFFALO

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Pelvic bone in heavy buffaloes are prone to fractures depending upon the degree and direction of trauma. Fracture of the ilium is, however, reported to be commonly encountered in cattle but such a case in buffalo has not been seen reported in the literature.

A buffalo aged 6 years in her third lactation, met with an accident by a moving truck on the lateral aspect of the left hind quarter with tremendous impact. The said buffalo was reported to be recumbent for a prolonged period of one month. Rectal examination revealed fracture of the shaft of the ilium and conspicuous depression of the upper segment. The buffalo was given conventional musculo-nervine tonics etc., and could get up with minor aid. Thereafter she was lame but ambulant. The affected hip was 'knocked down' but otherwise the animal restored to normalcy. The capacity of birth canal was not affected. She was inseminated by AI and was pregnant 3 months at the time of the reporting.

RINGBONE IN A BULLOCK

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Phalangeal exostoses are among very commonly encountered clinicopathological conditions in the equine. However, the report of such a lesion in bullock is a rarity.

A bullock aged 8 years was reported with pronounced lameness in the left fore limb. The duration of illness was reported to be more than 6 months. Indigenous medications were reported to have been applied in various phases, from the shoulder joint downward, but the seat of lameness was not ascertained by them. Clinical examination revealed the lesion to be in the region of phalanx of the lateral digit of the limb. Radiographic examination evidenced the condition to be a case of ring bone, involving the first and the second phalanx. The articular and non-articular surfaces of the phalanges were involved. The owner on inquiry, however, showed his ignorance about any traumatic injury in this region.

Thermocautery coupled with blistering was instituted which initially exacerbated the condition but, thereafter a progressive abatement in the manifestation of lameness was discernible from the 15th day onward of the institution of cautery.

A SURVEY ON THE INCIDENCE OF AFFECTIONS OF MUSCULOSKELETAL SYSTEM IN LARGE AND SMALL ANIMALS AT MADRAS VETERINARY COLLEGE HOSPITAL

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A survey on the inpatient case records of the Large Animal Clinic and Small Animal Clinic of the Madras Veterinary College Hospital was made with a view to study the incidence of affections of the musculoskeletal system with particular reference to dislocations and fractures. Attempt was made to review the regionwise distribution.

PHYSIO-THERAPY FOR REHABILITATION FOLLOWING REPAIR OF LONG BONE FRACTURES IN LARGE ANIMALS

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Every fractured animal lives a life not normal to it. Rehabilitation to normal has to be brought around by various physical means. More than 50 animals in which rehabilitation by massage, planned passive and active exercise has been attempted. The higher recovery rate with lower morbidity was observed. The reasons for a more favourable response in animals is discussed.

CLINICAL SURGERY - I

SURGICAL MANAGEMENT OF EAR HAEMATOMA IN DOG

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The present paper deals with the surgical management of a few clinical cases of haematoma of the ear in different breeds of dogs treated successfully at Veterinary Polyclinic, Jaipur, Rajasthan. This technique described by John Hickman and Robert Walker, (1973) was not routinely tried by field Veterinarians in day-to-day clinical practice. The author feels that this technique is quite simple and effective than other techniques and conventional methods of treatment of ear haematoma in dogs. Post-operative treatment and other factors involved in management of such cases are discussed in detail which the author considers most important as the key for success.

INCIDENCE OF SHARP FOREIGN BODIES IN CANINE

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Sharp foreign bodies like wires, nails, iron materials and sewing needles are swallowed by dogs. Out of 35 cases of suspected sharp foreign bodies by radiography, sewing needles were found in seven cases, (one in oesophagus, one in stomach, three in intestines, one in liver and one in spleen). Four cases were found in below one year old and three cases were found in above one year old dogs. The diagnosis was mostly done by history and the findings in liver and spleen were accidental.

The needle in the oesophagus was with a thread in the mouth and so it was easy to remove it by digital pressure applied at the eye of the needle. The needle in stomach, without a thread, was allowed to pass in faeces, with intermittent fluoroscopies. The total time taken was 27 hours. The needles in the intestines were allowed to get evacuated through faeces. After surgical intervention the needles in the liver and spleen were removed.

In all cases the recovery was uneventful. The history helped the diagnosis by radiography and to institute a correct treatment.

MALE FEMINIZING SYNDROME IN A MONGREL DOG: A CASE REPORT

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A chronic case of Male Feminizing Syndrome in a mongrel dog is reported.

The clinical symptoms included lack of libido, gynaecomastia, aspermatogenesis, hyperpigmentation; and lichenification (initially on the groin and perineum, and later in the axilla), seborrhoeic disorders, and a ceruminous otitis externa. The gross appearance of the

testicles was normal. The dog became sexually attractive to other males. A seborrhoea-like greasiness and scaliness of skin was seen.

Castration of the animal, administration of corticosteroids with broad spectrum antibiotics and using antiseborrhoeic shampoos, effected a clinical cure within 2 months.

CANINE TRANSMISSIBLE VENEREAL SARCOMA (CTVS) : CLINICAL TRIALS WITH DIFFERENT TREATMENT APPROACHES

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The study was conducted in 325 male and 265 female dogs aged between 2 to 5 years suffering from canine Transmissible Venereal Sarcoma (CTVS), during the period 1970 to 1983.

The first appearance of the tumour was noticed 3 to 6 months after mating.

In all cases, surgical removal of the tumour was done as a routine procedure.

While some of the animals had only the surgical removal of tumour (SRT), the others had different supplementary treatment as detailed below, in addition to surgery. The percentages of recurrence is also shown against each:-

Sl. No.	Nature of treatment	Percentage of recurrence	
		Male	Female
1.	Only SRT:	90	86
2.	SRT plus Auto-immunisation	47	33
3.	SRT plus BCG vaccination	60	40
4.	SRT plus castration or ovariectomy	46	40
5.	SRT plus castration or ovariectomy and BCG	34	26
6.	SRT plus castration or ovariectomy and auto-immunisation	30	24

It was concluded that the initial surgical removal of the tumour growth followed by castration or ovariectomy and simultaneous auto-immunisation proved to be the best approach to the treatment of CTVS cases in dogs.

PARADOXICAL DIARRHOEA WITH OBSTIPATION IN A POMERANIAN

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A five year old Pomeranian bitch was brought with complaints of scanty diarrhoea, complete anorexia, occasional vomiting during past 3 days, and vain attempts of defecation

A NOTE ON EVISCERATION OF EYE-BALL IN DOGS

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Irreducible prolapse of eye-ball in dogs is treated generally by Enucleation or Extirpation. But many owners are reluctant to spoil the appearance of the animal by these operations.

The author, therefore, advocated evisceration of the eye-ball in a few such cases. The treatment was successful and the result was appreciated by the owners.

The physical appearance was not much altered, as the shrunken sclera with extraocular muscles and remaining tissue after operation filled up the orbital cavity.

The author feels that the technique of evisceration is much simpler than the other two methods and it should be routinely adopted in practice.

TREATMENT OF OTHAEMATOMA IN A DOG WITH BOVINE FIBRIN.

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A five year old Dachshund bitch suffering from haematoma of the ear since one week, was brought for treatment.

The haematoma was opened under aseptic conditions and its contents were evacuated. Five grams of bovine fibrin was dusted into the wound and a roll bandage was applied over the wound and kept in position by strips of sticking plaster. The wound healed in four days. Antibiotics were administered for five days. The shape on the ear was maintained without crinkling, whereas in the conventional methods without use of fibrin, the wound healed only within 10 to 12 days and the shape of the ear was also affected.

HAEMORRHAGIC HYPERPLASIA OF THE BLADDER WALL IN A BITCH.

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A Labrador bitch, aged five years was presented with the history of haematuria. Earlier the animal was given Stilboestrol - dipropionate injection 20 mg on two days at 48 interval for misalliance.

The haematuria began after 15 days and was persisting, with the animal becoming progressively anaemic and losing condition. There was mild cystitis and the urine contained fresh blood. The animal was put on a course of urinary antiseptics, styptics and antibiotics, with no response. The haemogram revealed marked anaemia and the blood smears revealed no blood parasites.

when a few drops of liquid faeces escaped. There was tenderness of posterior abdominal wall. Gritty, hard faecal material in cranial most rectum were conspicuous. The lateral radiograph of abdomen exhibited impaction of colon with hard faeces containing small radio-opaque chips. The case was diagnosed to be of obstipation and the sign of diarrhoea was paradoxical.

Since per-rectal retrieval of impacted mass was futile, colostomy was performed after exteriorising and packing off the colon through a mid-ventral caeliotomy incision. Sterile liquid paraffin was dropped on it through the incision and gritty faecal material was carefully removed to preclude any damage of the colonic mucosa. After suturing colon with continuous Connell stitch using 3/0 silk, it was covered with omentum, replaced and abdominal incisions routinely closed. Post-operatively, the mandatory precautions of intestinal surgery were observed and the animal recovered satisfactorily.

ORCHIOPEXY IN A MONORCHID CROSS-BRED ALSATION DOG

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Since the retained or partially descended testicles tend to give rise to neoplasm and are subject to torsion, surgery is mandatory. But the choice, whether the retained testicle is to be removed surgically along with the normal testicle or orchiopexy is to be accomplished for the monorchid testicle, is controversial and appears to be the prerogative of the surgeon. The latter course was decided upon in the present case of a 5 month old crossbred monorchid alsation dog having satisfactory growth and inguinal retention of left testicle.

The operation was performed under general anaesthesia. The undescended testicle was identified in the inguinal canal. The skin over it was incised to expose the testicle and spermatic cord which were freed from the adhesive attachments by blunt dissection. A tract for their passage, and a pocket for the housing of the testicle inside the scrotum, were created by careful and gentle manoeuvring. A threaded needle was introduced from the posterior and lower end of the testicle to the incision, the tunica vaginalis of freed testicle was anchored, and the needle was then passed retrograde to pull down and house the testicle in the scrotal pouch. The newly placed testicle was fixed at its place by the two ends of thread passed through a button outside scrotum.

Post-operatively, doxycycline and oxyphenbutazone were given for 5 days. In the initial 3 day period the scrotal area was swollen but by the 8th day, when cutaneous sutures were removed, the integument was normal. Follow-up after 2 months exhibited that the orientation of the newly housed testicle in the scrotum was satisfactory, though some discrepancy in the size of the testes was discernible. After 4 months the scrotum had become pendulous and both the testicles had attained identical and adequate growth.

The cystogram was taken using 10 per cent potassium iodide as a contrast medium, but it did not reveal any growth.

250 ml of whole blood was transfused to counter the anaemia but the effect was transient. The animals died 23 days later.

On autopsy, the bladder contained clotted blood. The bladder wall showed mild hyperplasia with haemorrhage in a small diffused area away from the trigonum resembling a growth. Histopathological examination revealed it to be non-malignant.

It was concluded that this haemorrhagic non-neoplastic mass and diffused thickening of the bladder was due to chronic inflammation which was aggravated by inadvertant over-dosage of oestrogens administered for the treatment of misalliance.

SPLEENIC FOREIGN BODY (A SEWING NEEDLE) IN A DOG - A CASE REPORT

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Incidence of foreign bodies in the parenchyma of visceral organs, is rare in small animal practice. A case of splenic foreign body (a sewing needle) in a 11 year old nondescript dog is reported.

The dog was presented at the College Clinic with a history of anorexia, dullness and distended abdomen of four days duration. Routine radiography revealed the foreign body in the abdomen.

The foreign body in the splenic mass was removed carefully after laparotomy under epidural anaesthesia. The recovery was uneventful after the surgery.

A CASE OF FELINE UROLOGIC SYNDROME (FUS) AND ITS SURGICAL MANAGEMENT BY PERINEAL URETHROSTOMY IN A MALE CAT

A case report
N. N. Balasubramanian, Archibald David and Godfrey David
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A four year old male cat with symptoms of chronic urethral obstruction and distended bladder was admitted in the college clinic. As an emergency measure temporary decompression of the bladder (Cystocentesis) and fluid therapy had been done.

Ablation of the genitalia and perineal urethrostomy was performed under epidural anaesthesia and thiopentone narcosis.

Repeated dilatation of the urethrostomy wound at weekly intervals was done for three months using " Mastalone intramammary tube " to prevent postoperative stricture. The recovery was uneventful and has not since shown any sign of obstruction even three years after surgery.

RUPTURE OF UTERUS IN A CAT - A CASE REPORT

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Uterine rupture, though uncommon, may occur in dystocia or due to injudicious use of pituitrin or due to trauma in late pregnancy or pyometra. A two-year old cat was presented in the college clinic with a history of anorexia two weeks after normal delivery of a kitten. Palpation and radiography confirmed the presence of fetal skeleton in the abdomen. Exploratory laparotomy showed the presence of mummified foetus in the abdomen with a scar on the left uterine horn.

The cat recovered uneventfully and has had two litters in a period of twelve months after surgery.



ESTIMATION OF RENAL SIZE - F - BY RADIOLOGICAL MEANS

B. T. Taylor, G. S. Collins, A. P. Smith and J. H. Clark

The aim of this study was to determine the accuracy of kidney size estimation by radiological means in the presence of various degrees of hydronephrosis and to compare the results with those obtained by direct measurement of the kidney in the cadaver.

The study included 100 cases of hydronephrosis. Intravenous pyelography was done by the method of Taylor and Collins. The results of the pyelograms were measured and the area of the kidney was calculated. The length and width of the kidney were also measured and the area calculated. The results of the pyelograms were also recorded for the estimation of area.

The kidney size was measured in the cadaver after the hydronephrosis had been relieved. The area of the kidney was measured and the area of the kidney was calculated. The results of the pyelograms were also recorded for the estimation of area.

Direct measurement of kidney size and weight recorded at necropsy indicated considerable variation. The area of the kidney was measured and the area of the kidney was calculated. The results of the pyelograms were also recorded for the estimation of area.

RADIOLOGY

The results of this study will be of value in establishing clinical diagnosis of kidney disease.

INTRAVENOUS PYELOGRAPHY IN HYDRONEPHROSIS

B. T. Taylor, G. S. Collins, A. P. Smith and J. H. Clark
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Intravenous pyelography was done in 100 cases of hydronephrosis of varying degrees of severity. The results of the pyelograms were measured and the area of the kidney was calculated. The results of the pyelograms were also recorded for the estimation of area.

ESTIMATION OF KIDNEY SIZE BY INTRAVENOUS PYELOGRAPHY IN RABBIT

I. V. Mogha., G. R. Singh., and A. K. Bhargava

Variations in filling defects and size and location of kidney in pathological conditions are usually seen in plain and intravenous pyelography. Often it remains doubtful to evaluate actual site of lesion. Therefore, the present study is aimed to calculate the kidney size on radiographs and intravenous pyelography and establish correlation between radiological and necropsy findings.

Six adult rabbits were utilized in this study. Intravenous pyelography was done by injecting 5 ml of conray 420 intravenously. Three to five minute radiographs were found adequate for visualization of kidney. Kidney area was then calculated after measuring the length and width (at level of hilus) of the kidney. Measurements of second lumbar vertebra were also recorded for the calculation of area.

The rabbit was then euthanized and kidneys were removed after ligating the vessels near hilus. The connective tissue and fat were removed and length and width were measured with caliper. The kidney volume was also determined after immersing each kidney in a graduated cylinder. The second lumbar vertebra was removed and the area was calculated after measuring the length and width of the same. A piece of each kidney was fixed in 10% formaline for histopathological observations.

Direct measurement of kidney sizes and weight recorded at necropsy indicated considerable variation. For estimate of kidney size, kidney weight and kidney length were found to be superior to kidney area or volume. Kidney length was slightly better correlated with the vertebral area than vertebral length. The ratio of kidney area and vertebral area, which were calculated from direct measurement, was less than the ratio recorded from measurement of radiographs, and indicated that magnification of kidney was greater in comparison to magnification of vertebra. However, this will vary for left or right kidney in left or right lateral view of radiograph; due to part film distance between film and kidney. The relationship between kidney area calculated from measurement of radiographs was nearly the same as the actual ratio.

The results of this study will help in establishing clinical diagnosis of kidney diseases, mainly affecting size and position.

INTRAVENOUS PYELOGRAPHY IN GOATS (*CAPRA HIRCUS*)

R. Tayal, I. S. Chandna, A. P. Singh and Jit Singh

Department of Surgery & Radiology

College of Veterinary Sciences, Hissar

Intravenous pyelography was done in 24 goats at three different doses of 600mg, 1200mg per Kg using sodium-iodohelmate (70% w/v) as the positive contrast medium injected as a quick bolus injection into the jugular vein. The radiographs were made at different time intervals in different postures. The dose of 1200mg per Kg was adjudged to be the best dose for clearcut visualization of the kidneys and the associated structures of the upper urinary

tract. The best results were obtained when the intravenous pyelography was combined with pneumoperitoneum. The anatomical details of the kidneys, calyces, pelvis and ureters were described.

AN ANGIOGRAPHIC STUDY DURING METACARPAL FRACTURE HEALING IN THE BOVINE

R. L. N. Rao; J. M. Nigam; A. P. Singh and S. K. Chawla
College of Veterinary Science, Hissar

Angiographic studies were carried out in 27 male buffalo calves to observe the pattern of vascular changes during metacarpal fracture healing following immobilizations by simple coaptation, stainless steel plating and allogenic onlay bone plating. Observations at early stage of fracture healing revealed a state of generalized soft tissue hypervascularity irrespective of the method used for repair. However, enhanced extraosseous circulation was comparatively more marked in animals with external than internal osteosynthesis. There was considerable regression of hypervascularity at six weeks, and attained near normally by nine weeks post-fracture. From six to nine weeks the fracture area completely vascularised by well-defined and organised newly proliferated vessels with demonstration of their cross-over contacts through the fracture in all groups.

However, these changes were observed earlier and better in animals with plate fixation.

COMPARATIVE ANGIOGRAPHIC STUDY OF THE COLLATERAL CIRCULATION OF NORMAL AND POST-LIGATION FEMORAL ARTERY IN DOGS

P. K. Samanta; and D. B. Mukerjee

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Bidhan Chandra Krishi Viswavidyalaya, Calcutta-37

The vascular supply of canine hind limb was disrupted by acute ligation of the femoral artery at the femoral triangle. The artery was occluded distal to the deep femoral artery.

The vascular architecture was evaluated before and after ligation by angiography. The presence of normally existing collaterals and anastomotic vessels supplying blood to the thigh region were revealed by normal angiograms.

The development of collateral vessels occurred by increase in number as well as size, and it continued throughout the 12 week period of study.

The principal subsidiary vascular channels in the thigh region of dog are found derived from;

- 1) the deep femoral artery;
- 2) the terminal branch of caudal gluteal;
- 3) the lateral circumflex femoral and its descending branch (formerly known as cranial femoral); and
- 4) the distal caudal femoral

These subsidiary vascular channels represent an adequate collateral circulation to supply the vascular needs of the area when the main vessels are occluded.

It was apparent from the present study that the existing collaterals, or the newly formed collaterals, or both, were sufficient to maintain limb-viability; as the thigh region of the dog is well-perfused by the collateral vessels.

RADIOLOGICAL DIAGNOSIS OF HAIR BALLS IN CALVES

N. S. Dewan Muthu Mohamed and E. I. Rajendran
Department of Surgery
Madras Veterinary College, Madras

Hair balls are one of the causes of indigestion and recurrent tympany in young calves. Out of 52 cases suspected in calves, 9 cases were diagnosed as hair balls. It is often difficult to diagnose hair balls without adequate preparation of the animal. Barium was used in 16 cases. The visibility was clear after 5 minutes. Human hair that was swallowed was found in a case in the shape of balls. They were not opaque like the other hair balls but were evident as dark shadows like air shadows; and were shown clearly after barium meal.

RADIOGRAPHIC PATTERNS OF INFECTIOUS ARTHRITIS IN CALVES

Rama Kumar V. and B. Prasad
Department of Surgery and Radiology
Panjab Agricultural University, Ludhiana

Fifteen radiographs of the carpal joint of calves with infectious arthritis has been reviewed. The radiograph has been analysed on the basis of history, and time elapsed since the clinical manifestation of symptoms. Accordingly, three stages viz., synovitis, osteoarthritis and ankylosing arthritis have been observed. The radiographic features of these stages have been discussed.

K. A. Singh and S. K. Kumar

College of Veterinary Sciences

U. P. Veterinary College and University of Technology, Pantnagar

Ammonium sulfate was applied to open wounds of 2 cm in buffalo calves. The normal saline treated wounds served as controls. The efficacy of treatment was evaluated by clinical and microbiological methods and histological examination of biopsy specimens at 3rd, 6th, 10th, 15th and 20th day after treatment. The rate of wound contraction was faster in ammonium treated wounds. The levels of bacteria, streptococci, hexameter and aerobic acid etc. and red counts were higher at early periods in the wounds treated with ammonium.

The wounds treated with ammonium sulfate exhibited early infiltration of polymorphs and marked proliferation of fibroblasts at 3rd day as compared to control saline treated wounds. A pronounced infiltration of eosinophils, lymphocytes and leucocytes at 15th day, and a slight regression of eosinophils and a partially oriented wound area and matrix connective tissue at 20th day were observed in ammonium treated wounds. The alkaline phosphatase activity increased upto 10th day and decreased at 20th day and its level was higher in biopsy specimens obtained from ammonium treated wounds. Ammonium treated wounds showed early granulation tissue and fibroblastic proliferation.

MANIPULATED VENTRAL HERNIA IN A POST-PARTURIENT DOG

L. L. Das, O. F. Singh, H. F. Chakravarty and S. Ghosh and A. A. Khan

Department of Surgery & Radiology

CLINICAL SURGERY - II

A cross-breed dog of 10 months age was presented with a protrusion with a marked swelling on the mid-ventral region and increasing in size. The swelling was greater in occurrence after exertion. Due to the fluidness of the swelling, the hernial ring could not be located but presence of abdominal viscera was observed.

Operation was performed under chloral hydrate sedation and local infiltration anaesthesia. Exploration revealed a hernial ring of 4.5 cm length and 2 cm width extending from umbilicus to pubis, and there was complete detachment of preperitoneal tissue. Owing to severe haemorrhage was attenuated with vessel-tieing method with sutures and clips. Suspensory pressure bandage over the site at the end of operation was also applied. There was reduction of hernia after a week of operation, the animal appeared healthy and gained weight and did not relapse during the following morning.

REPAIR OF THE ABDOMINAL HERNIAS WITH NYLON RIBBON

T. K. Ghosh, D. S. Chatterjee, W. H. Chowdhury and P. K. Das

College of Veterinary and Animal Sciences, Siliguri

A bilateral abdominal hernia in a goat and umbilical hernia in a buffalo were repaired using nylon ribbons to close the hernial ring. Suture material proved strong and did not herniate across. Knots were non-irritant and firm. Both the animals had successful recovery.

AMNION AS DRESSING MATERIAL FOR ENHANCING WOUND HEALING IN BUFFALO

N. S. Jadon and Amresh Kumar

College of Veterinary Sciences

G. B. Pant University of Agriculture & Technology, Pantnagar

Amnion was applied to open wounds (3 x 3 cm) in buffalo calves. The normal saline treated wounds served as controls. The efficacy of treatment was evaluated by clinical, and macroscopic, microscopic and biochemical examination of biopsy specimens at 3rd, 6th, 10th, 15th and 25th day after treatment. The rate of wound contraction was faster in amnion treated wounds. The levels of collagen, hydroxyproline, hexosamine and ascorbic acid, zinc and iron contents were higher at various intervals in the wounds treated with amnion.

The amnion treated wound showed lesser infiltration of neutrophils and marked proliferation of fibroblasts at 6th day as compared to normal saline treated wounds. A pronounced infiltration of connective tissue and capillaries at 15th day, and a slight regeneration of epidermis and a partially covered wound area and mature connective tissue at 25th day, were observed in amnion treated wounds. The alkaline phosphatase activity increased upto 10th day and decreased at 25th day, and its level was higher in biopsy specimens obtained from amnion treated wounds. Amnion treated wounds showed early granulation tissue and fibroblastic proliferation.

MASSIVE VENTRAL HERNIA IN A POST-PARTURIENT COW

L. L. Dass, D. P. Singh, U. K. Deokiouliyar, Md. Ehsan and A. A. Khan

Department of Surgery & Radiology

Ranchi Veterinary College, Ranchi

A cross-breed dairy cow was presented on fifth day of its parturition with a massive swelling on the mid-ventral region and incorporating the udder. The swelling was gradual in occurrence after parturition. Due to the massiveness of the swelling, the hernial ring could not be located but presence of abdominal viscera was conspicuous.

Operation was performed under chloral hydras sedation and local infiltration analgesia. Exploration revealed a hernial ring of 45cm. length and 20cm width, extending from umbilicus to pubis, and there was complete detachment of prepubic tendon. Owing to these things, herniorrhaphy was attempted with vetafil darning reinforced with subcuticular sutures. Suspensory pressure bandage over the skin at the site of operation was also applied. There was recurrence of hernia after a week of operation, the animal expressed extreme abdominal pain and died the following morning.

REPAIR OF THE ABDOMINAL HERNIAS WITH NYLON RIBBON

T. K. Gahlot, D. S. Chouhan, R. H. Choudhary and P. R. Dudi

College of Veterinary and Animal Sciences, Bikaner

A bilateral abdominal hernia in a cow and umbilical hernia in a heifer were repaired using nylon ribbon to close the hernial ring. Suture material proved strong and had no tearing action. Knots were non-slippery and firm. Both the animals had uneventful recovery.

EFFECT OF NASAL BYPASS BREATHING IN NASAL GRANULOMA CASES IN BOVINE

P. K. Samantha and D. B. Mukherjee
Bengal Veterinary College, Calcutta

Six Bengal cattle affected with nasal granuloma and consequent obstruction to the breathing of varying degree were subjected for the study. The surgical operation consisted of establishment of nasal bypass breathing through a modified upper bypass canula (a modified tracheotomy tube).

The arterial blood gas tensions (ABGT) were recorded during the preoperative phase which were compared to the similar recordings made postoperatively in each case. The two sets of ABGT recorded did not reveal any significant difference.

The findings were (i) that the nasal bypass technique by the implantation of modified tracheotomy tube as well as the alteration in the anatomic dead space were well tolerated and (ii) that the prolonged presence of tracheotomy tube for a period upto three months while providing additional ventilation through tracheal breathing had no effect on the air dead space and it in no way influenced the ABCG.

HAEMATOMA UNDER THE HOOF WALL IN A NEW - BORN CALF

T. K. Gahlot; D. S. Chouhan and Shyam Swaroop
College of Veterinary and Animal Sciences, Bikaner

A new born calf was presented with the history of having a fluctuating swelling on the lateral hind digit. Clinically, the animal had no lameness but lateral hoof was enlarged and its wall was soft and non keratinised.

The soft hoof wall was incised under regional anaesthesia and the haematoma detected underneath was removed. The excess soft hoof was excised and the edges were sutured by stainless steel wire in lockstitch pattern. The foot was immobilised by gauze bandage for 15 days.

The healing was incomplete at the toe region and there was secondary infection. Partial amputation of the digit was necessitated.

REPAIR OF LACERATED TONGUE IN COW AND MARE

T. K. Gahlot; D. S. Chouhan and Shyam Swaroop
College of Veterinary and Animal Sciences, Bikaner

Two cows and one mare were presented with a history of severe tongue lacerations. Repair was undertaken by double threaded chronic catgut No. 2 in figure-of-eight fashion. The animals were put on gravel and water. There was tearing and wound dehiscence on 3rd and 4th post-operative day in all the cases due to manipulation of tongue by the animal. Cows required partial glossectomy and the wound was closed by mattress sutures. In the case of mare, open wound healing was allowed.

SURGICAL MANAGEMENT OF INFECTED CLOSED URACHUS IN CALVES

L. L. Dass., A. A. Khan., U. K. Deokiouliyar., P. N. Sahay and Md. Ehasan

Department of Surgery and Radiology

Ranchi Veterinary College, Ranchi

The report is based on 15 cross-bred calves of either sex below one year age. Prenatal or neonatal patency of urachus at the umbilicus was absent in all these cases. However, infected lesions at the umbilicus were a consistent feature. Manipulation of the swelling revealed unusually inflamed urachus filled with pus. The swelling at umbilicus varied in shape. (cylindrical, conical, hemispherical, etc.) In some cases, pus could be identified in the urine of affected calves.

Surgical intervention included laparotomy or laparocystotomy, depending upon the situation, and excision of the urachus. A linear incision 8 - 10 cm long was made on the mid point of the swelling extending on the either side to expose the abdominal cavity and leaving the urachus intact. The thick cord like hard and inflamed urachus was detached from the surrounding tissues and examined carefully to see the extent and magnitude of infection. In cases where the infection could not traverse the bladder the urachus was ligated at two places close to the bladder in the healthy tissues and was excised. In other cases where the pus had made entry in the bladder through the cystic end of the urachus, partial cystectomy at the junction was performed to remove and discard the infected urachus. The opening in the bladder was closed in Lemberts fashion. The abdominal incisions were closed routinely. Postoperatively, the calves received antibiotic treatment and the sutures were removed on 10th post-operative day. All the calves recovered uneventfully.

CHRONIC OTORRHOEA IN CATTLE AND BUFFALO: REPORT OF A FEW CASES

S. P. Mouli

Veterinary Hospital, Nellore

Four clinical cases of unilateral chronic otorrhea (in 2 ongole b and 2 non-descript she-buffaloes), are reported.

The inspissated cerumen with necrotic tissue accumulated in the external auditory meatus was in cakes and weighed from 50g to 100g. The clinical symptoms included uncontrollable shaking of the head at intervals during work, swelling at the subconchal area, rubbing the affected ear against hard poles or with hind limbs, purulent conjunctivitis of the eye of the same side, occasional discharge of foul-smelling, thick yellow or white to brownish exudate from the affected ear, loss of milk yield and appetite, debility, restlessness, and slight tilting of the head towards the affected side.

Zepp's method of aural resection was done under sedation and local analgesia, to facilitate necessary drainages and ventilation. Irrigation with a mild antiseptic lotion and dressing with an aural antibiotic (selected on the basis of a preoperative sensitivity test), was done.

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Zepp's method of aural resection was done under sedation and local analgesia, to facilitate necessary drainages and ventilation. Irrigation with a mild antiseptic lotion and dressing with an aural antibiotic (selected on the basis of a preoperative sensitivity test), was done.

The animals made uneventful recovery from the illness in a period of 15 days after the above treatment.

MODIFIED RETENTION SUTURE OF THE BOVINE VULVA

J. Mohanty and A. K. Ray

Department of Surgery

Orissa Veterinary College, Bhubaneswar

The conventional method of external suturing patterns to retain a vaginal or uterine prolapse, often tear out and promote infection along the suture line. A modified, imbedded type of perivaginal suture has, therefore been developed.

This technique consisted of a deeply placed circumferential suture without any skin wound externally. The suture was applied under epidural anaesthesia, in the standing position, from inside the vaginal wall through the deep subcutaneous tissues, using thick vetafil. A special needle was designed from an intramedullary pin.

The suture was found very strong and was more effective in cases of chronic and recurrent types of uterine prolapse.

UNUSUAL URETHRAL RUPTURE IN A BULLOCK

D. S. Vijaykumar, O. Ramakrishna, V. Haragopal,

N. T. Krishnamurthy and P. Chandra Babu

Department of Surgery and Radiology

College of Veterinary Science, Tirupati

Urethrorhexis under unusual conditions is reported in a 5 year-old bullock. Urethrography using positive contrast medium delineated the penile urethral pathology. The treatment of urethral rupture due to abnormal penile kink is discussed.

A CASE OF SEMINOMA IN A BULLOCK

V. S. Panchbhai, L. B. Sarkate, A. P. Bhokre, S. M. Usturge and B. B. Deshpande

Marathwada Agricultural University, Parbhani

A nondescript bullock of six years age with history of enlargement of scrotum since one year, was presented on 11-11-82 at Veterinary Polyclinic, MAU, Parbhani for investigation and necessary treatment. Clinical examination revealed a hot and painful enlarged scrotum about the size of a coconut. The enlarged testicle was on right side. The animal was injected with Deltacotril and Terramycin intratesticularly for 3 days with iodine ointment applied locally. However, there was no response to this treatment. The enlarged scrotum and the testicles were therefore, amputated surgically at its base under sedation with Siquil and local infiltration anaesthesia. The enlarged testicle weighed 228g and the other testicle weighed 21g. The animal was tested for brucellosis and was found negative.

The histopathological examination of both testicles were performed. The left testicle which was smaller in size revealed atrophic changes and right testicle which was enlarged in size revealed neoplastic condition. In the neoplastic tissue sheets of polyhedral cells having vesicular nuclei and prominent nucleoli were seen indicative of seminoma.

SURGICAL CORRECTION OF VENTRAL DISPLACEMENT OF UTERUS IN A PREGNANT COW

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Displacement of gravid uterus is uncommon in cows. Rupture of the abdominal tunic lets the gravid uterus to drop downward into a sac formed by the skin and cutaneous muscle.

A cross bred cow, pregnant 8 months, aged 6 years, met with a road accident and was admitted into the clinic with a large swelling at the right low flank region. Exploratory laparotomy at the right high flank revealed a tear on the abdominal wall, but the damage to the prepubic tendon was not so severe. The muscle, oblique abdominis externus, and the peritoneum, were intact and the other two layers of muscles were found torn.

Normal parturition was not possible hence caesarean was decided. Rompun 1.5 ml as basal narcotic was given and 30 ml of xylocain 2 per cent was infiltrated locally. A low flank incision of 30 cm was made 5 cm caudal to the costo-chondral junction extending backwards. The intact peritoneum was nicked and the incision extended and the calf was delivered alive by hysterotomy. The uterus was closed by double row of inversion sutures using No. 2 catgut. The muscle tear was closed with vetafil and the skin incision was closed as per standard technique.

A suitable canvas webbing was applied tightly around the abdomen to transfer the weight of the viscera to the spine. The animal received daily dressing along with antibiotics and fluids and it recovered fully within a week.

TRACHEOTOMY IN PERACUTE CASES OF BOVINE PASTEURELLOSIS

L. B. Sarkate, A. P. Bhokra and V. S. Panchbhai
Marathwada Agricultural University, Parbhani

Eight cases of peracute bovine pasteurellosis were recorded in cattle and in a buffalo during the year 1982. Clinical examination of the cases revealed sudden rise of temperature, and pronounced edema of forehead, eyelids, muzzle, submandibular and maxillary region. There was snoring respiration initially, followed by severe respiratory distress with mouth breathing in the last stage.

The animals were immediately treated with 100 ml of sodium sulphadimidine and 10 ml of avil by intravenous route. The animals did not respond to the medicinal treatment. The animals would have died if emergency free airway had not been provided to them.

Therefore, emergency tracheotomy operation was performed in all cases under local infiltration anaesthesia at the mid-neck region. The tracheotomy immediately gave relief to the animals from severe respiratory distress and dyspnoea and all the animals except two survived and recovered without any complications. Therefore tracheotomy is suggested in peracute cases of bovine pasteurellosis besides medicinal treatment, to save the life of the animal.

POST-OPERATIVE FOLLOW-UP OF BUFFALOES WITH DIAPHRAGMATIC HERNIA

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College of Veterinary Sciences, Hissar

Animals treated successfully for diaphragmatic hernia (DH) were followed to record their status and complications, if any, developed later. Analysis of the results indicated as follows;

- a) 63.3% animals are leading normal life.
- b) 15% animals died due to reasons/symptoms not related to herniorrhaphy.
- c) 18.3% animals showed recurrence of DH.
- d) 3.3% animals died due to chronic infection.

Out of 11 cases where the recurrence was observed 6 were non-pregnant at the time of operation (54.5%). However, when the recurrence occurred, 8 were pregnant (72.7%).

Suggestions made to reduce the post-operative complications / recurrence are discussed.

GANGRENE OF ALL THE FOUR TEATS IN A CROSS-BRED HOLSTEIN - FRIESIAN COW,

S. S. Misra., and S. J. Angelo,
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College of Veterinary Science & Animal Husbandry, Mathura

Exclusive gangrenous involvement of all the four teats excluding the udder has been encountered by us for the first time.

A high lactating cross-bred cow was reported to be mastitic some five days before the day of its presentation at the clinic. Necessary treatment for mastitis was reported to have been instituted by the local veterinarian. The owner, however, noticed bluish discolouration of left fore-and the rear two teats with loss of milk flow. On the next day the other teat also developed identical pathology.

The cow, on physical examination, was normal except for a mild fever ($+1^{\circ}\text{C}$). The udder was hard on physical manipulation and all the four teats were ice cold to touch. They were leathery in appearance and perception; a clear line of demarcation was discernible, separating the necrosed teats right from their attachment with the udder.

The owner did not agree for the amputation of udder. Local antiseptic medications such as furacin skin ointment, Lorexane antiseptic cream were advocated together with high dosage of parenteral streptopenicillin. All the affected teats sloughed off on the 4th day and the wound at the seat was dressed conventionally which effected healing.

Amputation of udder in the circumstance, was of no avail as it was also realised by the owner. The cow was sent to the Gosadan.

OSTEOSARCOMA OF THE FACIAL BONES IN A CROSSBRED HOLSTEIN - FRIESIAN COW

S. S. Misra and S. J. Angelo

Department of Surgery & Radiology

College of Veterinary Science and Animal Husbandry, Mathura

Osteosarcoma is a skeletal sarcoma resulting into the formation of neoplastic / osteoid or bone during its evolution. It is reported that such tumours are mostly encountered in dogs. It is also known that osteosarcomas are more likely to affect flat bones atleast in felines. No such case of osteosarcomas involving the flat bones of the face in bovine has yet been encountered in the literature perused by the authors. The affected cow being an exotic cross-bred, had a high yield which consequent to this disease declined to almost nil.

A cow with a large bony excrecence on the right side of the face (approximately of a diameter of 15cm) involving the nasal and maxillary bones was brought to the college clinic. The cow was reported to have progressively deteriorated in her physical condition since the pathogenesis of the lesion which was stated to be almost one year.

Radiographic examination revealed amorphous appearance of the tumour tissue. The "Sun-brust" appearance was however, not characteristic. The destruction of the base bone was discernible. Histopathological examination of the biopsy material evidenced the diagnosis.

The lesion was chiselled to the safest limit but it did not seem gratifying. The owner was, therefore, advised accordingly after necessary wound repair.

ATRESIA ANI ET RECTI IN A CALF - A CASE REPORT

R. Suresh Kumar and R. Krishnamoorthy

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A four-day old bull calf was admitted with a history of not having passed meconium since birth. Examination revealed the absence of anus and abdominal distension.

Exploratory laparotomy was performed on the right flank and it revealed a distended colon ending blindly four inches away from the perineal region and absence of rectum. The condition was confirmed as atresia ani et recti. A circular skin incision was made in the perineum below the tail and by blunt dissection with a dilator, deep dissection was carried out into the pelvis to reach the abdominal cavity. A tract was established and a tissue forceps

was passed through the tract and the blind end of the colon was held with it. By slow traction, it was pulled through the pelvis to reach the circular skin incision in the perineum. Thereafter the colon end was opened by a circular incision and the edge was fixed to the circular skin edge in the perineal region. The gas and meconium were evacuated, and the patency of the tract was checked with a catheter.

Postoperative care consisted of antibiotic therapy and laxatives orally. The animal started passing faecal matter through the newly created passage and recovered without any complication.

TOPICAL USE OF MORPHINE SULPHATE IN TREATMENT OF BURNS. RISHIKI - H - AND WATFIELD

D. S. Triker, M. B. Patel, and M. N. Memon

Since the 1940's, Soviet Scientists have been developing a new concept of non-specific therapy, which they call "energetic therapy". The therapy is claimed to act through the nervous system to influence the functions of the body and the body's capacity to react.

The method employed consists of warm 0.5% solution of morphine hydrochloride (0.5% solution at the dose of 0.5 to 7 drops) being applied at different places in the body. The sites proposed by the Russian scientists are epidermal, sub-epidermal and dermal, paraspinal, diaphragm and pre-aortic. Successful treatment of a variety of conditions using these techniques have been reported.

In the present evaluation, Neolocain (Procaine Hydrochloride of Engleberg, Paronylinol and paronylinol Procaine and other form, using warm 0.5% Procaine hydrochloride solution, were used in 25 clinical cases. The cases treated were:

Acute dystonia	1	14 cases
Burns, wounds and ulcers	1	9 cases, etc.
Mental		2 cases

Out of the 14 cases of acute dystonia treated successfully, 3 cases were treated only with epinephrine blockade and in the remaining 11 cases the blockade was employed as a supportive treatment.

In all the 25 cases of acute dystonia, a combination of epinephrine blockade and short-term blockade was used.

ANAESTHESIOLOGY - I

In the 2 cases of mental, anticholinergic medication together with the epinephrine blockade was advised.

The blockades employed were all proved effective, responsive and they had no toxic reaction.

SPINAL ELECTROANESTHESIA - A NEW APPROACH FOR PROLONGED REGIONAL ANESTHESIA IN NEUROTIC PATIENTS

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The fact that electrical stimulation of the spinal cord causes inhibition of nociception has been employed for performing various surgical procedures in a wide spectrum of species. These operative procedures included internal fixation of fractures, tympanotomy, mastoidectomy, removal of tumors and terminal cord anastomosis. The method of producing spinal electro-anesthesia, the characteristic features of this particular anesthetic technique and its safety and efficacy are discussed.

THERAPEUTIC USE OF NOVOCAINE BLOCKADE IN TREATMENT OF VARIOUS AILMENTS IN CATTLE AND BUFFALO

B. R. Thaker, M. R. Patel, and M. N. Mannari

Since the 1940's, Soviet Scientists have been developing a new concept of non-specific-therapy, which they call 'pathogenic therapy'. The therapy is claimed to act through the nervous system to enhance the functions of the body and the body's capacity to react.

The method comprises injection of warm Procaine hydrochloride 0.5% solution at the dose of 0.5 to 1.0 ml/kg. body weight at different sites in the body. The sites proposed by the Russian scientists are epipleural, paravertebral and perineal, paralumbar, short-term, and pre-sacral. Successful treatments of varieties of conditions using these blockades have been reported.

In the present investigation, Novocaine (Procaine) blockades of Epipleural, Paravertebral and perineal, Presacral and short-term, using warm 0.5% Procaine hydrochloride solution, were tried in 25 clinical cases. The cases treated were:

Ruminal dysfunction	:	14 cases;
Udder oedema and mastitis	:	9 cases; and
Metritis	:	2 cases

Out of the 14 cases of ruminal dysfunction treated successfully, 9 cases were treated only with epipleural blockade and in the remaining 5 cases the blockade was employed as a supportive treatment.

In all the 9 cases of Udder oedema and mastitis, paravertebral-perineal or short-term blockade was employed as supportive treatment.

In the 2 cases of metritis, intra-uterine medication together with the pre-sacral blockade was adopted.

The blockades employed were all proved effective, inexpensive and they had no toxic reaction.

SPINAL ELECTROANAESTHESIA : A NEW APPROACH FOR PRODUCING REGIONAL ANAESTHESIA IN DOMESTIC ANIMALS

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The fact that electrical stimulation of the spinal cord causes inhibition of cord function has been employed for performing various surgical procedures in a wide spectrum of species. These operative procedures included internal fixation of fractures, hysterectomy, castrations, removal of tumors and scirrhus cord operations. The method of producing spinal electroanaesthesia, the characteristic features of this particular anaesthetic technique and its merits and demerits are discussed.

INTRAVENOUS REGIONAL ANAESTHESIA IN CAMEL

N. R. Purohit., D. S. Chouhan., R. J. Chaudhary., and K. S. Deora
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Three camels were embalmed and dissected to study the topographic anatomy of the cephalic vein. Twenty five trials were later conducted, using 20, 40 and 60 ml of 2 per cent Xylocaine in three groups of 5, 5 and 15 camels respectively.

A tourniquet was applied to the lower half of the forearm and 60 ml of anaesthetic solution was injected into the cephalic vein distal to the tourniquet, at the medial aspect of the carpus.

Signs of anaesthesia were evident in the region below the tourniquet within 3 to 5 minutes after the injection and persisted for 90 to 120 minutes. Symptoms like non-weight-bearing on the anaesthetised limb and "throwing" of the limb while moving were also noticed.

After releasing the tourniquet, normal sensations were revived within 5 to 7 minutes.

The efficiency of the regional anaesthesia was also successfully tested in a few clinical cases of punctured wounds of the foot.

SOME NERVE BLOCKS OF THE FORELIMB OF CAMEL

N. R. Purohit., D. S. Chouhan., R. J. Choudhary and K. S. Deora
College of Veterinary and Animal Sciences, Bikaner

The topographic anatomy of the median and ulnar nerves and their branches in camel were studied, before attempting the nerve blocks.

For each nerve block, 25 trials were conducted using 2 per cent Xylocaine in three groups of 5, 5 and 15 camels.

Median nerve was blocked at the medial aspect of forearm. The ulnar nerve was blocked at two sites, viz. (i) below the elbow on the posterior aspect of forearm, and (ii) on the medial aspect of elbow joint. The branch of median nerve and branch of ulnar nerve (ramus palmaris) were blocked below the carpus on the postero-medial and postero-lateral aspects of metacarpus.

The quantity of anaesthetic solution required for blocking the median and ulnar nerves at each of the sites in the forearm and elbow joint was 20 ml. and the quantity required for blocking their branches at each of the metacarpal sites was 10 ml.

When the median nerve was blocked at the forearm, the postero-medial area of metacarpus and below were anaesthetised.

When the ulnar nerve was blocked at the forearm or at the elbow sites, the lateral aspects of metacarpus and below were completely desensitised, with also partial desensitivity

of their anteroposterior aspects. In addition, a partial anaesthesia was noted on the postero-medial aspect of forearm and carpus when the ulnar nerve was blocked at the elbow.

When the median and ulnar branches were blocked at the metacarpal sites, excellent anaesthesia below the site of injection on the posterior aspect of metacarpus and below, with partial anaesthesia of lateral and medial aspects of those, were obtained.

Anaesthesia persisted for 50 to 60 minutes in all the successful trials of each block. The efficiency of the nerve blocks was tested in a few clinical conditions of foot with gratifying results.

INTRAVENOUS REGIONAL ANAESTHESIA OF HIND LIMB OF THE CAMEL

P. R. Dudi; D. S. Chouhan; R. J. Choudhary; T. K. Gahlot; and K. S. Deora
College of Veterinary and Animal Sciences, Bikaner.

Intravenous regional anaesthesia was carried out by injecting 60 ml of 2 per cent Xylocaine hydrochloride into the saphenous vein at the medial aspect of the tarsal joint. The anaesthesia commenced within 3 to 5 minutes all around the limb below the level of the tourniquet. The anaesthesia persisted for a period of 80 to 110 minutes during which the tourniquet was kept in position.

STUDIES ON THE NERVE BLOCKS OF THE HIND LIMB OF CAMEL

P. R. Dudi; D. S. Chouhan; R. J. Choudhary; T. K. Gahlot; and K. S. Deora
College of Veterinary and Animal Sciences, Bikaner.

Thirty trials of nerve blocks were conducted on 30 camels for common peroneal, tibial, lateral and medial plantar nerves, using 2 per cent Xylocaine hydrochloride solution in varying doses. The site for block, extent and duration of anaesthesia, and dose of anaesthetic solution required, were determined.

EPIDURAL ANAESTHESIA IN GOATS USING LIDOCAINE HYDROCHLORIDE

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Mannuthy, Trichur.

The present study was conducted on 18 apparently healthy cross-bred bucks. Lidocaine hydrochloride, 2 per cent solution, was administered epidurally at the lumbosacral site at the rates of:

- (i) 0.2 ml per kg bodyweight;
- (ii) 0.4 ml per kg bodyweight; and
- (iii) 0.8 ml per kg bodyweight.

Six animals were tried in each group. Proportionate reduction in the time of onset of flaccidity of the tail, relaxation of the anal sphincter, muscles of the abdomen and hind limbs reduction in the time taken for assuming recumbency were noticed. There was also proportionate increase in the duration and extent of anaesthesia with the increase in dose of Lidocaine.

A PRELIMINARY NOTE ON TACHYPHYLAXIS TO EPIDURAL ANAESTHETIC IN BUFFALOES.

Syed Sajjad Hussain, M. G. Kannade, and Amresh Kumar,
College of Veterinary Sciences,
Pantnagar (U. P.)

In order to obtain continuous epidural anaesthesia, Procaine hydrochloride 2 per cent or Lignocaine hydrochloride 2 per cent were used at the dose rate of 0.1 ml per kg and 0.5 ml per kg bodyweight respectively in buffaloes. The repeated injections of these agents at the time of emergence from anaesthesia resulted in a significant decrease in duration and extent of analgesia. The mean duration of anaesthesia at first injection in Procaine hydrochloride group was 58.33 minutes and it decreased to 40.05 minutes at fourth injection. Likewise, in Lignocaine hydrochloride group the duration of anaesthesia decreased from 60.20 minutes at first injection to 38.00 minutes at fourth injection. The development of this tolerance to a repeated administration of either Procaine hydrochloride or Lignocaine hydrochloride could be reversed, if Procaine hydrochloride administration is followed by Lignocaine hydrochloride. It was revealed that if administration of Procaine is followed by Lignocaine hydrochloride, the mean duration of anaesthesia was 61.60 minutes. The recovery from anaesthesia in all the animals was smooth and uncomplicated and no systemic adverse effects were observed due to the administration of these anaesthetic agents.

COMPARATIVE EFFECTS OF LIGNOCAINE HYDROCHLORIDE AND OF LIGNOCAINE WITH AMYL ALCOHOL AS EPIDURAL ANAESTHETIC IN BUFFALO

Syed Sajjad Hussain, Amresh Kumar and Harpal Singh
College of Veterinary Sciences, Pantnagar (U. P.)

In order to combat chronic rectal tenesmus with irritation of perineum, anus, rectum and vagina in bovines, the following different methods of epidural administration were tried in 12 clinically healthy buffalo calves:

Lignocaine hydrochloride at the rate of 0.05 ml per kg was used alone and

Lignocaine hydrochloride along with amyl alcohol at the rate of 0.25 ml per kg body weight.

The administration in each case was continuous, through an indwelling catheter.

The duration of analgesia in lignocaine hydrochloride 2 per cent group was on an average 1.45 hours and with four repeated injections, it could be prolonged to five to six hours. But with the combination of lignocaine hydrochloride with amyl alcohol, the analgesia lasted on an average for two weeks.

There was a gradual return of sensation in all the animals and no complications were observed. The extent of analgesia was determined by pin pricks of tail region, perineum, anus and inner side of thigh.

The effects of these local anaesthetic technique were studied on various body systems, with various parameters in blood and cerebrospinal fluid. The parameters revealed that these drug combinations do not have any deleterious effects on various organ systems and can be effectively used in clinical cases.

BUPIVACAINE HYDROCHLORIDE (MARCAIN) - A LOCAL ANAESTHETIC FOR EPIDURAL ANAESTHESIA IN DOG.

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Bupivacaine hydrochloride 0.5 per cent, (Marcain), a long acting local anaesthetic was used for epidural anaesthesia in dogs, to evaluate the anaesthetic effects and reactions, if any.

This anaesthetic was tried in five groups of dogs, either alone or in combination with epinephrine, hyaluronidase, epinephrine and hyaluronidase and after premedication with triflupromazine. The anaesthetic effects such as induction time, duration of surgical anaesthesia, and the area of spread of analgesia were evaluated. Parameters as pulse, respiration, rectal temperature, blood pressure and electrocardiography were recorded. Histopathological changes on the nerve tissues were also studied.

Bupivacaine hydrochloride 0.5 per cent solution in combination with epinephrine 1:200,000 was found to be most satisfactory as an epidural anaesthetic for surgery in the posterior part of the body in dogs.

COMPARATIVE STUDY ON ANAESTHETIC PROPERTIES OF 0.5% BUPIVACAINE HYDROCHLORIDE AND 2.0% LIGNOCAINE HYDROCHLORIDE IN EPIDURAL ANAESTHESIA IN CROSSBRED BULL CALVES

M. S. Dhakate, M. D. Narkhede, K. S. Marwah and R. V. Pandit
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A comparative study on the effects of 0.5% Bupivacaine Hydrochloride and 2.0% Lignocaine hydrochloride for epidural anaesthesia in calves was carried out. Thirtysix male calves of 12 to 15 months of age were used in the study, in six groups of six animals each.

Anaesthetics were administered at 2ml, 4ml and 5ml doses in three groups each. The latent period, duration, depth, side effects and cost were assessed.

Lignocaine Hydrochloride had lesser latent period, quicker action and diffusibility. The duration of anaesthesia was more with Bupivacaine Hydrochloride. Grinding of teeth was noticed in those animals where there was staggering gait or recumbency. It was concluded that the use of Bupivacaine is economical because of the longer duration of effects.

EXPERIMENTAL COLLECTION OF EMBRYOS IN COWS

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College of Veterinary Science, Tirupattur.

The ovaries of the donor animals were superovulated during the oestrus phase of the regular estrous cycle. The donor animals were injected with 12 Alpha units of PMSG.

The superovulation was induced on day 9 or 11 of cycle. The animals were placed in a special cage and the ovaries were palpated by rectal palpation. The uterus was flushed with sterile isotonic Ringer's solution and the oviducal tubes were flushed with sterile isotonic Ringer's solution. The uterine contents were evacuated under aseptic conditions.

EXPERIMENTAL COLLECTION OF EMBRYOS IN COWS

D. Palanichandran and V. Srinivasan
Department of Surgery & Radiology,
College of Veterinary Science, Tirupattur.

The donor animals were superovulated with PMSG of 12 units. The ovaries were palpated 9 or 11 days after superovulation. Following oviducal flushing the uterine contents were evacuated under aseptic conditions.

EXPERIMENTAL SURGERY - II

RECOVERY OF TOTAL REPRODUCTORY IN ANIMALS

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College of Veterinary and Animal Sciences, Haver.

When the total reproductive system of the buffalo calves, there was no notable deterioration in the survival of the calves. However, unlike cattle the survival time was not 300 days but 200 days. The period of observation of seven days. The total dry weight of the calves at the age of 3 months was 3.50 g/m²/day and 161.95 g/m²/day. The total dry weight of the calves at the age of 3 months was comparable to that of the calves of the same age. The calves were associated with hypochloremia, hypokalaemia and hypomagnesaemia. The concentration of sodium and potassium in the plasma was low. The normal inverse relationship between sodium and potassium in the plasma was disturbed. There was no evidence of

The survival of the calves was similar to that of the calves between cattle and buffalo. In response to the treatment.

SURGICAL COLLECTION OF EMBRYOS IN COWS

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College of Veterinary Science, Tirupati.

6 cows with normal reproductive cycle were superovulated during the luteal phase of the reproductive cycle. Within 48 to 72 hours, prostaglandin F2 Alpha was injected to all the animals. The animals were inseminated with frozen semen.

The embryos were collected between day 8 to 11 of cycle. The animals were anaesthetized and mid-ventral laparotomy was performed in front of udder. The uterus was flushed with media and the flushings were collected via cannulated oviducts. The laparotomy wound was sutured in routine manner. The embryos were evaluated under stereomicroscope.

NON SURGICAL COLLECTION OF EMBRYOS IN COWS

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College of Veterinary Science, Tirupati.

6 cows were superovulated during luteal phase with PMSG or FSH. Prostaglandin F2 Alpha was injected about 48 to 72 hours, following superovulation. Following oestrous symptoms the animals were inseminated using frozen semen.

The embryos were collected between day 8 to 11 using 2-way Foley Catheter passed through cervix. The embryos were evaluated under stereo-microscope.

EFFECTS OF TOTAL NEPHRECTOMY IN BUFFALO CALVES

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College of Veterinary and Animal Sciences, Hissar

Following total nephrectomy in six buffalo calves, there was no notable deterioration in the clinical condition of these animals. However, unlike cattle the survival time was not high, and only two buffalo calves survived the period of observation of seven days. The mean rise in blood urea nitrogen and plasma creatinine was 8.60 μ mol/L/day and 161.65 μ mol/L/day, respectively. The rate of increase of these constituents in saliva was comparable to blood but lower in the rumen. Metabolic acidosis developed with hypochloraemia, hyperkalaemia and hypocalcaemia. The plasma concentrations of sodium and inorganic phosphate did not change due to their adjustments via saliva. The normal inverse relationships between sodium and potassium and calcium and phosphate were disturbed. There was no evidence of haemoconcentration and hyperglycaemia.

This study showed marked species variations between cattle and buffaloes in response to nephrectomy.

CORYNE BACTERIUM PARVUM INDUCED REGRESSION OF BOVINE CANCEROUS LESIONS.

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College of Veterinary Science, Tirupati.

The immunostimulant property of *Coryne bacterium parvum* has been made use of in controlling the recurrence of carcinomatous lesions of the bovine eye and horn. Both intraleisional and intravenous routes of administration of this dried bacteria showed equal potency in checking the further growth of these neoplasms. The anti-tumor properties of *Coryne bacterium parvum* (and the protency of its combination with a reduction in the tumor burden by surgery) in effectively reducing the incidence of recurrence are discussed.

HAEMODYNAMIC ALTERATIONS DURING ELECTROANAESTHESIA IN YOUNG BUFFALOES : COMPARATIVE STUDY OF ELECTRIC WAVE FORMS.

M. N. Rao, O. Ramakrishna, and D. S. Vijaykumar.

Department of Surgery & Radiology,
College of Veterinary Science, Tirupati.

Sine, triangular and square wave alternating currents were used to anaesthetize young buffalo calves. Central venous pressure, systolic and diastolic blood pressures and circulatory rate were monitored before, during and after the current application.

The square and triangular wave currents produced a significant ($P \leq 0.01$) increase in central venous pressure, mean systolic and diastolic blood pressures, during electroanaesthesia. The sine wave seemed to produce these changes to a lesser degree than the other two wave forms. From the results of objective evaluation of the effects produced on these physiologic values, the sine wave would be preferred to the other two wave forms for producing anaesthesia in buffaloes.

EXPERIMENTAL CREATION OF HYPOPYON AND ITS SURGICAL TREATMENT IN BUFFALO CALVES

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College of Veterinary Science, Tirupati

In farm animal ophthalmology corneal ulceration and/or hypopyon is one of the common conditions. Hypopyon is a collection of pus in the anterior chamber, which results in epiphora, loss of vision, and blepharospasm followed by purulent conjunctivitis. In majority of such cases the veterinarian attempts extirpation or enucleation of eye ball. But this procedure undoubtedly reduce the efficiency as well as the value of the animal affected.

The present experiment envisages experimental production of hypopyon and surgical treatment of the condition in buffalo calves. Corneal puncture was induced in 6 healthy buffalo calves and were observed for the development of symptoms of hypopyon. Ophthalmic surgery was undertaken when there was complete loss of vision of the affected eye.

The calves were starved for 24 hours prior to surgery, and sedation was achieved by intravenous injection of xylazine at the rate of 0.5 mg. per kg. body weight. Retrobulbar block was given by injecting 10 ml of lidocaine hydrochloride. Paracentesis of anterior chamber was done and the condition was corrected either by irrigation of the anterior chamber or by manipulation with iris hook and/or eye tissue forceps. Post-operatively penicillin and corticosteroid was injected sub-conjunctivally. Ophthalmic antibiotic ointment with steroid was infused into the treated eye q. i. d. for 10 days. All the animals recovered uneventfully on 15th post-operative day except for a slight corneal scarring.

A SIMPLE SURGICAL TECHNIQUE FOR COLLECTION OF TISSUE FLUID IN BUFFALO CALVES

K. Jayakumar, V. V. Ranade, and N. Venkatarajana, pa.

Bombay Veterinary College Bombay.

There are various surgical techniques, using different types of implantation chambers in tissues or subcutaneous space, employed for collecting tissue fluid (interstitial fluid).

A simple method was standardised in buffalo calves for the collection of tissue fluid, using multiperforated table tennis balls as implants. After making perforations, the balls were washed thoroughly in water and dipped in Povidone iodine 5 per cent solution (Jatadine) for about 30 minutes before implantation.

Buffalo calves aged about 2 years were chosen. Both sides of the neck were shaved, thoroughly washed with water and painted with povidone iodine solution. Under local anaesthesia, 6 to 8 cm long incision was made vertically. The skin was separated from subcutaneous tissue by blunt dissection and the ball was inserted through the incision obliquely upwards to the posterior side. The skin was closed with simple interrupted sutures using cotton thread. Two balls were implanted in each animal, one on each side of the neck.

The animals were tied in such a fashion that the neck rope would not rub on the operative site or the ball. A course of antibiotic therapy was given, the skin wound was dressed daily and the sutures were removed on the seventh day.

Straw-coloured tissue fluid could be collected from the implanted balls during the third and fourth week of implantation. But after the 4th week tissue fluid could not be collected, and examination of the implanted balls after their surgical extirpation revealed that the whole space inside the ball was obliterated by thick whitish tissue which was poorly vascularised fibrous connective tissue.

CONCENTRATION OF AMPICILLIN IN TISSUE FLUID AND ITS IMPLICATIONS IN SURGERY

K. Jayakumar., V. V. Ranade., and N. Venkataramanappa
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Prophylactic use of antibiotics in preventing infections of surgical wounds has been well-documented. However, there is controversy over the time at which the antibiotic is to be administered before surgery. Hence this study.

Multiperforated polypropylene balls were subcutaneously implanted in the neck region of six buffalo calves aged about two years. After three weeks Ampicillin Sodium was injected at the dose rate of 5 mg/kg. body weight. Blood and tissue samples were collected periodically and the concentration of ampicillin was quantitatively estimated by microbiological assay.

After intravenous, intramuscular and subcutaneous injections of ampicillin, the peak serum concentrations achieved were 18.7 Mg/ml. at 5 minutes, 6.97 Mg/ml. at 15 minutes, and 5.87 Mg/ml. at 15 minutes respectively. Whereas the peak concentrations in tissue fluids were 2.43 Mg/ml at 3 hours, 2.22 Mg/ml at 3 hours, and 2.4 Mg/ml at 3 hours respectively.

The levels in serum declined rapidly whereas the levels in tissue fluids declined gradually and remained more or less steady between 2 and 4 hours after the injection of ampicillin by any of the 3 parenteral routes of administration.

In the light of the above findings it is advisable to administer ampicillin about three hours prior to surgery for maximum effect.

HAEMODYNAMIC AND VENTILATORY EFFECTS OF EXPERIMENTAL HYPERCAPNIA IN BUFFALO CALVES

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College of Veterinary Sciences,
Haryana Agricultural University, Hissar.

The effects of experimental hypercapnia on haemodynamic system and respiration were studied in seven male buffalo calves. All animals were intubated under Xylazine plus Ketamine anaesthesia and carbon dioxide was introduced through Magill attachment by semi-open system. The maximum degree of hypercapnia obtained was equal to $p\text{CO}_2$ 235.06 + 9.072 mm. Hg. The effects of hypercapnia on ECG, EEG, Blood pressure, CVP, minute volume, heart rate, and temperature were studied.

Blood pressure changes positively correlated with hypercapnia. Significant tachycardia was observed only at mean $P\text{CO}_2$ of 235.06 mm. Hg.

Hyperventilatory effects of hypercapnia were observed upto $p\text{CO}_2$ of 140.40 mm. Hg., and thereafter minute volume showed progressive decline. Central venous pressure changes were undulating.

VARIATION OF LOCAL OXYGENATION AND CELLULAR CHANGES (OSTEOGENESIS) FOLLOWING VENOUS OCCLUSION

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Experiment was conducted in 3 groups of 8 dogs each. In animals of group I, the femoral vein was occluded at its proximal end, without any fracture. In group II, transverse fracture of mid shaft of tibia was induced with an oscillating disc saw. In group III venous occlusion was induced after creation of fracture. The femoral artery and vein were exteriorised for collection of blood samples. Blood from these were collected anaerobically before experiment, just after experiment and at 24, 48 and 72 hrs.

Four animals from each group were sacrificed at 48 and 72 hrs and the callus harvested for histologic and histoenzymologic studies.

It was observed that there was an enhanced cellular activity and a mild elevation of oxygen extraction ratio where venous occlusion was induced following fracture.

ROLE OF VENOUS OCCLUSION IN PULMONARY FAT EMBOLISM

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Punjab Agricultural University Ludhiana

In this study 12 clinically healthy dogs randomly divided into 2 groups of 6 animals each were taken. Fracture of mid shaft of tibia was created in both the groups. In group II in addition to the fracture, femoral vein was ligated at its proximal end. Medullary cavity of tibia was thoroughly teased in all the animals. Blood samples were collected anaerobically from jugular vein and carotid artery before and after anaesthesia, immediately after fracture and/or venous occlusion and at 24, 48 and 72 hrs.

Disturbance of marrow resulted in a mild decrease of arterial PO_2 . However, where venous occlusion preceded the disturbance, there was no evidence of such a phenomenon. The role of exsclated medullary fat in pulmonary embolism and the role of venous occlusion in its prevention is discussed.

RELATIONSHIP OF ACID-BASE AND BLOOD GAS VARIABLE FROM JUGULAR VEIN, AURICULAR ARTERY AND AURICULAR VEIN OF CATTLE

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Nine adult bullocks were used for this study. Auricular artery was found to be convenient for collection of arterial blood samples in cattle. The mean values of actual

bicarbonate, standard bicarbonate, base excess and buffer base were comparable in all the three blood vessels. The pH, P_{CO2} and P_{O2} differed significantly between auricular artery and articular vein. The pH, bicarbonate and oxygen content for arterial blood could be determined from either of articular vein or jugular vein by a regression equation.

EFFECT OF EMASCULATION ON SEX HORMONE PROFILES IN EQUINE AND BOVINE

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The testicular and plasma androgen levels in the pre and post operative periods were determined after two different methods of castration in bovine and equine. After ligation of spermatic cord in bulls, the plasma androgen levels were 90, 126, 115 and 130 mcg% at 60, 90, 120 and 150 days post-operative. With burdizzo method, it was 113, 98, 125 and 126 mcg%. The testicular androgen levels in these animals at the same intervals were 0.3, 0.1, 0.37 and 0.1 in the former and 0.1, 0.4, 0.88 and 0.3 in the latter. In bull calves, on the 15th and 30th postoperative days, the values were 147 and 50 mcg% in the former method and 130 and 20 mcg% in the latter method.

In equines, the plasma androgen profiles after ligation of spermatic cord were 1.8 and 0.9 mcg/L at 60 and 90 days postoperative. Testicular androgens were untraceable. In conventionally castrated horses it was 0.1 and 0.9 mcg/L at 60 and 90 days postoperative.

Published by the American Society of Anesthesiologists, 535 North Dearborn Street, Chicago, Illinois 60610

The patient, a 35-year-old male, 165 kg, developed a ventral hernia about 2 inches below the umbilicus. The patient was treated with analgesics. At the request of the local physician, the patient was admitted to the hospital.

On admission, the patient was found to have a large hernia protruding from the site of the umbilicus. Signs of obstruction produced by distention of the hernia were observed. The patient was treated with analgesics. The patient was admitted to the hospital. The patient was treated with analgesics. The patient was admitted to the hospital.

The patient was treated with analgesics. The patient was admitted to the hospital. The patient was treated with analgesics. The patient was admitted to the hospital. The patient was treated with analgesics. The patient was admitted to the hospital.

On the morning of the operation, the patient was given a general anesthetic. The patient was treated with analgesics. The patient was admitted to the hospital. The patient was treated with analgesics. The patient was admitted to the hospital.

CLINICAL SURGERY - III

The patient was treated with analgesics. The patient was admitted to the hospital. The patient was treated with analgesics. The patient was admitted to the hospital.

THE EFFECTS OF A SLEEP ANTIDEPRESSANT FOR CANAL - A PRELIMINARY TRIAL

by J. S. G. Chandra, R. H. Choudhary and P. R. Das
Department of Physiology and Animal Sciences, Bihar

The patient was treated with analgesics. The patient was admitted to the hospital. The patient was treated with analgesics. The patient was admitted to the hospital.

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VENTRAL HERNIORRHAPHY IN AN ELEPHANT UNDER XYLAZINE SEDATION

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A six-year-old elephant heifer weighing 1025 kg. developed a ventral hernia about 8 inches behind the umbilicus. The animal was of erratic temperament. At the request of the forest officials, surgery was proposed.

Xylazine 160 ml. was injected intramuscularly. Signs of sedation evidenced by dullness of eyes, dribbling of saliva and relaxation of the trunk, was noticed after 20 minutes. She was standing quietly, and was forced to lie down, by 28 minutes after the injection, in lateral recumbency. The legs were tied up. As sedation deepened, there was complete relaxation and snoring sounds were heard.

The hernial ring was four-finger in diameter, with a small sac and reducible contents. The site was prepared for surgery. The skin was opened, sac freed and reduced as in a standard umbilical hernia. The hernial ring was closed by overlapping suture of its edges by No. 3 B. B. silk. The skin edges were apposed by interrupted mattress sutures. Penidure LA-48 was injected intramuscularly. The animal got up without provocation at 85 minutes post-injection and 12 minutes after operation.

On the fifth post-operative day, the site swelled up. She did not allow anyone to go nearby. Xylazine 160mg. was injected I/M. Although sedation was obvious, she refused to lie down even after repeated efforts, but remained standing quietly undisturbed to any external stimuli, producing snoring sounds. The wound was found contaminated with mud. All the skin sutures were undone to drain out huge quantity of pus and it was dressed subsequently as an open-wound. On the 8th post-operative day, the hernial sac was detected protruding as a small, soft, round object. No attempt was made to repair because of prevailing infection. Satisfactory dressing was not possible. When Xylazine injection 160 ml. was repeated sedation was excellent as before, and dressing was done.

Xylazine was proved an excellent and safe sedative and analgesic drug for elephant and it did not produce any obvious ill-effects by repeated use.

LUGOL'S IODINE: A BLOOD ANTISEPTIC FOR CAMEL - A PRELIMINARY TRIAL

T. K. Gahlot; D. S. Chouhan; R. H. Choudhary and P. R. Dudi
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Camels suffering from multiple abscesses, lymphangitis, foot infections, actinobacillosis and actinomycosis, failed to respond satisfactorily to routine systemic antibiotic therapy, i.e. tetracyclines, sulpha, strepto-penicillins, etc.

Such cases responded dramatically to administration of Lugol's iodine intravenously for 5 to 10 days depending on the severity of the infection.

SURGICAL REPAIR OF PROLAPSED PREPUCE IN A CAMEL

D. S. Chouhan, T. K. Gahlot, S. K. Khatri,
R. J. Choudhary, and R. K. Purohit.
College of Veterinary and Animal Sciences, Bikaner

Prepuce prolapse is quite uncommon in camels. A case of prepuce prolapse in a camel was treated under general anaesthesia. After excising the prolapsed portion, the mucosa was sutured with skin by 4 stay sutures at 3, 6, 9 and 12 O'clock positions using chromic catgut No. 2, followed by simple continuous sutures at muco-cutaneous junction. Healing was uneventful with no post-operative complications.

REPAIR OF FRACTURED UPPER JAW OF A CAMEL

T. K. Gahlot, D. S. Chouhan, R. J. Choudhary and Shyam Swaroop.
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A camel was presented with a history of broken upper jaw with a lathi blow. Clinical examination revealed the deviation and deformity of upper jaw with crepitation of bones. Lateral radiograph revealed multiple fracture of nasal and maxilla bones.

Corrective manipulations were done under Trifluopromazine tranquilisation and infra-orbital nerve block. The fracture was reduced by manual forward pulling of upper lip; and immobilization was done with copper wiring passed on each side. The wires of each side were passed posteriorly through a hole drilled between gums of first two premolars and anteriorly in a groove made at the base of upper canines, and tied together.

After two months when there was radiological union, the wires were removed.

SURGICAL REPAIR OF DISPLACED TENDO-ACHILIS IN A CAMEL

D. S. Chouhan, R. J. Choudhary, and T. K. Gahlot
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A camel was presented with a history of typically flexed hock while attempting to rise. Clinical examination revealed the displaced / luxated tendo-achilis. Surgical intervention involved drilling of an oblique tunnel in lower half of the tibia at a site opposite to the luxation side and application of a nylon rope in figure-of eight fashion under epidural anaesthesia. Bone tunnel was incorporated in lower loop and tendo-achilis was reposed in the upper loop of the figure-of-eight. The skin wound was closed conventionally. Recovery was uneventful without recurrence.

AMPUTATION OF ANTERIOR FRAGMENT IN UNREPAIRABLE MANDIBULAR FRACTURE IN CAMEL (CAMELUS DROMEDARIUS): A REPORT OF FIVE CLINICAL CASES

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Mandibular fracture is very common in male camel, specially during rut season (winter), when the sexually excited animal bites odd objects and in doing so the jaw gets fractured. The fracture can occur at any point on horizontal rami between canine and the first grinding premolar because this portion of mandible is inherently weak. The most common site of fracture is either cranial or caudal to the wolf tooth. But some times the fracture is just close to canines and in such cases either there is a non-union or delayed malunion because the root of canine is interposed between the fractured fragments. This type of fracture is common in old animals where healing response is already poor.

The different methods of mandibular immobilization like interdental wiring, transfixation and double triangle type splint were applied in such cases but all in vain. Prehension in camel is chiefly a concern of lips and taking account of this fact, the authors have ventured to amputate the anterior fractured fragment under local anaesthesia incorporating the incisors and canines. Although for a few days after amputation prehension was not possible, later on it was normal. Incisors play very important role in browsing and thus such treated animal loses the power of browsing on grasses, shrubs and trees and therefore stall feeding remains the only alternative to prolong the life of the animal.

XYLAZINE AS A SEDATIVE IN ROYAL BENGAL TIGER

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A maneater, adult Royal Bengal Tiger, was caught under bait in a trap net. While the forest officials transferred it to an iron cage, the tiger sustained multiple injuries.

To facilitate dressing of the wounds, Xylazine 100mg. was injected into the tail muscle when the animal was lying down. (The body weight was approximately 100kg.)

The movements of the head and tail, alertness of the eyes etc. were found reduced to half, about 15 minutes after the injection. The pupils dilated progressively, salivation increased, and there was vomition. Soon after this, the head dropped, pupillary size became half, tail was completely flaccid, and relaxation of abdomen was excellent. The wounds were dressed. The sedation was deep and there was no response to any provocation. But when loud sounds were produced, slight twisting of the ears were noticed, which indicated that even in deep sedation with Xylazine, auditory response is preserved in this species. This occurred at the peak of sedation (i. e., at 35th minute after injection). The animal vomitted again at 41st minute. Sedation lasted for 2½ hours.

Xylazine has been proved a good sedative and relaxant in Tiger at the dosage rate of one milligramme per kilogramme body weight.

MULTIPLE TRAUMA IN A PELICAN INFLICTED BY A LION

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Birsra Agricultural University, Ranchi

A brown pelican wandering in the precincts of animal houses of a circus, chanced its bill for a chunk of meat from the cage of a lion provided with daily meat ration. Outraged, the lion slapped the pelican in the region of lower mandible and posterior pouch. The result was a badly lacerated billpouch, detached hyoid bone, exposed larynx, and torn bill commissures.

Four hours after the episode the battered pelican was provided surgical panacea after administering Dexamethasone 2 mg. intramuscularly and feeding glucose water through oesophageal intubation accomplished by a 6 mm urinary catheter. Skin edges were trimmed evenly and the bill commissures were stitched with 2/0 braided silk. Part of hyoid bone was resected and then reposed and retained by anchoring stitches with the laryngeal wall. The bill pouch was sutured on both sides with 3/0 silk in such a way that maximum dimension could be retained. Routine postoperative care was adopted and the pelican recovered from the catastrophe.

POST-PARTUM VAGINO-CERVICAL PROLAPSE IN A RABBIT: A CASE REPORT

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A female rabbit, which delivered a young one on the previous day, had vagino-cervical prolapse containing a greatly distended bladder.

The prolapsed portion which was about the size of a tennis ball, was washed free of dirt and debris using physiologic saline, and was raised dorsally to permit the correction of the kink in the urethra and to allow escape of urine from the distended bladder.

The space between the vulvar commissures was very little and hardly permitted a little finger. Application of a few grammes of sugar on the prolapsed mass brought about marked reduction in its size and facilitated its replacement to the normal place. No regional analgesia or tranquilizers were used.

To control local surface irritation and the resulting tenesmus, sulphanylamide in shark liver oil was applied on the cervico-vaginal and vulvar mucous membranes. The case was cured in due course without any complications.

PROLAPSE OF CLOACA IN A PYTHON

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College of Veterinary & Animal Sciences, Mannuthy, Trichur

A python 11 feet long and 12 inches in diameter had prolapse of the cloaca. The prolapsed mass was amputated under hypothermic anaesthesia (keeping the python in a bucket immersed in freezing mixture), Fortwin and local infiltration of 10 ml Xylocaine 2 per cent solution at the base of the prolapsed mass. The snake recovered from anaesthesia five minutes after the operation and passed faeces on the tenth day.

A case of prolapse of cloaca in a python and its successful surgical treatment is recorded.

SPARINE AND COMBELAN AS ANALGESIC AGENTS IN DOGS

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Combelen @ 0.05 ml/kg and sparine @ 3mg/kg I.M. were used as sedative, analgesics in dogs. The analgesia lasted from 30-45 minutes and it was of longer duration in combelen administered dogs. There was slight decrease in respiration, heart rate and rectal temperature after their administration at maximal depth of analgesia. A slight decrease in mean arterial blood pressure and central venous pressure was observed after their administration. No significant change in electrocardiogram was noted after sparine administration whereas first degree A. V block was observed in 3 dogs of combelen group. The acidbase parameters remained essentially within normal range except a slight increase in pCO_2 and a decrease in pH at maximal depth of analgesia in combelen treated dogs. Various haemocytological and biochemical parameters (electrolytes: Na^+ , K^+ , and Cl^- ; enzymes: SGOT, SGPT, BUN and glucose) revealed minor alterations at 1 hour after administration which were compensated in 24-48 hours. Both the drugs were tolerated well and no complication was observed.

USE OF XYLAZINE FOR ENDOTRACHEAL INTUBATION IN BOVINE

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College of Veterinary Science, Tirupati

General anaesthesia in ruminants is almost always associated with complications like obliteration of free air passage and/or inhalation of rumen contents or saliva into the lungs. This danger can be safely avoided by the use of an endotracheal tube during induction of anaesthesia. Many anaesthetics were tried in the past to intubate cattle. They include barbiturates, chloral hydrate, glycerol gualacolate, ketamine hydrochloride, ether and other compounds. The aim of the present investigation was to determine whether xylazine alone fulfill the requirements for performing endotracheal intubation in cattle, although xylazine was tried with other potential compounds earlier.

Xylazine (Rompun) was tried in four bullocks and 10 buffalo calves for intubation and surgical procedures. All the animals were starved for 24 hours and water was withheld for 12 hours prior to the experiment. Xylazine was administered I/V at the dose rate of 0.5 mg per kg body weight. The induction was smooth, except for mild grunting in a few animals. Muscle relaxation was perfect which included jaw muscles and facilitated the application of the mouth gag. However, the pharyngeal reflexes persisted making intubation difficult. This was overcome by spraying or swabbing 5% Xylocaine over the pharynx. The tip of the endotracheal tube was smeared with Xylocaine jelly. The analgesia and muscle relaxation were sufficient to perform minor and major surgical procedures. The duration of anaesthesia lasted for one to one and half hours. All the animals recovered without complications after the experiment.

STUDIES ON ELECTROANAESTHESIA IN GOATS: EFFECTS OF DIFFERENT PLACEMENTS OF ELECTRODES

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A study of the effects of different types of electrode placements was conducted in goats to assess the possibility of minimising induction discomfort and the collateral effects of electroanaesthesia. Electroanaesthesia produced by either Fronto-occipital (F-o) or Fronto-sacral (F-s) electrode system resulted in painful induction, moderate tachycardia, noticeable muscular spasms and lack of onset of complete anaesthesia, indicating inadvertent coning of current over the other parts of the brain. To the contrary, anaesthesia produced by Bitemporal (B-T) electrode system offered smooth and bearable induction with minimal side effects.

The study showed that the type of placement of electrodes exerts marked influence on the pattern of electroanaesthesia

ELECTRO-MEDICAMENTOUS ANAESTHESIA IN DOMESTIC ANIMALS

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In the preliminary trials, the efficacy of premedication on electroanaesthesia was studied on six buffalo calves. These were compared with non-premedicated animals given electroanaesthesia.

Premedication with triflupromazine HCl reduced the quantity of mA consumed, more than in the animals premedicated with chlorpromazine HCl.

Studies on electro-medicamentous anaesthesia in goats revealed that the use of preanaesthetics as adjuncts to electrical current has a beneficial effect. However, in this species, chlorpromazine HCl was found to be better in solving the problems of discomfort, with a resultant bearable induction.

In the third trial, the effect of premedication (triflupromazine HCl) on the course of electroanaesthesia produced by sine, square and triangular wave currents was studied in six buffalo calves. Apart from alleviating the collateral effects of electroanaesthesia, a significant drop ($P < 0.001$) in the consumption of current (mA) was observed in animals that received premedication and sinusoidal wave current.

ANAESTHETIC MANAGEMENT IN DIAPHRAGMATIC HERNIA IN BUFFALOES

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General anaesthesia possesses no intrinsic merit in the result of surgery, but the skill and craft of the anaesthetist cannot be overlooked when the final outcome of surgical intervention is reviewed.

were used for evaluation of haemodynamics and blood gases analysis. The xylazine and ketamine were used at the dose rate of 0.22 mg/kg and 2 mg/kg respectively. Ketamine administration followed 15 minutes after xylazine. With this combination, complete relaxation of abdominal muscles and cutaneous analgesia were seen for 45-60 minutes. The changes in heart rate and blood pressure were nonsignificant. However, there was significant increase in CVP values in ketamine administration. The respiratory rate decreased significantly at 60 and 75 minutes. There was respiratory acidosis due to alveolar hypoventilation. No appreciable changes were recorded in the values of BUN, creatinine, inorganic-phosphorus, Na^+ , K^+ , Cl^- and total proteins.

USE OF DIAZEPAM AS A TRANQUILIZING AGENT IN BIKANER I CAMEL (CAMELUS DROMEDARIUS)

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Diazepam was administered intravenously in sixty randomly selected healthy camels of either sex, aged between 2 months and 10 years. The dose required to produce clinical tranquilizing effect ranged from 0.133 to 0.223 mg./kg. body weight (Average: 0.170 mg/kg. body weight).

Diazepam produced its predictable, consistent effects regardless of age and sex or temperamental differences. However, the doses per body weight required to produce effect in animals below 2 years of age was found more than what was required for older animals.

The important manifestations of clinical effect were: nodding of the head with extreme flexion, relaxation of the lower lip, presence of corneal and anal reflexes, and staggering.

The maximum tranquilizing effect was observed after 2 to 3 minutes of intravenous injection and it persisted for 20 to 30 minutes, though the hang-over lasted for 2 to 3 hours.

The tranquilization, sedation, and muscle relaxation were perfect in 80% of the cases facilitating clinical examination and manipulations. No adverse effect was observed from single or repeated doses.

For short duration of action it might prove better than Phenothiazine derivatives, because of its early onset, short duration, and wider margin of safety with minimum effect on the cardio-vascular system.

Diazepam can be used in camels of any age.

COMBELN AS PREANAESTHETIC IN THIOPENTONE SODIUM ANAESTHESIA IN DOGS.

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College of Veterinary Sciences,
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Combelen @ 0.05 ml/kg i. m. was used as a preanaesthetic 10 minutes before thiopentone sodium anaesthesia in dogs. Atropine sulphate @ 0.04 mg/kg i. m. was administ-

An approach in terms of balanced anaesthesia is more appropriate in producing general anaesthesia for adult buffaloes. Pre-medication with hydrocortisone, triflupromazine, chloral hydrate, induction and maintenance with thiopentone sodium along with positive pressure ventilation, has been used in clinical cases of diaphragmatic hernia. Practical experiences and some experiments with the above combination are described, under the following heads:

- 1) Preanaesthetic evaluation.
- 2) Ruminal evacuation prior to Surgery.
- 3) Anaesthesia—practical approach and systemic response.
- 4) Post anaesthetic care.

"Anaesthesia and Surgery are dynamic procedures and the maintenance of satisfactory anaesthesia involves expertise and experience to the differing circumstances of every anaesthetic administration".

STUDIES ON HALOTHANE ANAESTHESIA IN BUFFALO-CALVES WITH INTERMITTENT POSITIVE PRESSURE VENTILLATION

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College of Veterinary Sciences, Hissar

The studies were conducted on 6 buffalo-calves aged 1-2 years and weighing from 72-104 kg. Anaesthesia were induced with thiopentone sodium and maintained on halothane through an Animal Subventillator with Halothane Vaporiser. The ventilator was adjusted to have PaCO₂ values near to or less than 50mmHg. Anaesthesia was maintained for 90 minutes and observations made upto 30 minutes after disconnection of halothane administration. There was no acid-base abnormality except for non-significant decrease in arterial pH values. The blood pressure decreased significantly during halothane anaesthesia and values failed to return to normal during the period of observations. The fall in the systolic BP was of higher degree in comparison to diastolic BP, which caused the pulse pressure (PP) to decrease significantly. There was considerable increase in CVP which was statistically significant. No appreciable changes were seen in the heart rate. The variations in Hb, PCV, glucose, BUN, Creatinine, SGOT, SGPT, alkaline phosphatase (AP), Ca, P, Na, K and Cl were statistically non-significant.

EVALUATION OF XYLAZINE-KETAMINE ANAESTHESIA IN BUFFALO-CALVES

A. P. Singh, Jit Singh, P. K. Peshin, J. S. Gahlawat
Prem Singh and J. M. Nigam
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Studies were conducted in 16 buffalo calves divided equally at random into 2 groups. In group I, sedative and biochemical studies were conducted while the animals of group II

ered 15 minutes before administration of combelen. The combelen preadministration significantly enhanced the duration of surgical anaesthesia and decreased the dose of thiopentone sodium. There was an increase in mean arterial blood pressure; heart rate and a decrease in central venous pressure during surgical anaesthesia. No significant alterations in electrocardiogram were observed at various intervals after thiopentone sodium administration. There was a slight decrease in respiratory rate and rectal temperature during anaesthesia. Acid-base analysis revealed a respiratory acidosis during maximum depth of anaesthesia. These cardiopulmonary parameters returned to near pre-administration level by 90 minutes. Various haemocytological and biochemical parameters (serum electrolytes; Na^+ , K^+ and Cl^- enzymes: SGOT, SGPT and BUN) showed minor alterations at 1 hour which were compensated in 24-48 hours. The recovery from anaesthesia was smooth and no complication was observed.

FIELD USE OF THIOPENTONE SODIUM GENERAL ANAESTHESIA IN HORSES

K. G. Avachat

Assistant Director of Animal Husbandry; Nasik, Maharashtra

General anaesthesia with Thiopentone Sodium and preanaesthetic Promazine Hydrochloride was tried in 23 cases of Equine surgery at Veterinary polyclinics for routine equine surgery viz., open castration, suturing of wounds.

The general anaesthesia was achieved by injecting 100 mg. of Siquil (Sarabhai) intravenously followed by I/V administration of 2g of Thiopentone Sodium (Intraval Sodium M & B), in the first instance which brought the horse down and further 1g. of Thiopentone Sodium administered after casting the horse as per requirement for surgical anaesthesia.

The induction of anaesthesia was achieved within 2 - 3 minutes. Duration of anaesthesia was 20-35 minutes. Complete recovery was within 2 hours from the injection of Thiopentone Sodium.

There was no struggling during recovery period, it was due to preanaesthetic. The relaxation was quite satisfactory and sufficient for surgical procedures carried out.

IMMOBILISATION OF ELEPHANTS IN MUSTH USING XYLAZINE HYDROCHLORIDE

Jacob V. Cheeran, K. Chandrasekharan and K. Radhakrishnan

College of Veterinary and Animal Sciences, Mannuthy

Five elephants were immobilized using xylazine hydrochloride employing a dart syringe. The dose varied from 85 to 175 mg/Ton. It was found that the sedation was satisfactory to make the animal tractable in a dose above 100 mg/Ton. None of these animals exhibited lesions on the dorsal side due to photosensitivity which we had noticed when a phenothiazine sedative-acepromazine was combined with xylazine on previous occasions.

SAFFAN ANAESTHESIA IN MONKEY

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Madras Veterinary College, Madras

Saffan (C T 1341), a steroid anaesthetic, has been in use for cats and monkeys as per the literature.

In the present study, Saffan was used for 12 trials on six monkeys. The dose used was one ml/kg for I/M route for group I and 0.75 ml/kg for I/V route for group II. The mean values for induction time, duration of anaesthesia, return of head righting reflexes and the time taken for complete recovery were recorded. Various reflexes were also noted. Pulse, respiration, and the temperature before and during induction at an interval of five minutes until total recovery were recorded.

The anaesthesia produced by Saffan was smooth and satisfactory, and the recovery was without any untoward reaction in all the 12 trials.

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