SOUVENIR AND ABSTRACTS

XXVII[th] ANNUAL CONGRESS OF

INDIAN SOCIETY FOR VETERINARY SURGERY

and

NATIONAL SYMPOSIUM

on

Advances in the Management of Critically Ill Animal Patients

November 20-22, 2003

Department of Surgery and Radiology

College of Veterinary and Animal Sciences,

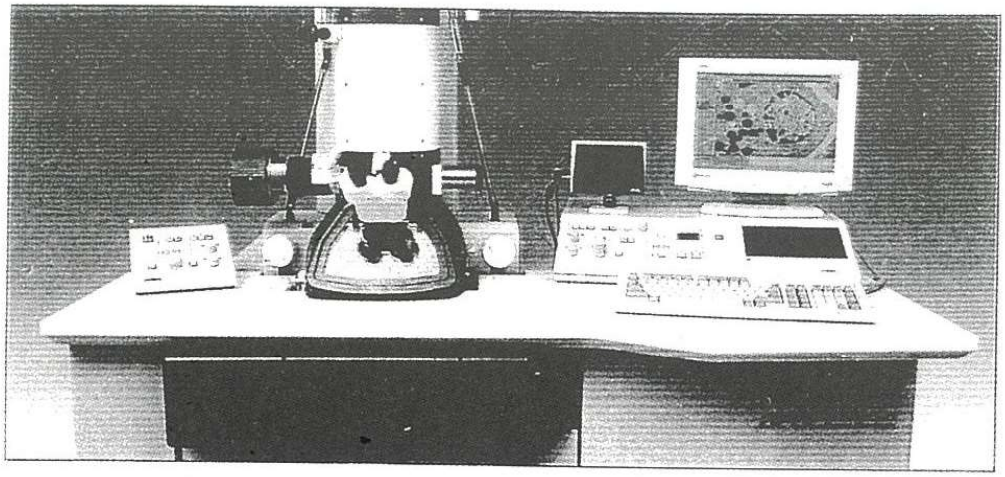
G.B. PANT UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

PANTNAGAR, DISTT. UDHAM SINGH NAGAR - 263 145

UTTARANCHAL

Digital Image TEM

JEM-1011



Dual View Camera/BioScan Camera

HIGH DEFINITION DIGITAL IMAGE SYSTEM WITH WIDE VISUAL FIELD, FOR USE WITH A TRANSMISSION ELECTRON MICROSCOPE

Construction of a darkroom-less electron microscope system

To enable a high quality digital image to be acquired over a wide visual field equivalent to film size, the CCD camera is mouted at the top of the screen of the trasmission electron microscope (TEM) in this way, a film less electron microscope system has now been realized.

Realization of auto-focusing

By combining the external control function of a TEM with the high definition digital imaging technology of a slow scanning CCD camera, the following merits are realized.

- ★ Automatic Focusing
- ★ Automatic astigmatism correction
- ★ Automatic axis alignment

The operator need no longer carry out troublesome TEM adjustments.

Applications of digital imaging technology

High-definition image processing based on high quality digital images realizes the following :

- ★ Auto montage
- ★ Particle analysis

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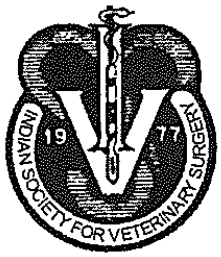

27th Annual Congress

of

Indian Society for Veterinary Surgery

and

NATIONAL SYMPOSIUM

on

Advances in the Management of Critically ILL Animal Patients

Souvenir and Abstracts

November 20-22, 2003

Department of Surgery and Radiology
College of Veterinary and Animal Sciences,
G.B. PANT UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
PANTNAGAR, DISTT. UDHAM SINGH NAGAR - 263 145
UTTARANCHAL

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सत्यमेव जयते

राष्ट्रपति के प्रेस सचिव
Press Secretary to the President

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राष्ट्रपति भवन
नई दिल्ली
President's Secretariat
Rashtrapati Bhavan
New Delhi-110004

Message

The President of India, Dr. A.P.J. Abdul Kalam, is happy to know that the 27th Annual Congress of the Indian Society for Veterinary Surgery and the National Symposium on "Advances in the Management of Critically Ill Animal Patients" are being held at Pantnagar during November 20-22, 2003.

The President hopes that the deliberation at the Congress and the Symposium will provide a unique opportunity to veterinarians to exchange ideas on latest developments in treating critically ill animals in a more effective manner.

The President extends his warm greetings and felicitations to the organizers and the participating delegates and wishes their endeavours all success.

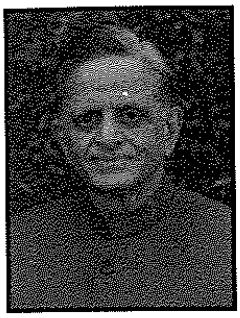
PRESS SECRETARY TO THE PRESIDENT

Sudarshan Agarwal
Governor, Uttaranchal

सत्यमेव जयते

RAJ BHAWAN
Dehradun-248 003

November 10, 2003



Message

I am glad to learn that twenty seventh Annual Congress of Indian Society for Veterinary Surgery and National Symposium on "Advances in the Management of Critically Ill Animal patients" is being held at College of Veterinary and Animal Sciences, G.B. Pant University of Agriculture and Technology, Pantnagar, from November 20-22, 2003. It would be a major event of the year for the Veterinary Surgeons spread all over the Country as far reaching recommendations will emerge from the deliberations on management of critically ill animal patients.

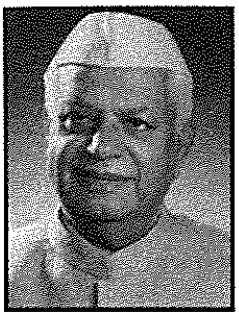
I with the deliberations of the symposium a great success.

(Sudarshan Agarwal)

Narayan Datta Tiwari

CHIEF MINISTER, UTTARANCHAL

VIDHAN BHAWAN,
DEHRADUN



Message

I am happy to know that, a national symposium on "Advances in the Management of Critically Ill Animal Patients" and XXVII Annual Congress of Indian Society for Veterinary Surgery will be organized at Pantnagar from November 20-22, 2003.

I hope that the deliberations of this conference would prove to be a fruitful to develop strategies for better health and production of the livestock.

My good wishes for the successful conduct of the symposium.

(Narayan Datt Tiwari)

राजनाथ सिंह
RAJNATH SINGH

D.O. No.: 1406/AM/2003

सत्यमेव जयते

कृषि मंत्री
भारत सरकार
कृषि भवन
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MINISTER FOR AGRICULTURE
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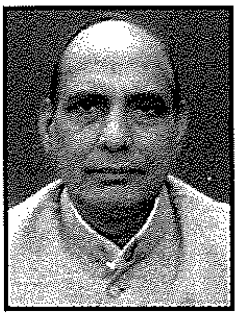

Message

I am very happy to learn that twenty seventh Annual Congress of Indian Society for Veterinary Surgery and National Symposium on "Advances in the Management of Critically Ill Animal Patients" is going to be held at G.B. Pant University of Agriculture and Technology, Pantnagar from November 20-22, 2003.

With globalization of Indian Agriculture, Animal Husbandry is sure to demand a larger share in agriculture income. Veterinary Surgery, a part of animal health programme, will have to play a proactive and wider social role in the management of severely ill livestock so that farmers and pet owners are benefited from the efforts of the veterinarians.

I send my greetings on this occasion and hope that delegates coming from all over the country would utilize this opportunity to deliberate upon various issues related to animal health and come out with valuable recommendations.

(RAJNATH SINGH)

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दुग्ध विकास एवं मत्स्य पालन

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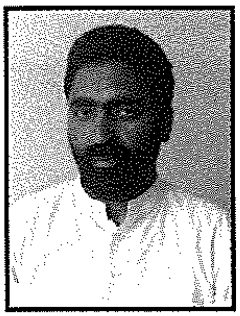


शुभकामना संदेश

यह अत्यन्त हर्ष का विषय है कि पशु चिकित्सा एवं पशुपालन विज्ञान महाविद्यालय द्वारा इण्डियन सोसाइटी फार वैटेरिनरी सर्जरी का 27 वॉ वार्षिक अधिवेशन तथा एडवांसेज इन द मैनेजमेंट आफ क्रिटिकली इल एनीमल पेसेंट्स विषय पर एक राष्ट्रीय संगोष्ठी का आयोजन किया जा रहा है।

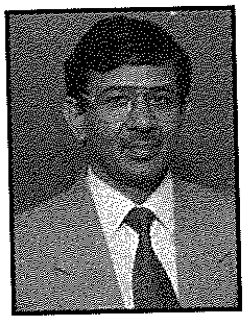
इस संगोष्ठी का विषय उत्तरांचल राज्य के पशुधन विकास परिदृष्य हेतु महत्वपूर्ण है क्योंकि पर्वतीय भौगोलिक परिस्थितियों में पशुओं को अनेक प्रकार की बीमारियों एवं अन्य स्वास्थ्य क्षतिकारक परिस्थितियों का सामना करना पड़ता है। ऐसी स्थिति में पशुचिकित्सकों का सहयोग वांछनीय एवं सराहनीय है। मुझे पूर्ण विश्वास है कि संगोष्ठी में वैज्ञानिकों द्वारा किये गये गहन विचार से जो संस्तुतियो प्रस्तुत होंगी वह निश्चित रुप से बीमार एवं घायल पशुओं के प्रबंधन में अत्यन्त सहायक सिद्ध होगी।

आशा है कि यह बृह्द संगोष्ठी विश्वविद्यालय एवं पशुपालन विज्ञान महाविद्यालय की प्रतिष्ठा एवं देश के विभिन्न भागों से आये शल्य चिकित्सकों की आकांक्षाओं के अनुरुप सफलतापूर्वक आयोजित होगी।

मैं इस संगोष्ठी के सफलतम आयोजन की कामना करता हूँ।

(श्री मंत्री प्रसाद नैथानी)

डा. मंगला राय
सचिव एवं महानिदेशक
DR. MANGALA RAI
SECRETARY & DIRECTOR-GENERAL



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DEPARTMENT OF AGRICULTURAL RESEARCH AND EDUCATION
AND
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Message

It is a matter of great pleasure to know that National Symposium on "Advances in the Management of Critically Ill Animal patients" and XXVII Annual Congress of Indian Society for Veterinary Surgery, is being orgazined at College of Veterinary and Animal Science, G.B. Pant University of Agriculture & Technology, Pantnagar, Uttaranchal from November 20-22, 2003.

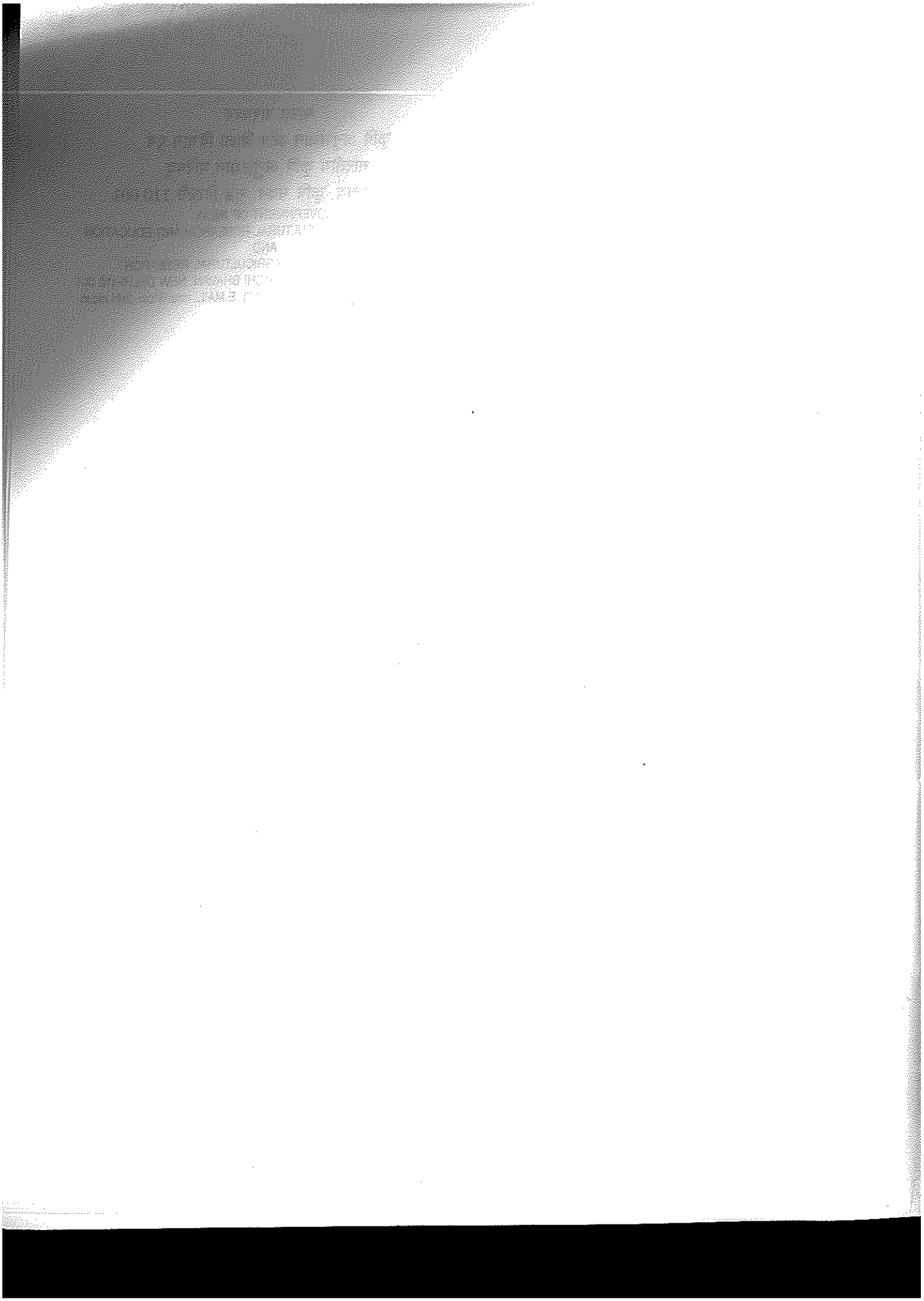
The veterinary scientists in our country have made useful research contributions to protect our animals against several serious diseases that result in productivity loss or even mortality.

I am sure that the learned participants will discuss to develop suitable strategies for addressing the concerns of critically ill animals in a holistic manner.

I wish the events a grand success.

[MANGALA RAI]

Dated the 20th October, 2003
New Delhi



Dr. V.K. TANEJA
F.N.A.A.Sc.
Deputy Director General
(Animal Sciences)

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INDIAN COUNCIL OF AGRICULTURAL RESEARCH
Krishi Bhavan, Dr. Rajendra Prasad Road, New Delhi-110 001

Message

I am happy to learn that Department of Surgery and Radiology, College of Veterinary and Animal Sciences, G.B. Pant University of Agriculture and Technology, Pantnagar is organizing 27th Annual Congress of Indian Society for Veterinary Surgery and National Symposium on "Advances in the Management of Critically ill Animal Patients" from November 20-22, 2003.

In recent years there has been an increased emphasis on treatment of animals suffering from trauma and related problems and many new surgical techniques have been evolved for monitoring and management of critically ill patients. There is need to establish trauma care center for the effective management of critically ill animals in each veterinary college clinics.

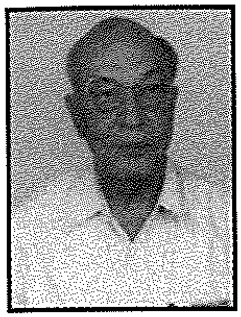
The annual congress of veterinary surgeons will provide a platform to deliberate and assess the requirement of veterinary health clinics with particular reference to surgical management and enable the participants to have an exposure on the latest developments in this field. I am sure that recommendation of the congress would suggest the future guidelines for research in the field of veterinary surgery and allied disciplines.

I wish the Congress a success.

[V.K. TANEJA]

Dated : 27th October, 2003

Dr. A.L. Chaudhary
President



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Message

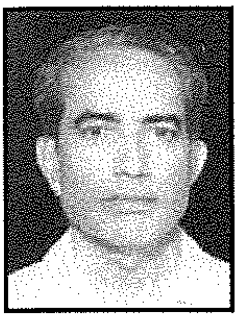
It gives me immense pleasure to know that Department of Surgery & Radiology, College of Veterinary & Animal Sciences, G.B. Pant University of Agriculture & Technology, pantnagar is organizing the 27th Annual Congress of Indian Society for Veterinary Surgery and National Symposium on "Advances in the Management of Critically Ill Animal Patients.

The theme of the symposium is very important in clinical management of severely ill patients. The deliberations and discussions during the congress, I am sure will provide a meaningful direction not for undertaking need based research in the field of Veterinary Surgery & Radiology but also in effective and timely management of critically ill animal patients.

I convey my best wishes to the organizers and participants and wish the symposium a great success.

[Dr. A.L. Chaudhary]

Dr. R.P.S. Tyagi
Ex-Vice Chancellor
C.S.K.H.P.K.V.
Palampur (HP)



Message

It gives me great pleasure to know that the Department of Surgery and Radiology, is organizing the National Symposium on "Advances in the Management of Critically Ill Animal patients" and XXVII Annual Congress of Indian society for Veterinary Surgery at the College of Veterinary and Animal Sciences, G.B. Pant University of Agriculture and Technology, Pantnagar, Uttaranchal from Nov. 20-22, 2003.

The theme of the National Symposium is very important especially at the occasion of XXVII Annual Congress of Indian Society for Veterinary Surgery where field Veterinarians will also have an opportunity to participate in the Symposium. It is an effort in right direction to access the progress made during the last 5 decades in the management of critically effected animals where surgical intervention is required. I hope that some of these important problems would be deliberated in great detail in the ensuring symposium and some meaningful recommendations would be drawn.

I wish for the success of symposium and look forward to the recommendations.

[R.P.S. TYAGI]

P.L. Gautam
Vice-Chancellor

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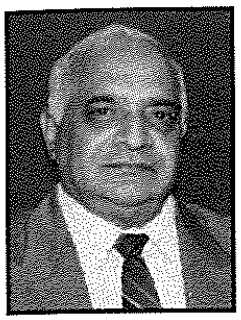


Message

I am happy to learn that twenty seventh Annual Congress of Indian Society for Veterinary Surgery and National Symposium on "Advances in the Management of Critically ill Animal Patients" is being held at Department of Surgery and Radiology, College of Veterinary and Animal Sciences, from November 20-22, 2003. With the globalization of Indian Agriculture, Animal husbandry is sure to demand a larger share in agriculture sector. Animal health programme, of which Veterinary Surgery is an important component, will have to play a more active and wider role so that our farmers gain from the efforts of veterinary surgeons. College of Veterinary and Animal Science at Pantnagar has contributed significantly for the upkeep of animal health in the state and it is very appropriate to select this place as a venue for such an important meet.

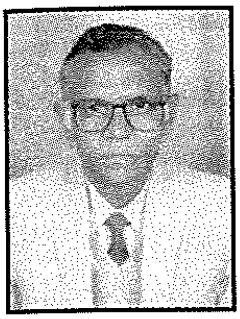
Veterinary surgeons from all over the country will find Pantnagar campus of this first agricultural university to be established in India very congenial for such deliberations. Its Veterinary College is one of the leading institutions in the country and is known for its sincere and highly competent staff and facilities.

I am sure the discussion in the symposium will be very fruitful and valuable for the professional enhancement particularly in the field of veterinary surgery and allied discipline.

I wish the Annual Congress and Symposium a great success.

(P.L. Gautam)

Dr. D. Krishnamurthy
President, ISVS



Message

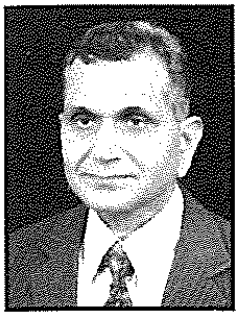
The Indian Society for Veterinary Surgery was established in 1977 in providing opportunity for members to improve their scientific knowledge in handling the animal patients with diversified surgical problems. During these years advances in the academic knowledge of Veterinary Surgery, Anaesthesiology and Radiology helped in the management of animals with major surgical conditions.

The up-to-date information provided at the symposium' *Admnces in the Management of Critically III Animals Patients'* will help the research workers, teachers and field veterinarians in managing all forms of critical and emergent situations in handling clinical cases.

I convey my best wishes to participants and organizers and wish the *symposium* a great success.

(D. Krishnamurthy)

Prof. Amresh Kumar
Ph.D. (Ill.)
F.N.A.A.S., F.N.A.V.S., F.I.S.V.S.
Dean
College of Veterinary and Animal Science



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Message

I am very happy to note that the Indian Society of Veterinary Surgery have chosen College of Veterinary and Animal Science, Pantnagar as the venue of its 27th Annual Congress and National Symposium on " Advances in the Management of Critically ill Animal Patients" to be organized from 20th to 22nd Nov., 2003. Veterinary Surgery has made tremendous progress during the last three decades, be in the discipline of anesthesiology, orthopedic surgery, urogenital surgery radiology, cardiovascular surgery, neuron-surgery and ophthalmic surgery. It is very necessary for the veterinary surgeons to keep abreast with the developments and emerging trend in their field of study to provide effective and efficient service to improve animal health care and production. The Indian Society of Veterinary Surgery has, therefore, taken up the important task of organizing the annual congress in various institutions to provide a platform for the veterinary surgeons so as to discuss the developments in the area of surgery and allied discipline.

The venue of this year symposium, Department of Surgery and Radiology of this College is known for its contribution in the areas of anesthesiology, orthopedic surgery and production surgery in India and abroad, has been pioneer in the development of techniques for pain relief, fracture repair in small and large animals; contrast radiography for delineating various organ systems; enhancing soft tissue repair and increasing animal productivity through embryo transfer or surgical methods. The national symposium on "Advances in the Management of Critically ill Animal Patients" being organized alongwith annual congress is very important and timely, particularly, for finding out ways and means for better management and to provide immediate care for the critically ill patients.

The three days' symposium, I am sure, will come out with definite recommendations in this important discipline to alleviate the animal sufferings and to improve their working and productive life.

I extend a hearty welcome to all the delegates attending the conference and wish the symposium and annual congress a great success.

(Amresh Kumar)

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Directorate of Experiment Station
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Dr. Basant Ram
Director

Message

Organizing conference and symposia provides a platform for the researchers to update their knowledge base and to lay focus on various researchable issues in the field of specialization. It also helps in generating new ideas and identifying thrust area. I am extremely happy that the Indian Society for Veterinary Surgery is organizing a National Symposium on "Advances in the Management of Critically Ill Animal Patients" and also holding its 27th Annual Convention at Department of Surgery and Radiology, from 20-22 Nov., 2003. This is an excellent opportunity for the scientist/ teachers working in the field of veterinary surgery to plan the future strategy for conducting research on clinical problems. I am sure that the scientific deliberation of the symposium will be immense help to research scientist, teachers and field veterinarians.

[BASANT RAM]

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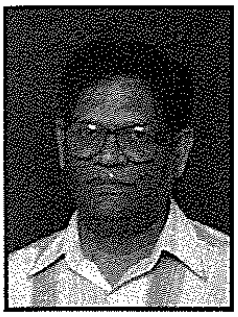

Dear Collegue,

I am happy to welcome you all on the auspicious occasion of 27th Annual Congress of Indian Society for Veterinary Surgery and National Symposium on "Advances in the management of critically ill animal patients" at Department of Surgery and Radiology, College of Veterinary and Animal Sciences, Govind Ballabh Pant University of Agriculture and Technology, Pantnagar.

G.B.Pant University of Agriculture and Technology, the first Agriculture University of the country was established by U.P. Govt. with active support from the university of Illinois, USA and dedicated to the nation on 17th Nov. 1960 by the then Prime Minister of India Pt. Jawahar Lal Nehru to impart agriculture education in the rural setting of our country. The university after reorganization of the state of U.P. came under the jurisdiction of the state of Uttaranchal. The Nobel Laureate Dr. Normen E. Borlaug has called this University as "Harbinger of green revolution in India and can be considered as the mother of all the Agricultural Universities in India."

The university has grown both in size and status over the last 43 years of its existence. At the time of inception there were only two U.G programmes, one each in the college of Agiculture and Veterinary Sciences. At present university offers graduate programmes in 12, master's degree in 72 and doctorate degree in 52 disciplines distributed in nine faculties. Some special features of this university are:

- It is purely a residential university.
- It has a farm of 10,000 acres.
- It has eighrt out campus research stations.
- Practical oriented syllabus.
- Rural development being the guiding principle of its plans and strategies.
- Provides education in Agriculture, Home Science, Veterinary Science, Forestry, and Agribuisness Management with base in basic scineces.
- Field training by earn while learn programme.
- Close linkage between teacher and taught through an efficient Advisor-Advisee system.

- Liberal education, a step towards character building and quality citizenship.
- Admission on merit through entrance examination with weightage for rural candidates.
- Special 15% reservation in admission for rural girls.

COLLEGE OF VETERINARY AND ANIMAL SCIENCES

In the year 1960 College of Veterinary Medicine (Now College of Veterinary and Animal Sciences) was established as the constituent college of the university with four independent departments. The college adopted to implement regulations of the Veterinary Council of India for a uniform undergraduate programme in the year 1995. At present, the college has 17 departments viz., Department of Anatomy and Histology, Clinical Medicine, Gynaecology and Obstetrics, Microbiology, Parasitology, Pathology, Pharmacology and Toxicology, Physiology, Surgery and Radiology, Public Health, Animal Nutrition, Epidemiology and Preventive Medicine, Genetics and Animal Breeding, Livestock Production and Management, Livestock Products Technology, Veterinary Biochemistry, Veterinary and Animal Husbandry Extension and 3 independent units viz., Teaching Veterinary Clinical Complex, Center of Animal Biotechnology and Animal Disease Investigation Center. The college has put more than 2,500 veterinarians with B.V.Sc. & A.H. or M.V.Sc. or Ph.D. degrees in the service to the nation.

DEPARTMENT OF VETERINARY SURGERY AND RADIOLOGY

The department of Surgery and Radiology commences its postgraduate Master's degree programme in the year 1964 and Ph.D. programme in 1978. The thrust areas of research in the department are anaesthesiology, orthopaedics and radiology, tissue repair and development of techniques for the treatment of surgical diseases, use of ethnomedicine and acupuncture in veterinary therapeutics. The departmental post graduate programme derives its inherent support from strong infrastructure, quality faculty, project based research and interdisciplinary collaboration.

PHYSICAL FACILITIES

The departmental laboratories are well equiped and established separately according to the need of various specialized areas under the charge of individual staff members. The important building facilities includes: aseptic operation theatre (for small and large animals) seminar room and departmental library, sterilization room, surgical preparation rooms, anaesthesiology research lab, orthopaedic research lab, general surgery research lab, dark room with modern facilities, radiographic interpretation lab, x-ray rooms for small and large animals etc., besides housing facilities for 40 dogs and 30 large animals and adequate office space for staff members.

The laboratories and operation theatres of the department are equipped with modern facilities. Some of the equipments are: acid-base analyzer, blood gas analyzer, auto analyzer, Boyle's apparatus, Bird's respirator, deep freeze, diathermy unit, nerve muscle stimulator, infra red lamp, flame photometer, incubator, multichannel recorder, micro kjeldahl digestion unit, microtome, operating microscope, fully automatic blood analyzer, muffle furnace, electrocautery unit, oven, paper electrophoresis, digital pH meter, spectronic-20, sterilizers, operation tables for large and small animals, suction apparatus, surgical instruments for atleast 25 surgical packs at a time, single pan and digital balances, ultrasonic diagnostic and therapy units, x-ray machine (125 KvP, 500 Ma), fixed and mobile X-ray machines (100 KvP, 100 Ma), large animal anaesthetic machine, electron microscope and many other accessory equipment.

Central facilities like radiotracer research laboratory with modern facilities, computers, amino acid analyzer, soft x-ray machine and x-ray diffraction equipments and tissue culture laboratory with modern equipments are available to the research workers of the department.

FACULTY

Former Faculty Members

Dr. Ratan Singh	Prof. & Head	1963-1976
Dr. R.N. Kohli	Asstt. Prof. Surgery	1963-1965
Dr. B.N. Bhargava	Asstt. Prof. Surgery	1964-1969
Dr. S. Sahu	Assoc. Prof. Surgery	1966-1983
Dr. R.K. Singh	Asstt. Prof. Surgery	1967-1974
Dr. S.C. Pandiya	Instructor	1973-1975
Dr. Bharat Singh	Asstt. Prof. Surgery	1977-1995
Dr. A.C. Varshney	Asstt. Prof. clinics	1979-1988
Dr. A.P. Singh	Asstt. Prof./JRO	1975- 1976
Dr. Harpal Singh,	Professor & Ex- Dean	1968-2003

Present Faculty Position

1. Dr. Amresh Kumar, Ph.D. (Univ. of Illinois), (b. 15.2.1945) Dean, College of Veterinary and Animal Sciences (Since Nov. 1999), Professor, (Anaesthesiology)
2. Dr. V.K. Sharma, Ph.D. (Pantnagar), (b. 1.10.1950), Professor & Head (Orthopaedic and Radiology)

3. Dr. N.S. Jadon. Ph.D. (Pantnagar) (b.24.1.1958), Associate Professor (Anaesthesiology)
4. Dr. Arup Kumar Das, Ph.D. (CCS HAU) (b. 02.10.1962), Associate Professor (General Surgery and Radiology)
5. Dr. Manjul Kandpal, M.V.Sc. (Pantnagar), (b. 10.6.68) Assistant Professor (General Surgery)

The department has earned a big name amongst the veterinary colleges in India by winning various prestigious national awards from time to time in recognition of important contributions made in different areas of research.

Awards

	Name of Staff mambers	Name of award	Year
i.	Dr. S. Sahu	R.Swaminatha Iyer Memorial medal	1976, 1978
ii.	Dr. Harpal Singh	Ram Lal Agarwal National award	1992
iii.	Dr. Amresh Kumar	G.B.Pant Memorial gold medal	1993
iv.	Dr. Satyendra Kumar (Dr. Harpal Singh, Advisor)	Jawahar Lal Nehru Award	1994
v.	Dr. Harnam Singh	Ram Lal Agarwal National Award	1996
vi.	Dr. Amresh Kumar	Hariom Ashram Trust Award	1996
vii.	Dr. N.H. Kelawala (Dr. Amresh Kumar, Advisor)	Jawahar Lal Nehru Award	1996
viii.	Dr. S.K. Tiwari (Dr. Amresh Kumar, Advisor)	Jawahar Lal Nehru Award	1998
ix.	Dr. S.K. Tiwari (Dr. Amresh Kumar, Advisor)	Dr. A.K. Bhargava Memorial Award	1999

TEACHING

The Department of Surgery and Radiology offers five courses for B.V.Sc.&A.H., and seventeen courses for postgraduate programmes, besides, thesis research for M.V.Sc. and Ph.D. degrees. The U.G. courses are designed in accordance with the guidelines provided by the V.C.I. and P.G. courses as per the university regulations. These courses cover all the important

aspects of Veterinary Surgery and Radiology. The course outlines are suitably modified by the instructors every year to include more recent developments in the respective specialities. Each undergraduate student is given ample opportunity to perform surgical operations on clinical cases under the supervision of instructor on large and small animals. The students are given full opportunity to operate X-ray machine, process the films and interpret the radiographs as a part of the course in diagnostic radiology.

The department admits 6 M.V.Sc. and 2 Ph. D. students every year besides the local staff candidates and candidates sponsored by other Agricultural Universities, National Institutes and government departments. A student working for the Master's degree is required to complete 45 semester credit hours out of which 15 credits are earned by thesis research work and the remaining semester credits cover course work in the major field, or the candidate may select one major and one minor with the approval of his advisory committee. The minimum requirement for course work for Ph.D. is 30 semester credit hours made up of one major and at least one minor. The thesis and research work for Ph.D. carries another 30 semester credit hours.

So far, department has published 5 books, 3 laboratory manuals and 4 research bulletins. Fiftyseven students have earned their master's and twenty one doctarate degree from this department. Department has organized the second Annual Congress of Indian Society for Veterinary Surgery and five ICAR sponsored Summer School till 2003.

RESEARCH

The department has an active need-based research programme with emphasis on local, regional and national problems having inter-disciplinary approach. The department has had the distinction of operating 10 outside funded research projects including 9 ICAR and 1 U.P. Govt. financed projects in the area of anaesthesiology, tissue repair, production surgery, orthopaedics and indigenous medicinal plants. The various preanaesthetics and anaesthetics have been evaluated for use in different species of animals and suitable recommendations were made for clinical uses. Efficiency of local anaesthetic as a therapy for various diseases in bovines has been studied. Acupuncture technique has been found effective in producing analgesia/anaesthesia of various body parts and resuscitation of critically ill and deeply anaesthetized animals. The effect of partial method of castration was studied in goats and buffaloes and it is observed that quality and quantity of meat increases when the goats and buffaloes are partially castrated at the age of 15 days and 2 months respectively. Various immobilization techniques for repair of fractures in large and small animals have been evaluated. Significant studies have been conducted on osteomyelitis,

arthritis and tendon surgery in bovines. Significant work on contrast radiography in animals was also undertaken. In recent years attention has been focussed on the therapeutic and anaesthetic application of acupuncture in different species of animals. A total of 297 research papers have been published by the staff members of the department in national and international journals of repute in the area of anesthesia (144), radiology (10), production surgery (43) and orthopaedic (100).

EXTENSION

In addition to teaching and research programmes, the department also participates in the clinical activities like National Social Service scheme, organization of animal welfare camps at village level and provides surgical facilities at the farmers' door under the auspice of Blue Cross Society, Pantnagar. Department also organizes short term training programmes for the serving veterinarians and paraveterinary staffs to enhance their professional competency.

We have tried at our level best to make your stay and participation comfortable. I know there are shortcomings but kindly bear with us. I wish all the delegates a pleasant stay during the days that you spent with us and carry back memories worthy of the time.

With warm regards,

(V.K. Sharma)
Convener, XXVII Annual
Congress
of ISVS and National Symposium

Organizing Committee

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Vice-Chancellor

Chairman

Dr. Amresh Kumar
Dean
College of Veterinary and Animal Sciences

Convener

Dr. V.K. Sharma
Prof. & Head, Surgery

Co-convener

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Assoc. Prof., Surgery

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   Dr. D.C. Thapliyal
   Dr. V.D. Sharma
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   Dr. N.S. Jadon
   Dr. Arup Das

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    Dr. V.S. Rajora
    Dr. Awadhesh Kumar
    Dr. S.K. Hore
    Dr. J.K. Prasad
    Dr. Manjul Kandpal

11. **Scientific Exhibition committee**
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    Dr. D.V. Singh
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    Dr. P.S. Banerjee
    Dr. S.K. Rastogi
    Dr. Balwinder Singh
    Dr. Manjul Kandpal
    Dr. Rashmi Singh

13. **Finance monitoring committee**
    Dr. Amresh Kumar
    Dr. V.K. Sharma
    Dr. N.S. Jadon
    Sri. S.D. Upadhyaya

PROGRAMME

Venue: Dr. Ratan Singh Auditorium, College of Veterinary and Animal Sciences

NOVEMBER 20, 2003: THURSDAY

8.00 AM to 9.00 AM	Breakfast
9.00 AM to 10.00 AM	Registration
10.00AM to 12.00 AM	Inaugural Session (Dr. Ratan Singh Auditorium)
12.00 Noon to 1.00 PM	Inaugural Tea
1.00 PM to 1.30 PM	Visit to Stalls
1.30 PM to 2.30 PM	Lunch
2.30 PM to 3.15 PM	TECHNICAL SESSION I – THEME SESSION
	Chairman : Dr. R.P.S. Tyagi
	Co-chairman : Dr. V. Ramkumar
	Rapporteur : Dr. S.K. Tiwari
	LEAD PAPERS
(i) Dr. B. Rámesh Kumar	Management of critically ill pet animals.
(ii) Dr. S.K. Pandey	Ethnomedicine for management of critically ill surgical patients.
3.15 PM to 5.00 PM	TECHNICAL SESSION II –ANAESTHESIOLOGY
	Chairman : Dr. J.M. Nigam
	Co-chairman : Dr. S.S. Hussain
	Rapporteur : Dr. Bhupen Sarma
	LEAD PAPERS
(i) Dr. A.H. Ahmed	Recent trends in the assessment and management of pain in animals.
(ii) Dr. L.B. Sarkate	Anaesthetic management of patients suffering with cardiac, respiratory and nervous insufficiencies.
(iii) Dr. S.S. Hussain	Potentiation of local anaesthesia in critically ill patients.
	ORAL PRESENTATIONS
5.00 PM to 5.15 PM	Tea break
5.15 PM to 6.15 PM	TECHNICAL SESSION III – POSTER SESSION – I (Anaesthesiology, Radiology and Imaging Techniques, Orthopaedic Surgery, Zoo Animal Surgery)
	Chairman : Dr. S.K. Pandey
	Co-chairman : Dr. Kuldeep Singh
	Rapporteur : Dr. Bharat Singh
6.15 PM to 8.00 PM	TECHNICAL SESSION IV – RADIOLOGY AND IMAGING TECHNIQUES
	Chairman : Dr. Gaj Raj Singh
	Co-chairman : Dr. S.K. Chawla
	Rapporteur : Dr. Sandeep Kumar Sharma
	LEAD PAPER
(i) Dr. A.P. Singh	Current trends in Veterinary imaging techniques.
	ORAL PRESENTATIONS
8.30 PM	Dinner

NOVEMBER 21, 2003: FRIDAY

8.00 AM to 9.00 AM — Breakfast

9.00 AM to 11.00 AM — TECHNICAL SESSION V – ORTHOPAEDIC SURGERY

Chairman : Dr. A.P. Singh
Co-chairman : Dr. S.S. Singh
Rapporteur : Dr. T.N. Ganesh

LEAD PAPERS

(i) Dr. S.S. Singh — Innovations in small animal fracture management.
(ii) Dr. S.K. Chawla — Advances in physiotherapy in animals.

ORAL PRESENTATIONS

11.00 AM to 11.15 AM — Tea break

11.15 AM to 1.30 PM — TECHNICAL SESSION IV – LARGE ANIMAL SURGERY

Chairman : Dr. Harpal Singh
Co-chairman : Dr. L.B. Sarkate
Rapporteur : Dr. T.K. Gahlot

LEAD PAPERS

(i) Dr. D. Krishnamurthy — Advances in the management of critically ill farm animals.
(ii) Dr. S.S. Rathore — Surgical management of reproductive disorders in equine.
(iii) Dr.A.C. Varshney — Recent concepts in the diagnosis of intra abdominal disorders in ruminants.
(iv) Dr. Kuldeep Singh — Management of critically ill large animal uraemic patients.
(v) Dr.T.K. Gahlot — Critical care of managemental surgical diseases in camel.

ORAL PRESENTATIONS

1.30 PM to 2.30 PM — Lunch

2.30 PM to 4.30 PM — TECHNICAL SESSION VII – ZOO ANIMAL SURGERY

Chairman : Dr. A.K. Ray
Co-chairman : Dr. V.S.C. Bose
Rapporteur : Dr. Raju Sharda

LEAD PAPERS

(i) Dr. Utkarsh Shukla — Anaesthetic management of critically ill wild and zoo animals.
(ii) Dr. Utkarsh Shukla — Surgical diseases of wild life and their management.

ORAL PRESENTATIONS

4.30 PM to 4.45 PM — Tea break

4.45 PM to 5.30 PM — TECHNICAL SESSION VIII – POSTER SESSION-II

Large Animal Surgery — Small Animal Surgery

Chairman : Dr. S.K. Pandey
Co-chairman : Dr. Kuldeep Singh
Rapporteur : Dr. Bharat Singh

5.30 PM to 7.00 PM — TECHNICAL SESSION IX – AWARD SESSION

Chairman : Dr. D. Krishnamurthy
Co-chairman : Dr. M.K. Bhargava
Rapporteur : Dr. Krishna Pratap

AWARDS

1. Young Surgeon Award 2. Best Field Veterinarian Award

7.00 PM to 8.00 P.M — Cultural Programme

8.00 PM — Dinner

NOVEMBER 22, 2003: SATURDAY

8.00 AM to 9.00 AM — Breakfast

9.00 AM to 11.00 AM — TECHNICAL SESSION X – SMALL ANIMAL SURGERY

Chairman : Dr. P.E. Kulkarni
Co-chairman : Dr. B. Ramesh Kumar
Rapporteur : Dr. M.S. Vasanth

LEAD PAPERS

(i) Dr. T.N. Ganesh — Diagnostic techniques for critically ill patients suffering from thoracic disorders.

(ii) Dr. Bhupen Sarma — Advances in veterinary ophthalmic surgery.

(iii) Dr. Bharat Singh — Diagnosis and management of pet animals suffering from neurological disorders.

(iv) Dr. Gaj Raj Singh — Current concept of articular cartilage repair.

ORAL PRESENTATIONS

11.00 AM to 11.15 AM — Tea break

11.15 AM to 1.15 PM — TECHNICAL SESSION XI – FIELD VETERINARIAN SESSION

Chairman : Dr. P.A. Deore
Co-chairman : Dr. K.G. Avachat
Rapporteur : Dr. G.C. Kandpal

LEAD PAPERS

(i) Dr. Harpal Singh — Recent trends in veterinary surgery.

(ii) Dr. V.K. Sobti — Surgical techniques for better management of critically ill patients under field conditions.

(iii) Dr. A.K. Sharma — Pathophysiological changes in critically ill patients suffering from cardiovascular and respiratory tract diseases.

(iv) Dr. S.K. Tiwari/ Dr. Raju Sharda — Management of critically ill paediatric surgical patients.

ORAL PRESENTATION

1.00 PM to 2.00 PM — PLENARY SESSION

Chairman : Dr. S.S. Rathore
Co-chairman : Dr. S.C. Pathak
Rapporteur : Dr. S. Thilagar

2.00 PM to 3.00 PM — Lunch

3.00 PM to 5.00 PM — General body meeting

5.00 PM to 5.30 PM — Tea break

8.00 PM — Dinner

NOVEMBER 23, 2003: SUNDAY

Visit to Nainital and adjoining places

(On payment basis)

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2.14	Coutto, D.J.; Khandekar, G.S.; Sarkate, L.B.; Lokhande D.U.	Effect of Propofol Anaesthesia on Hematology, Cardiopulmonary, Liver and Kidney Function in Swine
2.15	Singh, S.P.	Local Anaesthetic Therapy in Experimental Aspiration Pneumonia in Crossbred Calves
2.16	Jain, R.; Bhargava, M.K.; Chandrapuria, V.P. and Shahi, A.	Clinical and Haematological Studies on Prolongation of Propofol Anaesthesia Using Ether in Dogs
2.17	Cheema, J.S. and Singh, S.S.	Comparative Evaluation of Diazepam and Midazolam as Preanaesthetic to Thiopentone Sodium Anaesthesia in Buffaloes
2.18	Shinkar, D.S.; Tiwari, S.K.; Sharda, R. and Dubey, S.	Clinico-Surgical Effects of Detomidine and Midazolam as Premedicants to Propofol Anaesthesia in Canines
2.19	Dubey, S.; Tiwari, S.K. and Sharda, R.	Clinicophysiological and Haematological Response to Acepromazine and Medetomidine Used as Premedicants to Propofol Anaesthesia in Dogs
2.20	Patel, J.R.; Parikh, P.V.; Kelawala, N.H.; Patil, D.B.; Barvalia, D.R.; Tank, P.H. and Kognole, S.	Intravenous Regional Anaesthesia of Forelimb Using Lignocaine, Pentazocine, Ketamine, Buprenorphine and Their Combinations in Cow-Calves
2.21	Khandekar, G.S.; Mantri, M.B.; Lokhande, D.U. and Badgujar, C.L.	Effect of Xylazine and Lignocaine Hydrochloride as an Epidural Anaesthesia in Male Buffalo Calves
2.22	Kandpal, M.; Jadon, N.S.; Kumar, A. and Singh, K.A.P.	Reversal of the Effect of Sedative and Clinico Physiological Effects of Xylazine with Yohimbine in Buffaloes
2.23	Kandpal, M.; Jadon, N.S.; Kumar, A. and Kumar, S.	Reversal of Clinical and Physiological Affect of Xylazine by Yohimbine in Dogs
2.24	Kandpal, M.; Jadon, N.S.; Kumar, A. and Yadav, D.K.	Reversal of Clinical and Physiological Effects of Xylazine with Yohimbine in Goats

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4.1	Lele, C.S.; Lokhande, D.U. and Sarkate, L.B.	Sonograms of the Liver, Kidneys and Spleen in the Healthy Dog
4.2	Singh, A.; Singh, P.; Chandolia, R. K.; Singh, A.P. and Singh, J.	Ultrasonographic Studies of the Disease of Liver and Kidney in Adult Dogs
4.3	Singh, A.; Singh, P.; Chandolia, R. K.; Singh, J. and Singh, A.P.	Ultrasonographic Studies of the Develop-mental Stages of Liver and Kidney in Dogs
4.4	Kumar, S.; Qureshi, S.M. and Gahlot, T.K.	Ultrasonographic Diagnosis of Urogenital Affections in Canines
4.5	Dilipkumar D. and Ameerjan, K.	Comparison of Barium Sulphate and Iohexol Contrast Agents for Diagnosis of Upper Gastrointestinal Tract Obstruction
4.6	Hoque, M.; Maiti, S.K.; Singh, G. R.; Kumar, N.; Gupta, O.P.; Pratap K. and Setia, H.C.	Sonographic Evaluation of Normal Bovine Udder and Teat
4.7	Gatoria, I.S.; Saini, N.S. and Raghunath, M.	Comparison of Radiography, Gross and Mineral Findings of Uroliths in 21 Dogs

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5.2	Thilagar, S.; Ganesh, T.N. and Jayaprakash, R.	Successful Management of Thoracic Spinal Compression Due to Lipoma and Hypertropic Degenerative Arthritis of Right Stifle Joint in a Dog
5.3	Raghunath, M. and Singh, S.S.	Use of Static Intramedullary Interlocking Nailing for Repair of comminuted/ Segmental Femoral Diaphyseal Fractures in Four Dogs
5.4	Ramani, C.; Ganesh, T.N.; Divedi, D.K.; Pushkin Raj, H.; Arun, P. and Ameerjan, K.	Surgical Management of Fractures Involving the Rostral Third of Mandible – A Review of Four Cases
5.5	Ganesh, T.N.; Ramani, C.; Ramanujam, K.; Pushkin Raj, H.; Parthiban; Kamalraj and Ameerjan, K.	Surgical Correction of Congenital Deformity of Tibia and Fibula in Two Pups

5.6	Aithal, H.P.; Singh, G.R.; Hoque, M.; Maiti, S.K.; Kinjavdekar, P.; Amarpal; Pawde, A.M. and Setia, H.C.	Hybrid Construct of Circular and Linear External Skeletal Fixators for Treatment of Long Bone Fractures in Large Animals
5.7	Singh, G.R.; Aithal, H.P.; Maiti, S.K.; Hoque, M.; Amarpal, Kinjavdekar, P.; Pawde, A.M. and Joshi, H.C.	Unilateral and Bilateral Dynamic Axial Fixators Developed for Treatment of Long Bone Fractures in Large Animals
5.8	Kushwaha, R.B.; Aithal, H.P.; Kinjavdekar, P.; Amarpal; Singh, G.R.; Pawde, A.M. and Setia, H.C.	The Incidence of Skeletal Diseases in Growing Dogs: A Survey Radiographic Study of 10 Years (1993-2002)
5.9	Kushwaha, R.B.; Aithal, H.P.; Amarpal; Kinjavdekar, P.; Varshney, V.P.; Singh, G.R. and Pawde, A.M.	Plasma Biochemical and Hormonal Pattern in Growing Dogs with Different Skeletal Diseases: A Review of 77 Cases
5.10	Kumar, K.; Mogha, I.V.; Aithal, H. P.;Singh, G.R.; Amarpal; Kinjavdekar, P.; Pawde, A.M. and Setia, H.C.	Determinants of Bone Mass, Density and Growth in Growing Dogs with Normal and Osteopenic Bones
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5.13	Maiti, S.K.; Kumar, N.; Singh, G.R.; Hoque, M. and Singh, R.	Effect of Ultrasound Therapy (1 Watt/cm^2) on Tendon Healing

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6.1	Kumar, S.; Kumar, S.; Bhatt, P. and Prasad, J. K.	Caesarean Section in Cattle and Buffaloes: Evaluation of Survivability of Dam
6.2	Thilagar, S.; Radhakrishnan, C. and Sheriff, F.R.	Effect of Kumati Fruit and Neem Oil Mixture on Maggots Wound in Cattle
6.3	Cheema, J.S.; Singh, S.S.; Saini, N.S. and Mohindroo, J.	Electrocardiogram as Monitoring Aid in Diaphragmatic Herniorrhaphy of Buffaloes
6.4	Kumar, D. and Sharma, S.P.	Studies on the Efficacy of Some Indigenous Plants and Charmil Ointment on Wound Healing in Buffalo Calves (*Bubalus bubalis*)
6.5	Kumar, A.; Varshney, A. C.; Tyagi, S.P. and Sharma, D. N.	Treatment of Cutaneous Burns with Seabuck-thorn Oil in Bovines: A Histological Study

6.6	Cheema, J.S.; Singh, S.S. and Sangha, S.P.S.	Studies on Cardio-Respiratory, Haematological and Biochemical Parameters of Survivors and Non-Survivors Buffaloes during Diaphragmatic Herniorrhaphy
6.7	Kumar, A.; Chawla, S.K.; Behl, S.M.; Singh, J. and Tayal, R.	Treatment of Traumatic Reticuloperitonitis in Buffaloes with Special Reference to Fluid Therapy
6.8	Gahlot, T.K.; Qureshi, S.M.; Bishnoi, P. and Jhirwal, S.K.	Peculiar Equine Surgeries at Bikaner
6.9	Shukla, B.P. and Patil, D.B.	Gross and Histopathological Evaluation of Anti-adhesion Agents for Preventing Experimental Intra-Abdominal Adhesions in Cow Calves
6.10	Shivaprakash, B.V.; Usturge, S.M.; Haribabu, Y. and Awati, B.	Preseptal Orbital Cellulitis with or without Third Eyelid Abscess: An Emerging Disease of Young Buffaloes
6.11	Chaudhary, S. and Singh, H.P.	Effects of Suture Techniques and Medicinal Plants on Nerve Regeneration in Buffalo Calves
6.12	Dabas, V.S.; Mistry, J.N.; Sharma, V.K. and Singh, K. P.	Surgical Maneuvers to Remove Fecolith in a Mare: Standing Approach

ZOO ANIMAL SURGERY

7.1	Nath, I.; Bose, V.S.C.; Pattnaik, T. K.; Mehton, J.S. and Kumar, S.	Conservative Management of Simple Right Third Metatarsal Fracture in a White Tiger
7.2	Chandrapuria, V. P.; Shrivastava, A. B.; Mishra, A. and Agarwal, R. G.	Unusual Placental Retention in a Tigress
7.3	Rama Kumar, V., Jaya Kumar, K., Easwaran, E.K., Madhusudan, Chandra C.J., Jamaludeen, S., Sanjay Devarjan and Nanda Kumar, S.	Surgical resection of Lipoma(?) from the lumbosacral region of a Lion-Tailed Macaque (*Macaca silenus*)
7.4	Rama Kumar, V., Jaya Kumar, K., Annie Verghese, Chandra, C.J. and Madhusudan	Surgical repair of fracture of femur in a Lion-Tailed Macaque (Macaca silenus)
7.5	Rama Kumar, V., Jaya Kumar, K., Annie Verghese, Chandra C.J. and Madhusudan	Fracture of tibia in a common jackal, *Canis aureus*
7.6	Rama Kumar, V., Jaya Kumar, K., Annie Verghese, Chandra C.J. and Madhusudan	Surgical intervention for a coelolith in a python

SMALL ANIMAL SURGERY

10.1	Chakraborty, A.; Sen, T.B. and Biswas, B.	A Vascular Anastomotic Technique of Femoral Artery in Canines after Partial and Complete Transection: A Study
10.2	Nagarajan, L.; Sureshkumar, R. and Ameerjan, K.	Two Stage Surgical Management of Gastric Dilatation and Volvulus in a Great Dane
10.3	Singh, R.; Mohindroo, J.; Banga, H.S.; Singh, S.S. and Kansal, S.K.	Occurrence of Canine Neoplasms: A Survey of 46 Cases
10.4	Varghese, R.; Kumaran, K.; Sureshkumar, R. and Ameerjan, K.	Explant Skin Culture: A Probable *in vitro* Alternative to Demonstrate the Effects of Low Level Laser Therapy on Healing Of Chronic Wounds in Dogs
10.5	Varghese, R.; Sureshkumar, R.; Ameerjan, K.; Nagarajan, L. and Ramani, C.	Planimetric Analysis to Study the Effect of Helium-Neon Laser on Healing of Chronic Wounds in Dogs
10.6	Vishwasrao, S.V. and Mantri, M.B.	Autogenous Free Full Thickness Mesh Skin Grafts in Thirty Clinical Cases of Wounds in Dogs
10.7	Talekar, S.; Gahlod, B.M.; Patil, S.N.; Dhakate, M.S. and Bhandarkar, A.G.	Incidence, Clinical, Haematological and Histo-pathological Study of Canine Mammary Tumour
10.8	Talekar, S.; Gahlod, B.M.; Patil, S.N.; Dhakate, M.S. and Bhandarkar, A.G.	Comparative Study of Surgical Excision and Chemotherapeutic Agents in the Treatment of Mammary Tumours in Canine
10.10	Ramani, C.; Balachandar, C.; Nagarajan, L.; Arun, P.; Jayaprakash and Ameerjan, K.	Papillary Adenocarcinoma of the Third Eyelid and its Surgical Excision in a Dog
10.10	Tyagi, S.P.; Kumar, A.; Varshney, A.C. and Sharma, S.K.	Surgical Management of Cataract in Dogs: A Clinical Study
10.11	Dhanalakshmi, S.; Vasanth, M. S., and Ranganath, B. N.	Incidence and Treatment of Osteosarcoma in Canine
10.12	Vani, S., Vasanth, M. S. and Ranganath, B. N.	A Retrospective Study of Hip Dysplasia in Small Animals
10.13	Nair, S. S.; Vasanth, M. S. and Ranganath. B. N.	Radiological Features of Canine Rubber Jaw Syndrome in Three Clinical Cases

FIELD VETERINARIAN SESSION

11.1	Mathur, A.	Clinical Evaluation of Scavon Vet Cream in Elephants
11.2	Sharma, A.	Caesarean Section in Animals under Field Conditions A Retrospective Study of 50 Cases
11.3	Sharma, A.	Some Unusual Conditions in Sheep and their Surgical Management: A Report of 4 Cases
11.4	Rana, P.; Rathee, R.; Sharma, H. K. and Ravinder	Fecolith in a Tom Cat

POSTER PRESENTATIONS

7.2 ANAESTHESIOLOGY

7.2.1	Dwivedi, R.K. and Sharma, S.P.	Studies on Utility of Xylazine, Lignocaine and Their Combination as Epidural Anaesthesia in Buffalo Calves (*Bubalus bubalis*)
7.2.2	Kinjavdekar, P.; Amarpal; Aithal, H.P.; Hoque, M.; Maiti, S.K. and Singh, G.R.	Comparison of Systemic and Epidural Xylazine-Ketamine Anaesthesia for External Skeletal Fixation in Cattle
7.2.3	Pawde, A.M.; Kinjavdekar, P.; Amarpal; Singh, G.R. and Aithal, H.P.	Acepromazine-Xylazine-Ketamine for Chemical Restraint of Pigs for Castration
7.2.4	Singh, K.; Kinjavdekar, P.; Amarpal; Aithal, H.P.; Singh, T.; Singh, G.R.; Pawde, A.M. and Pratap, K.	Anaesthetic Effect of Epidural Bupivacaine in Goats Suffering from Obstructive Urolithiasis
7.2.5	Parai, S.; Kumar, A. and Jadon, N.S.	Clinicosurgical studies on Electroacupuncture of Acupoints BL-23, ST-36, SP-6, LU-2, SP-9 and Santai in Goats
7.2.6	Tripathi, S.M.; Lokhande, D.U.; Sarkate, L. B.; Khandekar, G.S.	Use of Propofol for Castration in Horses
7.2.7	Singh, V.; Bisla, R. S.; Singh, J.; Singh, K. and Sahu, A.	Evaluation of Analgesic Effect of Pre-emptively Administered Piroxicam and Keterolac Tromethamine in Dogs after Ovariohysterectomy
7.2.8	Bhadwal, M.S.; Gupta, A.K.; Singh, N.K. and Bhardwaj, H.R.	Field Use of Acepromazine/Xylazine–Buprenorphine Neuroleptanalgesic Combination in Mules
7.2.9	Pomasingh, L.; Shivaprakash, B. V.; Dilipkumar, D.; Usturge, S. M. and Prakash, N.	Ketamine or Propofol Anaesthesia for Caesarean Operation in Goats

7.5 ORTHOPAEDIC SURGERY

7.5.1	Raghunath, M. and Singh, S.S.	Technique of Static Intramedullary Interlocking Nailing: An Illustration
7.5.2	Singh, S.S.; Mahajan, S.K.; Singh, S.; Singh, H.; Raghunath, M.; Saini, N.S.; Anand, A. and Mohindroo, J.	Management of Supracondylar Fractures of Femur in Dogs
7.5.3	Ramani, C.; Pushkin Raj, H.; Arun. P.; Ganesh,T.N. and Ameerjan, K.	Surgical Management of Talocrural Subluxation following Open Malleolar Fracture in a Dog

7.5.4	Ramani, C.; Ganesh, T.N.; Pushkin Raj, H.; Arun, P.; Divedi, D.K. and Ameerjan, K.	Diagnosis and Chemotherapy Regimen for Osteosarcoma of Maxilla in a Dog
7.5.5	Ganesh, T.N.; Ramani, C.; Pushkin Raj, H.; Mathew, J. and Ameerjan, K.	Surgical Management of Lateral Condylar Fracture of Humerus in a Pup
7.5.6	Ganesh, T.N.; Ramani, C.; Jayaprakash, M. and Ameerjan, K.	Surgical Management of Supracondylar Fracture of Femur in a Cat
7.5.7	Jaiswal, S.; Singh, H.N. and Singh, S. V.	Surgical Management of Contracted Tendon in a Crossbred Cow Calf
7.5.8	Nagarajan, L.; Venogopal, Syam, K.; Ameerjan, K.; Ramani, C. and Ganesh, T.N.	Arthroscopic Diagnosis and Management of Biceps Tenosynovitis in a Dog
7.5.9	Aithal, H.P.; Amarpal; Kinjavdekar, P.; Pawde, A.M.; Singh, T.; Singh, G.R. and Setia, H.C.	Pulmonary Osteoarthropathy Secondary to Bone Tumour in a Labrador
7.5.10	Kushwaha, R.B.; Aithal, H.P.; Singh, G.R.; Amarpal; Kinjavdekar, P.; Pawde, A.M. and Setia, H.C.	Clinical and Radiological Findings in Growing Dogs with Different Skeletal Diseases: A Study of 77 Cases
7.5.11	Kumar, K.; Mogha, I.V.; Aithal, H.P.; Kinjavdekar, P.; Amarpal; Singh, G.R.; Pawde, A.M. and Setia, H.C.	The Incidence and Pattern of Fractures in Growing Dogs with Osteopenic Bones
7.5.12	Ganesh, T.N.; Ramani, C.; Pushkin Raj, H.; Arun, P. and Ameerjan, K.	Surgical Stabilization of Tarsal Instability due to Peroneal Paralysis using Kirschner Wires in a Pup
7.5.13	Ganesh, T.N.; Ramani, C.; Jayaprakesh, R.; Pushkin Raj, H. and Ameerjan, K.	Management of Comminuted Fracture of Femur using a Position Screw and Buttress Plate with Cancellous Bone Graft
7.5.14	Ayyappan, S.; Thilagar, S.; Radhakrishnan, C.; Md. Shafiuzama, Govind, P. and Ameerjan, K.	Open reduction and Internal Fixation of Long Bone Fractures using the Dynamic Compression Plate- Clinical Experience in 26 cases (1998-2000)
7.5.15	Jain, P.; Khairwal, S.; Sharma, A.; Singh, S.V. and Sharma, V.K.	Surgical Approaches for Correction of Hip Dislocation in Buffalo Calves

7.6 LARGE ANIMAL SURGERY

7.6.16	Kumar, N.; Sharma, A.K.; Singh, T.B.; Gupta, O.P. and Singh, J.	Successful Repair of Large Ventral Hernia Using Nylon Mesh in a Crossbred Female Calf
7.6.17	Jhirwal, S.K.; Gahlot, T.K.; Dhadich, H.; Qureshi, S.M. and Bishnoi, P.	Rectal Prolapse Caused by a Fibroma in a She Camel
7.5.18	Dabas, V.S.; Chaudhary, S.; Suthar, B.N. and Mistry, J. N.	Surgery of Thoraco-Oesophageal Obstruction in a Buffalo: Standing Approach
7.6.19	Dabas, V.S.; Mistry, J.N.; Sharma, V.K. and Joshi, D.V.	Surgical Extirpation of Vaginal Hemangioma in a Mare
7.6.20	Satish, M.P. and Aher, V.D.	Diagnosis and Treatment of Ulcerative Keratitis in Buffaloes
7.6.21	Satish, M.P.; Aher, V.D. and Panchbhai, V.S.	Foreign Body in Cornea in a Cow- A Case Report
7.6.22	Satish, M.P.; Aher, V.D. and Panchbhai, V.S.	Surgical Management of Corneo-scleral Laceration in Buffalo
7.6.23	Pawar L.D.; Tripathi, S.M. and. Zunjare, V.V	An Unusual Case of Athalia in a Gir Cow – A Case Report
7.6.24	Pawar, L.D.; Tripathi, S.M. and Zunjare, V.V.	Head Bifidism (Monster) in a Buffalo Calf and Goat Kid- A Case Report
7.7	**ZOO ANIMAL SURGERY**	
7.1	Sharma, B.; Lekharu, J.C.; Dutta, B. and Mahoto, G.	Critical Care of an Elephant Calf Suffering from Femur Fracture in Assam State Zoo
7.2	Nath, I.; Pattnaik, T.K.; Mehton, J.S.; Kumar, S. and Bose, V.S.C.	Management of Open Pneumo-thorax in a Tiger (*Panthera tigris*)
7.3	Nath, I.; Bose, V.S.C.; Mehton, J.S. and Kumar, S.	A Case of Multiple Abscesses in a Baby Elephant
7.10	**SMALL ANIMAL SURGERY**	
7.10.1	Tyagi, S.P. and Mittra, S.	A Report on the *Thelazia callipaeda* Infection in Dogs
7.10.2	Sahu, A.; Sharma, P.D.; Raj, H. and Singh, P.	Evaluation of Nylon and Cotton Sutures in Canine Abdominal Defects
7.10.3	Tyagi, S.P.; Kumar, A. and Varshney, A.C.	Surgical Management of Explosion Injuries of Face and Oral Cavity in Dogs
7.10.4	Sood, A.C.; Mohindroo, J.; Sharma, N.S.; Joshi, K. and Dwivedi, P.N.	Microflora in the Diseased Canine Eye

7.10.5	Sood, A.S and Mohindroo, J.	Clinical Study on Diagnosis and Management of Corneal Affections in Canines
7.10.6	Bhargava, M.K. and Shahi, A.	A Case of Foreign Body in the Stomach of Dog
7.10.7	Chandrapuria, V. P.; Bhargava, M. K.; Shahi, A. and Madhu, S	Multiple Intestinal Obstruction in a Female Dog: A Case Report
7.10.8	Sharma, P.D.; Singh, P. and Sangwan, V.	Gun-shot Injuries in Thoraco-abdominal Area of Dogs
7.10.9	Nagarajan, L.; Sureshkumar, R.; Ramani, C. and Ameerjan, K.	Oesophageal Diverticulum in a Dog and its Surgical Management
7.10.10	Nagarajan, L.; Sureshkumar, R. and Ameerjan, K.	Mega Colon in Cats – A Review of 7 Cases
7.10.11	Bishnoi, P.; Jhirwal, S.K.; Gahlot, T.K. and Khandelwal, S.K.	Retrieval of a Bone Piece from Oesophagus of a Female Dog: A Case Report
7.10.12	Ramani, C., Arun, P., Dwivedi, D.K., Syam, K.V. and Ameerjan, K.	Scrolling of Third Eyelid and its Surgical Management in a Dog
7.10.13	Amarpal; Kinjavdekar, P.; Aithal, H.P.; Singh, T.; Pawde, A. M.; Pratap, K. and Singh, G.	Management of Canine Urolithiasis: A Review of Three Interesting Cases
7.10.14	Singh, H. N.; Jaiswal, S.; Singh, S. V. and Singh B.	Successful Surgical Management of an Unusual Intestinal Obstruction by a Feeding Bottle Nipple in a Dog
7.10.15	Jaiswal, S.; Singh, H.N. and Singh, S.V.	Surgical Management of Mammary Tumour in a Pomeranian Female Dog
7.10.16	Dilipkumar, D.; and Ameerjan, K.	Cervical Oesophageal Obstruction due to Bone Pieces in Dog
7.10.17	Ameerjan, K.; Nagarajan, L.; Ramani, C.; Sureshkumar, R.; Syam K.V.; Raj, R. and Varghese, R.	Oesophageal Obstruction in an Emu Chick and its Surgical Management
7.10.18	Varghese, R.; Sureshkumar, R.; Ameerjan, K. and Jayaprakash, R.	Helium-Neon Laser in the Treatment of Chronic Perianal Sinus- A Case Report
7.10.19	Sharma, H. and Mohindroo, J.	A Survey of Canine Mammary Neoplasms
7.10.20	Tiwari, S.K.; Bhandeker, S.K. and Dubey, S.	Tracheal Rupture in a Dog and its Surgical Management
7.10.21	Tiwari, S.K. and Ghosh, R.C.	Adenocarcinoma Involving Mammary Glands in Bitches-A Report of 2 Cases

7.10.22	Rameshkumar, B.; Balagopalan, T.P.; Aruljothi, N. and Lakkawar, A.W.	Surgical Management of an Unusal Asymmetrical Spleenomegaly in a Dog
7.10.23	Aruljothi, N.; Balagopalan, T.P.; Alphonse, R.M.D.; Rameshkumar, B. and Varshney, K.C.	Surgical Management of Mixed Tumour of Apocrine Gland in a Dog
7.10.24	Sahu, A.; Kumar, R.; Sharma, P.D. and Peshin, P.K.	Comparison of Tensile Strength of different Suture Materials
7.10.25	Kumar, N.; Singh, T.B.; Sharma, A.K.; Maiti, S.K.; Singh, J.; Babu, K. and Gupta, O.P.	Inguinal Hernia in a Bitch and its Surgical Management

ABSTRACTS

ANAESTHESIOLOGY

2.1 Haloperidol-Pentazocine Premedication with Ketamine or Propofol Anaesthesia in Goats

Pomasingh, L.; Shivaprakash, B. V.; Dilipkumar, D.; Usturge, S. M.; and Prakash, N.
Veterinary College Bidar, Karnataka -585 401

The study was conducted on eight goats divided into 2 groups of 4 animals each. All the goats were premedicated with haloperidol (0.8mg/kg, intravenously) and pentazocine (1mg/kg, intravenously). Ketamine @ 6.5mg/kg was given intravenously in group I and propofol @ 5.5mg/kg in group-II, 5 minutes after premedication. Anaesthetic combinations were evaluated on clinical, physiological, haematological and biochemical observations. Clinical observations revealed early induction of anaesthesia in group-II as compared to group-I. Duration of anaesthesia was significantly lower and recovery period was also shorter in animals of group-II as compared to group-I. Pedal reflexes were absent in both the groups during the third stage of anaesthesia. Swallowing reflexes and ocular reflexes were not abolished even during surgical plane of anaesthesia in group-II and further administration of propofol resulted in toxic symptoms. Respiratory rate reduced significantly in group-II as compared to group-I. No significant changes were noticed in rectal temperature, heart rate, mean arterial pressure and central venous pressure in both the groups. ECG abnormalities were minimal in both the groups. Packed cell volume and haemoglobin levels reduced significantly, whereas blood glucose level increased significantly in both the groups. No change in sodium, potassium and chloride levels were observed in any group.

2.2 Evaluation of Pentazocine Lactate as a Postoperative Analgesic in Dogs

Geeta; Singh, J.; Sangwan, V.; Gera, S. and Garg, S.L.
College of Veterinary and Animal Sciences, Hisar–125 004

Study was done on 12 healthy female dogs brought for ovario-hysterectomy. Surgery was done through right flank incision under atropine-xylazine-ketaminne anaesthesia. In six animals pentazocine lactate (2 mg/kg) was administered intramuscularly preoperatively while another six animals received this drug at same dose immediately after completion of surgery. A standard numerical rating scale using several behavioural parameters was used to assess pain. Mean total pain score indicated that pentazocine effectively controlled by moderate postoperative pain caused by ovariohy-sterectomy. The blockade of pain was slightly better in animals where it was administered preoperatively. Results indicated that determination of plasma cortisol concentration could be a useful tool to assess the intensity of pain. The results also indicated that moderate pain caused by a surgical procedure is effectively controlled by pentazocine for the first 24 postoperative hours.

2.3 Ketamine or Propofol Anaesthesia with Haloperidol and Pentazocine Premedication for Caesarean in Goats

Singh, L. P.; Shivaprakash, B. V.; Usturge, S. M. and Dilipkumar, D.
Veterinary College Bidar, Karnataka -585 401

Sixteen goats (pergnant-eight and non-pregnant-eight) divided into 4 equal groups were premedicated with haloperidol (0.8 mg/kg IV)

and pentazocine (1 mg/kg IV) 5 minutes before anaesthesia. Ketamine anasethesia @ 6.5 mg/kg body weight IV given to four non-pregnant goats (group 1) and to four pregnant goats for caesarian operation (group 2) @ 6-mg/kg body weight IV. Propofol was given to another four non-pregnant goats (group 3) @ 5.5 mg/kg body weight, IV and another four pregnant goats for caesarian operation (group 4) @ 5 mg/kg body weight IV. Induction of anaesthesia was quicker with propofol combination. The duration of anaesthesia was shorter (11.50±0.28 and 12.20±0.57) minutes in group 3 and 4 with propofol than ketamine (13.0± 0.57 and 14.50±0.28 minutes) in group 1 and 2. This duration of anesthesia in group 2 and 4 was sufficient to remove the fetus. However for suturing of caesarean wounds, additional dose of anaesthetic was required. Recovery was quick with propofol than ketamine. Relaxation of abdominal muscles was less satisfactory with ketamine than propofol. Analgesia was moderate for abdominal incision with propofol but was superior to ketamine. Recovery period was shorter with propofol than ketamine. In goats, where caesarean was perfomed, depression continued during sitting and standing postures for 2 to 3 hours. Depression was also noticed in fetus in both the groups. Respiratory depression was more with propofol than ketamine. There was no significant variation in various physiological parameters in all the groups. A significant reduction in PCV and haemoglobin and increase in blood glucose level was seen in all groups. Non significant alterations were observed in SGPT, serum sodium, potassium and chloride levels. Though the changes induced were transient in all the groups. Based on the results it is incurred that combination to be used with caution for caesarean operation in goats.

2.4 Studies on the Effect of Paranephric Blockade in the Management of Nephritis in Buffaloes

Sharda, R.; Kumar, A[1]. and Jadon, N.S.[1]
College of Veterinary Sciences, Anjora, Durg,
[1]College of Veterinary and Animal Sciences, Pantnagar–263145

Twelve clinically healthy male buffalo calves weighing 70-120 kg ranging between 12 to 18 months age were used in this study. Animals were randomly divided into 3 equal groups. Nephritis was created in each animal by intravenous injection of freshly prepared Uranyl nitrate 1% solution in normal saline @ 5 mg/kg body weight. The animals of group I were treated with enrofloxacin (Floxidin®) @ 5 mg/kg body weight intramuscularly for 5 days. Animals of group II were treated with paranephric blockade with 50 ml of 0.5% warm solution of lignocaine hydrochloride on either side of vertebral column, on day 1, 3, 5 and 7 along with floxidin @ 5 mg/kg intramuscularly for 5 days. The animals of group III were treated only by paranephric blockade, on day 1, 3, 5 and 7. Treatment was initiated 24 hrs after the administration of Uranyl nitrate. Paranephric blockade along with parenteral enrofloxacin (Floxidin®) showed an early recovery as compared to the treatment either with paranephric blockade or enrofloxacin alone. The physiological parameters (heart rate, respiration rate, and temperature) returned to near normal level by day 10 and haematological parameters (total leucocyte count, differential leucocyte count, haemoglobin and packed cell volume) by day 13 in animals given paranephric block along with antibiotics as compared to antibiotic and paranephric block alone administered animals. Various biochemical parameters (creatinine, blood urea nitrogen,

glucose, total protein, albumin, calcium, phosphorous, urinary alkaline phosphatase) returned to base level by day 16 in the animals given paranephric blockade along with antibiotics as compared to day 21 in paranephric blockade and antibiotic alone administered animals.

2.5 Effect of Propofol-Ketamine Anaesthesia at Different Dosages in Dogs (*Canis domestica*)

Gaurav, R.; Tanuja, D.; Kelawala, N. H.; Parikh, P. V.; Patil, D. B.; Tank, P. H.; Kulkarni, S. and Shivaji, T.

College of Veterinary Sciences and Animal Husbandry, Anand – 388 001

Fifteen mongrel dogs were divided in three groups of five animals each. Different combinations of propofol and ketamine were used in animals of group I (propofol 5 mg/kg + ketamine 5 mg/kg mixture), group II (propofol 3 mg/kg + ketamine 7 mg/kg) and group III (propofol 7 mg/kg+ketamine 3 mg/kg). Quality of analgesia was good without any complication except in 2 animals of group III. Comparatively more respiratory depression with more duration of post- injection apnoea was observed in animals of group III.

2.6 Studies on Anaesthetic Evaluation of Propofol- Thiopentone as an Induction and Maintenance Agent in Dogs

Manat, D. L.; Kelawala, N. H.; Patil, D. B.; Parikh, P. V.; Barvalia, D. R.; Tank, P. H. and Anand, G.

College of Veterinary Sciences and Animal Husbandry, Anand-388 001

A study on general anaesthesia using propofol alone (Group I) and Propofol-Thiopentone combinations (Group II) for induction and maintenance of anaestheisa in acepromazine, premedicated twelve clinically healthy dogs of either sex, divided into two groups of six animals each was conducted. Anaesthesia was induced in group I with intravenously propofol (@ 4 mg/kg b.wt.) and in group II with mixture of propofol @ 2mg/kg b.wt.and 2.5 % thiopentone (5mg/kg b.wt.) over a period of 90-120 seconds in overnight fasted dogs 20 minutes after premedication with i.m. acepromazine @ 0.05 mg/kg b. wt. and was maintained over a period of 30 minutes with mean maintenance dose of 5.0 ± 0.45 mg/kg b. wt. with intravenously propofol (group I) and with a mean intravenously maintenance dose of 0.55± 0.1 mg/kg b.wt. of propofol and 1.38 ± 0.1 mg/kg of thiopentone mixture (Group II). Clinical, physiological and haematobiochemical parameters are discussed.

2.7 Comparison of Xylazine and Medetomidine with and without Bupivacaine for Epidural Analgesia in Buffalo Calves

Singh, V.; Amarpal; Kinjavdekar, P.; Aithal, H.P. and Pratap, K.

Indian Veterinary Research Institute, Izatnagar- 243 122

Ten clinically healthy male buffalo calves of 6 to 8 months of age weighing between 70 to 90 kg were used twice after a gap of 10 days and each treatment was given in 4 animals selected randomly. In animals of group A, B and C, xylazine (@ 0.05 mg/kg b.wt.), medetomidine (@ 15 mg/kg b.wt.) and bupivacaine (@ 0.125 mg/kg b.wt.), respectively, were administered at 1st sacrococcygeal epidural space. In animals of group D, a combination of xylazine (@ 0.05 mg/kg b.wt.) and bupivacaine (@ 0.125 mg/kg b.wt.) and in animals of group E, medetomidine (@ 15

mg/kg b.wt.) and bupivacaine (@ 0.125 mg/kg b.wt.) were administered at the same site. Xylazine and medetomidine alone or in combination with bupivacaine produced complete analgesia of tail, perineum, inguinal region and upper parts of hind limbs. However, bupivacaine alone, produced only mild to moderate analgesia. Motor in-coordination was mild to moderate in animals of all the groups. Animals of the groups A, B, D and E showed mild to moderate sedation. Significant ($p<0.05$) decrease in heart rate was recorded after xylazine, medetomidine or bupivacaine administration. The bradycardia in animals of group D was more pronounced as compared to animals of group A. A significant ($P<0.01$) decrease in RR was observed in animals of all the groups. The results of the present study suggested that medetomidine induced prolonged and deeper plane of analgesia than xylazine but slight cardiopulmonary depression was recorded after the administration of both drugs. Epidural administration of bupivacaine along with xylazine/ medetomidine resulted in increased depth and duration of analgesia but the onset of analgesia remained delayed. Medetomidine-bupivacaine produced maximal length of analgesia with permanent cardiopulmonary side effects.

2.8 Epidural Use of Xylazine and Ketamine in Uraemic Goats

Singh, K.; Kinjavdekar, P.; Singh, T.; Amarpal; Aithal, H.P.; Singh, G.R.; Pawde, A.M. and Pratap K.

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Xylazine and ketamine was evaluated after its epidural administration in uraemic goats. The combination (xylazine-0.025 mg/kg and ketamine-2.5 mg/kg) was administered in uraemic ($n=6$) and control animals ($n=4$) at the lumbosacral epidural space. The combination was evaluated by clinicophysiological and haematobiochemical parameters. The onset of analgesia was faster in uraemic animals than control ones. Xylazine and ketamine produced complete analgesia of tail, perineum, inguinal and thigh regions in all animals of both groups. However, control animals produced longer duration of complete analgesia than uraemic animals. Greater ataxia was produced by the combination in control animals than uraemic ones. Sedation was more in uraemic animals than control ones. The heart rate showed a significant decrease in both groups. However, respiratory rate and rectal temperature did not show any significant change in both test and control groups. Similarly, haemoglobin, packed cell volume and differential leucocyte count did not show any significant change in both groups except total leucocyte count, which showed significantly higher values in uraemic animals. A significant higher value of urea nitrogen and creatinine was recorded in test animals. The blood electrolytes (Na^+, K^+ and Cl^-) and blood gases (pO_2 and pCO_2) did not show any significant change in both groups, however, base excess was significantly higher in uraemic animals.

2.9 Clinicophysiological and Haemato-biochemical Effects of Epidural Ropivacaine in Uraemic Caprines

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Epidural ropivacaine was evaluated in goats suffering from obstructive urolithiasis. Ropivacaine (0.6 mg/kg) administered at the lumbosacral

epidural space in uraemic (n=6) and control animals (n=4) was evaluated by different clinicophysiological and haemato-biochemical parameters. The onset of analgesia was faster in uraemic animals as compared to control animals. Both groups produced complete analgesia of tail, perineum, inguinal and thigh regions. However, control animals produced longer duration of complete analgesia. Motor in-coordination was more in control animals than uraemic animals. The physiological parameters (HR, RR and RT) did not show any significant change in any group. Similarly the hematological parameters (Hb, PCV and DLC) also did not show any significant change in any group except TLC which showed significantly higher values in uraemic animals. A significantly higher value of BUN and creatinine was recorded in uraemic animals. The blood electrolytes (Na^+, K^+ and Cl^-) and blood gases (pO_2 and pCO_2) did not show any significant change in any group. However, base excess was significantly higher in uraemic animals.

2.10 Clinicophysiological and Haemato-biochemical Studies on Electroacupuncture of Acupoints GV-20 and BL-23 in Goats

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Twelve clinically healthy goats of either sex were divided into three groups 1, 2 and 3. The animals of group 1 and 2 were subjected to electrostimulation of GV-20 and BL-23 acupoints respectively and animals of group 3 were administered diazepam @ 1mg/kg body weight. The onset of analgesia was 19.0±1.15, 14.5±1.73 and 17.75± 1.70 minutes in animals of group 1, 2 and 3 respectively, while the recovery period was 7.75±2.06, 9.5±1.7 and 35.0±4.20 minutes in the animals of group 1, 2 and 3 respectively. No significant changes were observed in various haematological parameters. A significant ($p<0.01$) decrease in plasma catecholamine level was observed in animals of groups 2 and 3 upto 1.5 hours and reached pretreatment level by 6 hours while animals of group 1 registered no significant increase in this parameter upto 1.5 hours and reached near pre-treatment level by 24 hours. All the electrocardiographic parameters remained stable through out the period of study.

2.11 Propofol Anaesthesia in Adult Sheep: Clinical, Haematological and Biochemical Studies.

Zama, M. M. S.; Singh N.K.; Gupta, A. K.; Kumar, S. and Kalita, A.
Faculty of Veterinary Sciences and Animal Husbandry, Jammu.

Efficacy of propofol as induction and maintenance agent was studied in four adult sheep of either sex. Anaesthesia was induced with propofol @ 5mg/kg intravenously and maintained with its continuous intravenous infusion @ 0.4-0.6 mg/kg/min for one hour. Time of recovery, depth of anaesthesia and pain response were recorded. Body temperature, heart rate, respiratory rate, haematology (TLC, PCV, Hb) and serum chemistry (AST, ALT, BUN, creatinine, glucose, total protein, albumin) were also monitored at different intervals for two hours. Induction and recovery was rapid in all the animals. The degree of analgesia was proportional to the rate of transfusion. Transient apnea for 5-20 seconds soon after induction was noticed. Increased heart rate, serum AST, ALT and glucose, with decreasing

pattern of rectal temperature and PCV was found in all the animals. The study has to be made further to explore some of the obscured aspects of propofol in this species.

2.12 Propofol Anaesthesia with or without Xylazine Premedication in Goats – Clinical, Haematological and Biochemical Studies.

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Faculty of Veterinary Sciences and Animal Husbandry, Jammu.

Efficacy of propofol as induction and maintenance agent was studied in twelve adult female goats divided into two groups I & II of six animals each. In group I, anaesthesia was induced with propofol @ 6mg/kg intravenously and maintained with its continuous intravenous infusion @ 0.4-0.5 mg/kg/min for one hour whereas in group II, propofol @ 4mg.kg intravenously and continuous infusion @ 0.2-0.4 mg.kg/min was given after 10 minutes of xylazine premedication @ 0.05 mg/kg intravenously. Time of recovery, depth of anaesthesia and pain response were recorded. Body temperature, heart rate, respiratory rate, haematology (TLC, PCV, Hb) and serum chemistry (AST, ALT, BUN, creatinine, glucose, total protein, albumin) were also monitored at different intervals for two hours. In general, induction and recovery was rapid in all the animals. In group II animals, the degree of analgesia was found better than group I. Transient apnea for 30-60 sec. soon after induction was noticed. Increased heart rate, decreasing pattern of rectal temperature, an increase in leucocyte count, serum AST, ALT and glucose were found in both groups. The results suggest that propofol anaesthesia is a safe anaesthetic for goats.

2.13 Atropine-Diazepam-Propofol as an Induction Anaesthetic Combination for Neonate Calves: Clinico-Sedative, Cardiovascular and Electroencephalographic Studies

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The present study was conducted on 10 clinically healthy male neonatal cow calves, aged 10-15 days and weighing 21 to 31 kg (25.8±0.96 kg). All the animals were kept under identical managemental conditions and were fed on milk during the course of experimentation. These animals were divided into two groups (Group I and Group II) of five animals each. Animals of group I were subjected for sedative and analgo-clinical studies while of Group II for various cardiovascular and electroencephalographic studies. All the animals were administered atropine sulphate (0.44 mg/kg, s.c.) followed by diazepam (0.3 mg/kg, i.v.) and 10 min later by 1% propofol intravenously "to the effect", followed by an additional 1/3rd of the induction dose, 5 min after the previous administration. The onset time and down time recorded for diazepam were 12.0±2 sec and 19.63±1.63 sec respectively. The mean dose of propofol for induction was found to be 5.15±0.04 mg/kg. The duration of surgical anaesthesia with complete analgesia and muscle relaxation, recorded after diazepam-propofol administration, was 8.6±1.5 min (range 5-13). A transient post induction apnea (approximately 10 sec.) was recorded in all the calves along with non-significant decrease in respiration rate, heart rate and rectal temperature. Blood pressure remained within the normal range. No significant change in time and voltage components of ECG

was recorded throughout the duration of study. In one animal there was atrial flutter up to 15 min. following propofol administration. ECG studies revealed LVHF waves changing to LVLF waves after administration of diazepam and suppressions were recorded at 1, 5 and 15 min. post propofol administration indicating surgical anaesthesia. It was concluded that diazepam – propofol can be used for induction of surgical anaesthesia in atropinized neonate calves.

2.14 Effect of Propofol Anaesthesia on Hematology, Cardiopulmonary, Liver and Kidney Function in Swine

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Twelve Yorkshire pigs of 4-6 months of age, randomly divided into two equal groups I and II were used for evaluation of the effects of propofol administered at the rate of 5mg/kg, 10 minutes following the intravenous administration of midazolam (0.3 mg/kg),in group I and pentazocine (3mg/kg) in group II animals. In both the groups, propofol was injected by rapid intravenous injection in form of a bolus over a period of 10 seconds to get the desired effect. Hematological parameters (total leucocyte count, total erythrocyte count differential leucocyte count, hemoglobin and packed cell volume), blood pH, pCO_2, pO_2, TCO_2, % SO_2 and HCO_3, cardiac enzymes (LDH and CPK), liver specific enzymes (AST and ALT), kidney function test (serum creatinine and BUN) revealed no significant change either during anaesthesia or after recovery from anaesthesia in both the groups suggesting no adverse effect of propofol on body systems in pigs. Blood electrolytes (sodium and potassium) study during propofol anaesthesia also demonstrated no alteration in any group. On the basis of above results it is concluded that propofol can be used safely for induction and maintenance of anesthesia for longer duration in swine.

2.15 Local Anaesthetic Therapy in Experimental Aspiration Pneumonia in Cross bred Calves

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In 30 cross bred calves of 4 to 5 months divided equally in two groups I and II, experimental aspiration pneumonia was induced by intratracheal injection of 250 ml of whole cow milk followed by the same treatment on the following day in group I, and linseed oil in animals of group II in the similar manner. The animals of each group were further divided into two subgroups of five and ten animals in each subgroups. The five animals of one subgroup were kept as untreated control and ten animals of subgroup II were treated by injecting freshly prepared 0.5% warm procaine hydrochloride solution at the level of 4^{th} intercostal space towards bordering sympathetic nerves and their branches at the dosages of 15 ml of solution for 40-50 kg body weight on each side. The treatment was repeated after 3-5 days, if required, depending on the condition of the animal. All the animals of the untreated subgroups as well as of treated one died at different intervals varying from one hour to 23 days. In milk administered animals, the survival period for those treated with nerve blockade was 4.9 times more, as compared to untreated control animals. In oil administered group the survival period for animals with similar treatment was 2.5 times more. The difference in survival period in animals

of milk and oil administered groups, however, was not considered significant although the survival period in the later group was 1.3 times more.

2.16 Clinical and Haematological Studies on Prolongation of Propofol Anaesthesia Using Ether in Dogs

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Six apparently healthy mongrel adult dogs of either sex weighing approximately 10-20 kg were used for the experiment. Each dog was subjected to three different treatments viz. treatment I (atropine sulphate @ 0.05 mg/kg I.M +triflupromazine hydrochloride @ 1.0 mg/kg. b.wt + propofol 1% i.v. till loss of pedal reflex + anaesthetic ether for ½ hr.), treatment II (atropine sulphate @ 0.05 mg/kg i.m. + diazepam @ 2mg/kg i.v. + propofol and anaesthetic ether as in treatment I) and treatment III (atropine sulphate @ 0.05 mg/kg i.m. + xylazine @ 1.5 mg/kg + propofol and anaesthetic ether as in treatment I). The duration of surgical anaesthesia was 38.33 ± 4.40, 34.16 ± 1.35 and 46.83 ± 5.32 min., whereas complete recovery from anaesthesia was in 60.83±18.40, 68.33± 22.45 and 43.33±9.54 min. in treatments I, II and III respectively. Significant increase in the values of heart rate, neutrophil and monocyte count was observed in all the three treatments, while respiration rate increased significantly in treatment I and II only. Lymphocyte count decreased significantly in all the three treatments, whereas respiration rate decreased significantly in treatment III only. Non significant decrease was observed in rectal temperature, total erythrocyte count, packed cell volume and haemoglobin concentration, while total leukocyte count and eosinophil count showed non-significant changes.

2.17 Comparative Evaluation of Diazepam and Midazolam as Preanaesthetic to Thiopentone Sodium Anaesthesia in Buffaloes.

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In this study induction and recovery characteristics of diazepam and midazolam as preanaesthetic to thiopentone sodium anesthetic regimen was compared in 24 buffaloes presented for diaphragmatic herniorrhaphy. In group I (n =7) diazepam @ 0.2 mg/kg (I.V.) was used as preanaesthetic followed by thiopentone sodium 5% to the effect dose. While in group II (n = 17) midazoalm @ 0.2 mg/kg (I.V.) was used as preanesthetic followed by thiopentone sodium 5% "to the effect" dose. Onset of sedation manifested as closure of eyelids and loss of eyelashes reflex was achieved in 3.3 ± 0.4 min. after diazepam administration and in 1.6 ± 0.5 min. after midazolam administration. It was more profound in group II. Induction dose of thiopentone sodium in group I and II were 7.8 ± 0.21 mg/kg and 6.0 ± 0.17 mg/kg respectively. Recovery stages judged by observing vital reflexes, sitting, recumbency and complete standing was manifested as 58 ± 9.53 min., 183.29 min. and 7.6 ± 1.02 hrs. after last maintenance dose of thiopentone sodium in group I as compared to 44.43 ± min., 129.54 ± 25.09 and 6.22 ± 0.75 hrs. in group II respectively. Both anaesthetic regimens produced smooth induction

and recovery from anaesthesia. Midazolam at same dosage proved more potent preanaesthetic than diazepam. Midazolam exhibited more thiopentone sparing effect as compared to diazepam furthermore it was also associated with quicker recovery. Midazolam as preanesthetic appears to be a better alternative than diazepam.

2.18 Clinico-Surgical Effects of Detomidine and Midazolam as Premedicants to Propofol Anaesthesia in Canines

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Twelve healthy non-descript mongrel dogs of either sex, weighing 10 to 15 kg. were selected for the experiment. All the animals were given atropine sulphate @ 0.04 mg/kg body weight, 15 minutes prior to the start of treatment. These animals were subjected to three treatments. In group I, propofol alone was given @ 4.5 mg/kg, intravenously. In group II, detomidine @ 30m g/kg was given i.m. followed 10 minutes later by propofol @ 4.5 mg/kg i.v. In group III, midazolam was given @ 0.3 mg/kg i.v.followed 10 minutes later by propofol @ 4.5 mg/kg i.v. Various surgical operations like docking, haematoma, gastrotomy, enterotomy, castration and spaying were performed to judge the efficacy of these combinations. Propofol alone and its combination with midazolam was found effective in producing anaesthesia for short duration ranging from 8 to 12 minutes which was sufficient to perform operations like docking, haematoma, gastrotomy and castration. Propofol in combination with detomidine was observed sufficient for performing operations of longer duration ranging from 32 to 35 minutes. Operations like spaying and enterotomy were performed successfully in this combination. The muscle relaxation and degree of analgesia were rated as good in group I and III and excellent in group II. Thus, it is concluded that midazolam and detomidine can be safely used as premedicants to propofol anaesthesia in canines.

2.19 Clinicophysiological and Haematological Response to Acepromazine and Medetomidine Used as Premedicants to Propofol Anaesthesia in Dogs

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Eighteen healthy non-descript mongrel dogs of either sex, weighing 10 to 15 kg. were used for the experiment. After atropine sulphate premedication @ 0.04 mg/kg body weight i.m., following treatments were given. In group I propofol alone was given @ 5 mg/kg, intravenously. In group II atropine premedication was followed by I/M injection of acepromazine @ 0.2 mg/kg and after 10 min. of acepromazine, propofol @ 5 mg/kg was injected intravenously. In group III, atropine premedication was followed by I/M injection of medetomidine @ 20 m g/kg which was followed 10 min. later by propofol @5 mg/kg i.v. The clinical parameters recorded were onset, duration, complete recovery, degree of analgesia, extent of muscle relaxation and absence of different reflexes. Physiological parameters like rectal temperature, heart rate, respiration rate, mean systolic and diastolic blood pressure were recorded at various intervals. The haematological parameters included estimation of Hb, PCV, TEC and TLC at different time intervals. The induction of anaesthesia was 0.51 $\pm$ 0.03, 0.42 $\pm$ 0.04 and 0.50 $\pm$ 0.01 min. in group I, II and III respectively. The

duration of anaesthesia was 10.20 ± 0.80, 24.00 ± 2.44 and 50.00 ± 5.70 min. in group II, III and I respectively. The complete recovery occurred in 25.00 ± 1.00 min. in group I, 66.00 ± 4.11 min. in group II and 100.60 ± 9.61 min. in group III. The degree of analgesia and extent of muscle relaxation was moderate in group I, good in group II and excellent in group III. The rectal temperature showed a non-significant decrease in all the groups of animal. Heart rate and respiration rate showed a significant decrease in all the groups. The mean systolic and diastolic blood pressure showed a decreasing trend at various intervals in all the groups. The hematological parameters viz., Hb and TEC showed a significant decrease in all the groups of animal. However, PCV and TLC were non-significantly affected. Thus, it is concluded that acepromazine and medetomidine can be used safely as premedicants to propofol for inducing short and long duration surgical anaesthesia in canines.

2.20 Intravenous Regional Anaesthesia of Forelimb Using Lignocaine, Pentazocine, Ketamine, Buprenorphine and their Combinations in Cow-Calves

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A study on intravenous regional anaesthesia was conducted in 42 cow-calves allotted to 7 groups of 6 animals each by injecting the drug(s) into the radial vein distal to the tourniquet. Drugs used in different groups were 2% lignocaine hydrochloride @ 4mg/kg b.wt. (group I); ketamine hydrochloride @ 3mg/kg b. wt. (group II); pentazocine @ 1 mg/kg b.wt. (group III); buprenorphine hydrochloride @ 0.003mg/kgb.wt. (group IV); combination of 2% lignocaine hydrochloride @ 4mg/kgb.wt. and ketamine hydrochloride @ 3mg/kgb.wt. (group V); combination of 2% lignocaine hydrochloride @ 4mg/kg b.wt. and pentazocine @ 1mg/kg b.wt. (group VI) and combination of 2% lignocaine hydrochloride @ 4 mg/kg b.wt. and buprenorphine @ 0.003 mg/kg. b.wt. (group VII). The efficacy of each drug alone and in combination was evaluated by observing induction time, return of reflexes, body temperature, heart and respiration rates and oxygen saturation (SaO_2 %) at 0, 2, 5, 10, 20, 30, 40 and 60 minutes after injection. The mean time required for induction of anaesthesia was minimum with pentazocine, with lignocaine (0.1917±0.046 min.) or alone (0.22±0.16 min.), followed by lignocaine combinations with ketamine (0.42 ± 0.005 min.) or buprenorphine (0.52 ±0.20 min.). Comparatively, lignocaine (2.98 ±0.84 min.) and ketamine (4.33 ±0.56 min.) alone took more time. Buprenorphine alone took significantly ($P<0.05$) longer time (9.17 ±0.40 min.) to induce anaesthesia. The return of pin-prick reflex was earliest in group I (48.50 ±5.23 min.), followed by groups III (57.83 ±2.97 min.), II (58.33 ±5.94 min.) and VI (67.18 ±3.18 min) and delayed in group V (82.83 ± 2.46 min.). The weight bearing on the forelimb subjected to IVRA was delayed when ketamine was used either alone (Group II) or in combination with lignocaine (Group V), while it was along with return of pin-prick reflex in all other groups. Present findings indicate that lignocaine hydrochloride and pentazocine lactate in combination is an ideal protocol for IVRA.

2.21 Effect of Xylazine and Lignocaine Hydrochloride as an Epidural Anaesthesia in Male Buffalo Calves

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Twelve male buffalo calves used in this study were divided into 2 groups. In group I, 2% lignocaine hydrochloride (0.05 mg/kg) and in group II, xylazine (0.05 mg/kg) diluted with sterile normal saline, were injected epidurally. The onset, duration and extent of analgesia, relaxation of penis, and degree of sedation were compared. Various clinico-physiological parameters were recorded. Quality of analgesia was judged during surgical interventions like amputation of tail, perineal suturing and urethrotomy. The onset of analgesia was 3.50 ± 0.43 minutes and 12.0 ± 1.16 minutes in group I and II respectively. The duration of analgesia was 68.63 ± 2.00 minutes and 122.33 ± 5.77 minutes in group I and II, respectively. The loss of sensation to needle prick was observed from mid sacral region to the tip of tail, perineum, scrotum and inner aspect of thigh. Following epidural administration of lignocaine hydrochloride, animals showed severe hind limb incordination and attained recumbencey. Administration of xylazine epidurally produced bilateral anaesthesia, which extended cranially upto mid sacral region and down to tail, perineum, scrotum and inner thigh. All the animals of group II were observed standing with head down throughout the period of observation. Sedation, salivation, frequent urination, slight rise in temperature, decreased respiration, pulse and heart rate, were observed in group II animals. The epidural administration of lignocaine hydrochloride caused rapid onset of anaesthesia for short duration while epidural administration of xylazine caused delayed onset of anaesthesia for longer duration with significant change in clinical parameters.

2.22 Reversal of the Effect of Sedative and Clinico Physiological Effects of Xylazine with Yohimbine in Buffaloes

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Twelve healthy male buffalo calves aged between 6 months to one year, used in this study were divided equally in two groups. All the animals were subjected to the intra muscular administration of atropine sulphate @ 0.04 mg/kg b.wt. followed by intravenous administration of xylazine @ 0.2 mg/kg b.wt. In the animals of group II intravenous injection of xylazine was followed 10 minutes later by intravenous injection of yohimbine @ 0.125 mg/kg b.wt. while no drug was given in the animals of group I after the injection of xylazine. Onset time, duration and recovery time was compared. Various clinico-physiological parameters viz., heart rate, respiratory rate, temperature, pin prick, corneal, palpebral and rectal pinch reflexes were observed before and after the administration of xylazine and yohimbine till complete recovery. In the animals of both groups onset of sedation occurred at 0.05-0.75 minutes. In group I animals arousal time, standing time and walking time was observed at 45, 60 and 75 minutes respectivelywhile in group II animals these parameters were observed at 17, 30 and 50 minutes respectively. Intravenous xylazine produced significant decrease in heart rate, respiratory rate, rectal temperature, rumen motility and increase in glucose level which returned to preadministration level within 10 to 20 minutes after intravenous

administration of yohimbine with no sign of excitement and resedation. Whereas these parameters returned to near preadministration level at 30 to 75 minutes in the animals of group 1.

2.23 Reversal of Clinical and Physiological Effect of Xylazine by Yohimbine in Dogs

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Twelve healthy atropinised mongrel dogs, divided into two groups of six animals in each, were subjected to administration of xylazine @ 2 mg/kg b. wt. intravenously. Heart rate, respiratory rate, tidal volume and minute volume were decreased following xylazine administration. Down time was recorded 30 to 45 seconds. Pin- prick, corneal, palpebral and rectal pinch reflexes were found absent whereas pedal reflex remained unaffected after xylazine administration. Yohimbine was administered 15 minutes after xylazine in animals of group 2, whereas no drug was given to the animals of group 1 after xylazine. Yohimbine administration resulted in quick reversal of the effects of the xylazine and animals stood within one minute. Heart rate, respiratory rate, tidal volume and minute volume returned to normal level within 20 minutes after Yohimbine administration. Signs of resedation occurred at 8 to 10 minutes after administration of Yohimbine. Animals completely recovered within 30 to 35 minutes after administration of Yohimbine. In the animals of group 1 arousal time and standing time were prolonged and complete recovery occurred at 90 to 100 minutes.

2.24 Reversal of Clinical and Physiological Effects of Xylazine with Yohimbine in Goats

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Twelve goats used in this study were randomly and equally divided into two equal groups. Atropine sulphate administration @ 0.6mg/kg intramuscularly was followed 10 minutes later by xylazine @ 0.22 mg/kg intravenously. Down time was 1.0 minute and animals became recumbent at 1.25 – 2.0 minutes. Insignificant increase in heart and respiratory rates were observed after atropine administration. Heart rate, rectal temperature, tidal volume, minute volume and respiratory rate were decreased following xylazine administration. Pin prick, palpebral, pupillary and rectal pinch reflexes were absent whereas moderate depression of palpebral reflexes was observed. Yohimbine administered intravenously 10 minutes after xylazine @ 0.2 mg/kg b. wt. resulted in quick reversal and various reflexes were found negative within 2 minutes in the animals of group II. Arousal time and standing time were 1.5 – 2.0 and 3.0 – 5.0 minutes respectively. Biphasic effect was noticed on heart rate, which returned to normal level 5 minutes after yohimbine administration, which again reappeared at 5–20 minutes interval. Respiratory rate, minute volume, and tidal volume return near normal at 5 minute after yohimbine administration. Resedation was observed 15 minute after yohimbine administration, however complete recovery occurred after 55-63 minutes. Arousal time, standing time and walking time were 32-40, 35-45 and 38-48 minutes respectively in the animals of group I in which no drug was administered after xylazine administration.

RADIOLOGY AND IMAGING TECHNIQUES

4.1 Sonograms of the Liver, Kidneys and Spleen in the Healthy Dog

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A total of 27 apparently healthy dogs were subjected to ultrasonographic examination of the abdominal organs viz., the kidney, the liver and the spleen using 3.5 MHz and 5.5 MHz, 40 arc sector transducer. The kidneys were scanned in three planes viz., dorsal, sagittal and transverse. The renal sonograms revealed three distinct zones viz., a hyperechoic sinus surrounded by echogenic zone representing the renal cortex, the lengths, the depth and the height of both the kidneys were measured as follows.

Rt. Kidney:	Lt. Kidney:
Length : 4.89-7.0 cms	4.98-7.36 cms.
Depth : 2.52-3.8 cms	2.4-3.8 cms.
Width : 2.34-3.78 cms	2.3-3.78 cms

The liver was scanned in the sagittal plane. It appeared as a moderately echogenic organ with hyperechoeic specs uniformly distributed throughout the scanning field. The hepatic vessels, portal vessels, gall bladder, and collecting ducts were seen on different scans. Spleen was scanned in saggital plane. It appeared as a coarsely echotextured organ which was hyperechoeic in relation to the hepatic parenchyma.

4.2 Ultrasonographic Studies of the Disease of Liver and Kidney in Adult Dogs

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Ultrasonography was performed on six clinical cases suspected for liver (3) and kidney (3) diseases on the basis of clinical signs, hematology, biochemistry, radiography and urine examination. In the cases of liver involvement, the serum was tested for enzymes i.e. SGOT and SGPT and later on sent for radiographic examination. For detailed study, ultrasonographic pictures of liver were taken. The cases of kidney involvement were diagnosed on the basis of urine examination, hematology, and radiography and to examine further, ultrasonography of the kidneys was carried out. The ultrasonographic pictures of the diseased liver were decreased echogenicity, in hepatitis, increased echogenicity in case of cirrhosis of liver, nodular hyperplasia in case of liver neoplasms, irregular echogenic foci in case of liver abscess. The ultrasonographic pictures of the kidney depicted increased echogenicity of renal cortex and renal medulla in nephritis, decreased cortico-medullary definition in end stage of degenerative kidney, renal dilatation in cases of moderate hydronephrosis. On the basis of ultrasonographic studies, the internal details of the liver and kidney can be easily known which are not possible by other techniques.

4.3 Ultrasonographic Studies of the Develop-mental Stages of Liver and Kidney in Dogs

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An experimental study was done on two young male dogs to access the developmental changes in liver and kidney starting from one month to six months of age using ultrasono-graphy. For liver, the probe was placed just behind the xiphisternum over the midline in the craniodorsal

direction. Similarly, the kidney was scanned below the transverse process of second and third lumbar vertebrae up to the last two intercostal spaces. The scanning interval was of 30 days i.e. at 1st, 2nd, 3rd, 4th, 5th and 6th months of age. For liver scanning, diaphragm and gall bladder were the main landmarks. The kidneys were scanned transversely and sagitally below the transverse process of lumbar vertebrae. With the advancement of age, ultrasonographic pictures of the liver revealed increased echogenicity, increased diameter of gall bladder and major portal vessels. Ultrasonographic pictures of the kidneys showed increased echogenecity of renal cortex, renal pelvis and calyces. The transverse and sagittal sonograms of the kidneys demonstrated increased width, length and height of both the kidneys.

4.4 Ultrasonographic Diagnosis of Urogenital Affections in Canines

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Ultrasonographic diagnosis was made in 11 female and 9 male dogs for various urogenital disorders. The affections recorded were urethral calculi (one), tumourous growth at urinary bladder (one), cystitis (three), retained foetus (two), pregnancy diagnosis (three), pyometra (six), cystolith (two), ruptured urinary bladder (one) and tumourous growth lateral to penis (one). The ultrasonographic diagnosis was based on peculiar echogenic pattern in diverse urogenital pathology and were confirmed in surgeries that followed to treat these cases and pregnancy diagnosis was confirmed upon whelping.

4.5 Comparison of Barium Sulphate and Iohexol Contrast Agents for Diagnosis of Upper Gastrointestinal Tract Obstruction

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Madras Veterinary College, Chennai - 7

Twelve animals having upper gastrointestinal tract obstruction were divided into two groups with six animals in each group. In group-I animals, obstruction was evaluated with barium sulfate (30%) suspension @ 10 ml/kg body weight. Whereas, group II animals iohexol @ 700 mg/kg body weight was used to diagnose obstruction. The results revealed that radiographs obtained with iohexol were of superior quality than barium sulfate. Iohexol also has an inherent advantage over barium sulfate that it dose not produce aspiratory pneumonia in case it enters in the lungs. Iohexol is well tolerated by lung tissues and easily absorbed into systemic circulation.

4.6 Sonographic Evaluation of Normal Bovine Udder and Teat

Hoque, M.; Maiti, S.K.; Singh, G.R.; Kumar, N.; Gupta, O.P.; Pratap, K. and Setia, H.C.
Indian Veterinary Research Institute, Izatnagar-243 122

Recently efforts are being made to record reference data about sonographic imaging of the bovine udder and teat for their potential use in disease diagnosis. The present study was undertaken in this direction. Sonographic imaging was standardized using 8.0 MHz linear transducer on morbid bovine udder and teat samples and the images were verified with microscopic findings. Subsequently, udder and teat of 4 cows were scanned with same protocol. The glandular parenchyma of udder appeared as homogenous and hyperechoic with anechoic alveoli. The teat canal appeared as a thin, bright white line. Infusion of saline solution into teat canal improved the visibility of teat cistern. The bovine udder and teat was

found convenient for sonographic imaging because of its superficial location. Technique has the potential to diagnose the extent and site of obstructions, atresia or fibrosis and draining tracts in udder and teats.

4.7 Comparison of Radiography, Gross and Mineral Findings of Uroliths in 21 Dogs

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A study on the radiographic evaluation of canine urolithiasis was conducted on 21 clinical cases. Survey radiographs in right lateral and ventro-dorsal views were taken for visualizing calculi in the urinary tract. Survey radiography proved helpful in the diagnosis of uroliths in majority of cases. Tendency for false negative results regarding urolith detection and enumeration for survey radiography in this study were 95.2%. Radiography revealed that in majority of cases the uroliths were present at multiple sites in the urinary tract. Multiple uroliths were present in the urinary bladder and/ or urethra in most of cases. In majority of the cases the uroliths were strongly radiodense. Radiodensity of uroliths varied with their mineral contents and size. Regarding the site of urethral obstruction, ventral groove of ospenis was the common site followed by postospenis and ischial arch regions of urethra.

ORTHOPAEDIC SURGERY

5.1 Hyaluronic Acid and Autogenous Synovia for the Management of Peritendinous Adhesions in Rabbits and its Clinical Application in Large Animals

Kumar, N.; Kumar, N.; Sharma, A.K.; Maiti, S.K. and Hoque, M.
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A tendon model for peritendinous adhesions was created, in twenty four adult New Zealand white rabbits divided into three equal groups, by crushing two centimeter length of achilles tendon of left hind limb under thiopental sodium general anesthesia. In group I, 0.5 ml of 1% hyaluronic acid and in group II, 0.25 ml of autogenous synovia was injected at the crushed site on day 1,3,5 and 7 postoperatively to reduce adhesions. In group III, no treatment was given (control). Surgical wounds in all the animals healed by first intention. Significant ($p<0.05$) increase in rectal temperature and nonsignificant ($p<0.05$) increase in exudation was observed upto day three in all the groups. Animals of group III showed higher warmth score at different time intervals. Significant reduction in weight bearing ($p<0.05$) was observed in all the three groups for 2-3 days. Thereafter, animals gradually started bearing weight however occasaonal jerking of limb was observed. Minimum tendon gliding movement was observed upto day 14 in all groups. Significantly higher values of limb circumference ($p<0.05$) upto day 14 were observed in all groups. Air-tendograms on day 20 revealed thickened and denser tendon at injured site along with peritendinous adhesions all around when compared to normal tendon. Subsequent air-tendograms on day 40 and day 60 revealed marked decrease in thickness, density and adhesions which was more evident in group I. Macroscopic

observeations revealed least adhesions in group I. Histopathological obsrvations on day 7 and 14 showed lesser degree of inflammatory reactions and amount of adhesion in group I and II as compared to control group. On day 30, loosening of sheath and rarefication of adhesions were seen and these changes markedly noticed in group I, followed by group II. On day 60, no peritendinous adhesions were observed in group I. Histochemical study on day 7 showed intense alkaline phosphatase activity in group III, moderate activity in group II and mild activity in group I animals. The alkaline phosphatase activity gradually diminished on subsequent intervals and no activity was seen on day 60 in different groups. Hyaluronic acid and autogenous synovia were also tried in fourteen clinical cases of buffalo calves having peritendinous adhesions. The agents were injected in five animals each at the site on day 1,3,7 and 14 post-treatment to reduce adhesion formation and four animals served as control and no treatment was given. Post-treatment observations on day 20 and 40 showed markedly reduced peritendinous adhesions as compared to control group where no treatment was given. On the basis of study it can be concluded that hyaluronic acid and autogenous synovia were found effictive in reducing the peritendinous adhesions but repeated collection of synovia from the healthy joint, increases chances of inducing joint infection and considered as a limiting factor.

5.2 Successful Management of Thoracic Spinal Compression due to Lipoma and Hypertropic Degenerative Arthritis of a Right Stifle Joint in a Dog

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A two and a half years old male cocker spaniel weighing 11.0 kg having a history of hind limb weakness of recent origin and a growth on the dorso lateral aspect of thoracic region since 9 months was referred to college clinics for treatment. Myelography investigation revealed blockade of vertebral column starting from the midthoracic to cranial lumbar region. The animal was treated with nemusulide 25 mg, bid alongwith supporting drugs for four weeks, which resulted in temporary partial improvement in gait. Thoracic growth was removed under ketamine-xylazine anesthesia, which was weighing about 200gm. The root of the growth was seen originating from the 10-11 thoracic intervertebral space. After removal of growth animal showed further improvement in weight bearing upto a week, thereafter no further improvement was noticed. The hind limb was again radiographed which revealed hypertrophic degenerative arthritis of right stifle joint. The animal recovered after two months treatment with Rimadyl 25 mg bid for the first week followed by 25 mg sid during second and 12.5 mg sid during third week. The second myelography performed after a month showed a reduction in the length of blockade of vertebral column space. The dog developed pancreatitis during the course of treatment, which was treated with Pancreoflat for two months. Thereafter dog recovered fully and no further complaint was received upto 9 months post treament.

5.3 Use of Static Intramedullary Interlocking Nailing for Repair of Comminuted/Segmental Femoral Diaphyseal Fractures in Four Dogs

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Four clinical cases of comminuted/segmental fractures of femur were stabilized with static intramedullary interlocking nailing, alongwith ancillary

support with full circlage wiring. The technique provided satisfactory stability at fracture site. Weight bearing in all four cases was evident as early as on 3rd–4th post-operative day. Periosteal reaction was seen on 10th post-operative day. All the dogs had good limb function. It was concluded that SIILN is an effective fixation technique for comminuted/segmental femur fractures with less complication and high success rate.

5.4 Surgical Management of Fractures Involving the Rostral third of Mandible – A Review of Four Cases

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Four cases of proximal third mandibular fractures have been treated successfully. The type of fracture, method of internal fixation employed, and the healing time along with the technique of implant removal have been explained in detail.

5.5 Surgical Correction of Congenital Deformity of Tibia and Fibula in Two Pups

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Madras Veterinary College, Chennai - 7

A two months old female Dalmatian pup and a female Great Dane pup aged 3 months suffering with deformed tibia and fibula were treated to correct the deformity and for limb lengthening. Through the medial and lateral approaches the left tibia and fibula were exposed and osteotomized. The distal part of the bone was rotated to 180^0 to restore normal limb configuration. A deficit in the tibial length was noticed and corrected by placing fibular graft, which was stabilized by plate osteosynthesis using a four-hole 3.5-mm DCP. After initial postoperative care the case was reported only after 10 months. Radiographic examination revealed complete healing with remodelling of the tibia. There was marked improvement in the limb appearance and the animal exhibited partial weight bearing.

5.6 Hybrid Construct of Circular and Linear External Skeletal Fixators for Treatment of Long Bone Fractures in Large Animals

Aithal, H.P.; Singh, G.R.; Hoque, M.; Maiti, S.K.; Kinjavdekar, P.; Amarpal; Pawde, A.M. and Setia, H.C.
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A new design of external skeletal fixator, a hybrid construct of circular and linear fixators was designed using two circular rings and two opposing detachable side bars (vertical) fixed to each ring. The fixator was evaluated to immobilize mid-shaft radial (2 animals) and tibial (2 animals) osteotomies in four bull calves weighing about 200 kg under xylazine-ketamine anaesthesia. The rings were fixed to the bone using two 3.5mm-beaded fixation wires in each segment. The opposing side bars in each ring were connected to each other mediolaterally through the bone fragment using two 6 mm fully threaded Steinmann pins. The fixation of 2-ring hybrid constructs was relatively easier than that of 4-ring conventional fixator, more so in radius. It provided more rigid fixation than 4-ring circular, as indicated by early full weight bearing and fracture healing with relatively less callus formation. The functional recovery of the limb was achieved in all but one case of radius, where early removal of the fixator has led to non-union. Hybrid constructs allow the use of relatively smaller diameter rings and multiple points of fixation provide rigid fracture immobilization.

5.7 Unilateral and Bilateral Dynamic Axial Fixators Developed for Treatment of Long Bone Fractures in Large Animals

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A unilateral Dynamic Axial Fixator (DAF) comprising of a single side bar with two clamps (movable) on either end, which clamp the fixation pins (2 in each clamp) and are capable of being locked at an appropriate length by means of stop screws, was developed using stainless steel. A separate compression unit, which can be attached to the clamps on either side through a locking clamp, was also used to help in reduction of fracture fragments and to provide compression at the site. This newly developed device was used to immobilize a radial osteotomy using 4 threaded half-pins, two in each bone fragment. Though the fracture reduction was satisfactory at the time of fixation, it failed in the immediate postoperative period leading to bending of pins and comminution of bone fragments and later non-union. This suggests that unilateral DAF may not provide adequate fixation of long bone fractures in large animals. Subsequently, a bilateral DAF comprising two side bars with two movable clamps (in each side bar) with multiple holes in each clamp, capable of fixing at least 3 fixation pins in each, was developed and tested for fixation of radial osteotomy in a bull calf weighing about 200kg. This bilateral DAF was easy to apply and provided rigid immobilization of bone fragments with full weight bearing and functional recovery of the limb within 2 months. It appeared that this newly developed bilateral DAF provided rigid immobilization, as it had the provision of using fixation pins close to fracture line with at least 3 fixation pins in both bone fragments.

5.8 The Incidence of Skeletal Diseases in Growing Dogs: A Survey Radiographic Study of 10 Years (1993-2002)

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All the available survey radiographs of clinical cases of skeletal abnormalities in growing dogs (up to 1 year of age) presented at IVRI polyclinic from April 1993 to March 2002 were screened to study the incidence of skeletal diseases. Among 336 radiographs screened, 117 radiographs (34.82 %) showed different skeletal changes relating to growth defects. The different diseases were diagnosed and classified on the basis of radiographic findings. The incidence of nutritional secondary hyperparathyroidism was maximum (24.10%), followed by rickets (5.95%), premature closure of physis (2.08%), hypertrophic osteodystrophy (0.89%), retained cartilage core (0.89%), idiopathic osteodystrophy (0.59%) and metaphyseal chondrodysplasia (0.297%). Among the different breeds, non-descript indigenous breeds were most commonly affected (12.20%), followed by German Shepherds (8.04%), Spitz (6.25%), Doberman Pinscher (4.76%) and others (3.57%). The incidence was high in young dogs aged up to 6 months (21.13%), followed by those in the age group of 6-9 months (1.49%) and 9-12 months (0.89%). The male dogs had higher incidence (19.05%) than the females.

5.9 Plasma Biochemical and Hormonal Pattern in Growing Dogs with Different Skeletal Diseases: A Review of 77 Cases

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A total of 77 cases of different skeletal abnormalities were diagnosed in growing dogs aged up to 1 year during the period from April 2002 to March 2003. Most of the cases (38) were of nutritional secondary hyperpara-thyroidism (NSH), followed by rickets (20), retained cartilage core (RCC) (11), premature closure of physis (PMCP) (11), hypertrophic osteodystrophy (HOD) (8), and metaphyseal chondrodysplasia (MCD) (2). Hypocalcemia, hyperphosphataemia and disturbed Ca:P ratio was seen in majority of cases. However, in most of the ricketic cases, hypercalcemia was noticed. Reduced mean total protein was noticed in all conditions. Significant increase in mean alkaline phosphatase (ALP) was seen in rickets and RCC cases. Osteocalcin decreased in all conditions except in cases of NSH, where it increased. Increased PTH was seen in most of the conditions, except in cases of rickets. Normal to decreased calcitonin was noticed in most of the conditions, except in rickets and RCC, where it increased. Vitamin-D_3 decreased in all conditions. Reduced mean Thyroxin-3 and Thyroxin-4 was observed in all conditions, except in cases of rickets, where T_3 level increased slightly. Increased mean plasma urea was seen in cases of rickets and NSH. Creatinine level was normal in all the conditions. From the results of this study, it is concluded that hypocalcemia, hyperphosphataemia (reduced Ca:P ratio) with elevated PTH and osteocalcin are diagnostic features in cases of NSH, and hypercalcemia, hyperphosphataemia (increased Ca:P ratio) and elevated APL and calcitonin are diagnostic indicators in cases of rickets.

5.10 Determinants of Bone Mass, Density and Growth in Growing Dogs with Normal and Osteopenic Bones

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All the radiographs of growing dogs aged up to 6 months, which were presented to the IVRI polyclinic during the period from April 1993 to March 2002 (192 normal and 121 osteopenic cases) were screened to study the determinants of bone like relative cortical density, cortical index, diameter of bone, width of distal metaphysis and growth plate. All the parameters were studied at different age group levels by taking femur as model bone. The results indicated that the relative cortical density, cortical index and the diameter of bone were the least in the early age group pups and they increased gradually up to 6 months. Whereas physeal width was highest in the early age and it reduced subsequently in normal dogs. Among the normal growing dogs of different breeds, Dobermans recorded the least cortical index (thinnest bone) and Spitz recorded the maximum (thickest bone). Diameter of distal metaphysis was relatively more in German Shepherds and Dobermans at different age groups. Growth plate closure was faster in Spitz, followed by German Shepherd and Doberman breeds. Relative cortical density and cortical index decreased in osteopenic bones (more in femur than any other long bones),

whereas metaphyseal and physeal width increased (delayed closure of physis) in osteopenic bones.

5.11 Freeze–dried vs Fresh Homologus Tendon Graft for Tenorrhaphy in Buffaloes: Radiological and Histopathological Studies

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Freeze-dried and fresh tendon allografts were used for DDF tendon grafting by modified Bunnell-Mayer technique using stainless steel wire no. 4-1 as suture material in eighteen male buffalo calves of 18-24 months of age divided into two groups, A (freeze-dried allograft) and B (fresh allograft). After graft transplantation in experimentally created one-centimeter graft bed in the DDF tendon, the tendon sheath subcutaneous tissues and skin were repaired in usual manner. The efficacy of the graft to bridge the tendon defect was judged on the basis of fasciagraphy conducted at day 30,60 and 90 and histopathological studies conducted on biopsy tissues collected from the proximal host graft junction at 15, 45 and 90 post transplantation day. Fasciagraphy revealed comparatively more adhesions in animals of group A than group B. Histopathological observations of biopsy tissue revealed infiltration of lymphocytes, neutrophils, macrophages and proliferation of capillaries at day 15 post transplantation in both the groups. However these changes were more intense in group B than group A. these cellular changes were observed less from day 45 onwards in both the groups. However, regression was more in group A than group B. On day 45,replacement of collagen fibers and formation of wavy collagen fibrils with rounded nuclei were seen in abundance in group A than Group B. On day 90, few blood vessels were observed in the graft tissue along with parallely arranged collagen fibres in group A resembling more to mature tendon while in group B vascularization of graft was comparatively more than group A and orientation of collagen fibrils was still irregular. On the basis of result it is concluded that healing of DDF tendon defect was faster in group A with freeze-dried allograft than group B with fresh allograft. It is therefore, inferred that use of freeze-dried allograft is feasible for tenorrhaphy in buffaloes.

5.12 Immunogenic Response of Fresh and Freeze-dried Tendon Allografts in Buffaloes

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Experiment was conducted to study immune response of freeze-dried and fresh tendon allograft used to bridge gap in the DDFT in eighteen, male buffalo calves divided randomly in two equals groups A and B. For freeze drying three centimeter long deep digital flexor tendon was collected aseptically from buffalo cadaver immediately after death, in sterile normal saline solution. Tendon was cut into pieces of 3cm X 0.5 cm X 0.5cm size for lyophilization, at -70^{0}C for 24 hours or till tissue moisture content reached to less than 5%. Lyophilized tendon pieces were hermetically sealed in glass vials and stored at room temperature. Before transplantation grafts were rehydrated in distilled water for a period of 2-3 hours at room temperature. Fresh tendon graft was collected from the animals of group B and was used in animals of group A. Grafting was done by modified Bunnel-Mayer technique using stainless steel wire no. 4-

0. Immunogenicity of the graft was evaluated on the basis of Lymphocyte Stimulation Test (LST) on day 0, 7, 14, 30, 60 & 90 and by histopathological examination conducted on day 15, 45 & 90 post transplantation. LST revealed development of immune response against both the allografts however intensity was more with fresh than preserved graft. Histopathological examination revealed more intense cellular reaction with fresh graft than preserved one at different time intervals. The results of study indicated that both freeze-dried and fresh tendon allografts initiate immune response, however, the degree of immunogenicity was more with fresh than freeze-dried allograft.

5.13 Effect of Ultrasound Therapy (1 Watt/ cm^2) on Tendon Healing

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Effect of ultrasound therapy on tendon healing was studied in 12 locally available non-descript adult goats of either sex divided equally in two groups (A and B). Following local anaesthesia, a mid split injury was surgically created on superficial digital flexor (SDF) tendon at metatarsal region and was repaired with nylon using locking loop suture pattern. A full limb plaster cast was applied to immobilize the operated limb for 3 days. In group A, the operated limb was allowed to heal without ultrasound therapy while in group B, the ultrasound therapy was started 3 days after creation of tendon injury at an intensity of 1 Watt/cm^2 for 10 minutes for 10 days. Animals of both groups were evaluated clinically (inflammatory swelling, postoperative pain, rectal temperature, tendon gliding movement, weight-bearing etc.) and haemato biochemically (TLC, DLC, serum glucose, total protein, alkaline phosphatase and cortisone) on days 1, 3, 7, 15, 20 and 30 postoperatively. Air- tendinograms and ultrasonography were performed on days 0, 10, 20 and 30 postoperatively. Histopathological examination of tendon tissue samples was done on days 30 postoperatively. Resolution of inflammatory swelling, pain, weight bearing and tendon gliding movement was earlier in test group than control. Rectal temperature, TLC and DLC did not vary significantly at various stages of observations in both the groups. Serum total protein, serum glucose and cortisone increased significantly on day 7 after tendon injury in all the animals and remained so at all the subsequent intervals in control group, whereas, it was near normal in the treatment group on day 20 post-injury. Serum alkaline phosphatase activity increased significantly at various intervals in both the groups. Air-tendinograms and ultrasonographic examinations in test group of animals on day 30 post-injury revealed that there was marked regression of peritendinous adhesion between the tendon and skin and the tendon at the reconstructive site attained near normal thickness and density. Whereas, adhesion was still present at the reconstructed site of SDF tendon in all animals of the control group. Histopathologically, the granulation tissue was comparatively organized in a better manner at the healing site in the ultrasound treated animals. Mature collagen fibres, vascular network and tendinous tissue was present comparatively in larger amount in the test group than control. The scar formation was also comparatively less in ultrasound therapy group.

LARGE ANIMAL SURGERY

6.1 Caesarean Section in Cattle and Buffaloes: Evaluation of Survivability of Dam

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The clinical sign showed by the animals following laparophysterotomy, their physical activity, resumption of body responses and some blood indices like packed cell volume and haemoglobin concentration are helpful in prediction of prognosis of dam following caesarean section. The non-survivors showed significant ($P > 0.01$) increase in packed cell volume and haemoglobin concentration on post 01 and post 03 following laparohysterotomy when compared with their survivor counterparts. The colour condition, resumption of various body functions collectively help in critical evaluation of survivability of dam following cesarean section.

6.2 Effect of Kumati Fruit and Neem Oil Mixture on Maggots Wound in Cattle

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Kumati fruit (*Colocynthis vulgaris*) is a fruit weighing 20-30 gms and 2-3 cm in diameter, which is commonly found in the villages. To validate this a study was made in 24 animals having maggot wounds dividing them in four groups. The effects of the treatments were studied in detail.

Group I – Applying turpentine oil on the maggots wound

Group II – Applying neem oil on the maggot wound

Group III – Applying kumati fruit pulp mixture on the maggot wounds

Group IV – Applying kumati fruit pulp and neem oil in 1:1 ratio

Kumati fruit pulp and neem oil mixture found to be effective for maggot and helps in healing process but delay in action compared to conventional treatment (group I). The results of larvicidal effect in – vitro in vivo, the status of wounds and healing signs, histopathological studies of the tissues will be presented.

6.3 Electrocardiogram as Monitoring Aid in Diaphragmatic Herniorrhaphy of Buffaloes

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Utility of Electrocardiogram as monitoring aid in midazolam thiopentone sodium anaesthetic regimen was investigated in seventeen buffaloes undergoing diaphragmatic herniorrhaphy. ECG was recorded from base – apex lead I (Portable defibrillator/ monitor DF 2389, BPL Ltd., India) with paper speed of 25 mm per second and 1 mv = 1 cm. Serial recording were taken and were evaluated for cardiac potentials (amplitude and time), sinus rhythm, myocardial oxygenation and electrolyte imbalance changes. Premature ventricular contracton, sinus tachycardia, second degree heart block and arterial fibrillation was observed in individual animals, whereas ST segment elevation and peaked T wave were the consistent findings to be correlated with myocardial ischemia. Markedly decreased QRS amplitude was consistent observation in dorsal recumbency. ECG is a useful anaesthesia monitoring aid in diaphragmatic herniorrhaphy. It is a sensitive indicator of myocardial

hypoxic changes in the form of elevated ST segment and peaked T waves.

6.4 Studies on the Efficacy of Some Indigenous Plants and Charmil Ointment on Wound Healing in Buffalo Calves (*Bubalus bubalis*)

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The present study was undertaken to evaluate the efficacy of some indigenous plant and Charmil ointment on wound healing in buffalo calves. Sixteen apparently healthy male buffalo calves aging 6-12 months used for the study were randomly divided into four groups. Four full thickness skin wounds 3 x 3cm in size were created on left dorsum of thoracolumbar and sacral regions in each animal. The wounds of group I, II, III and IV were treated respectively with *Tagetes erecta* (Genda), *Blumea lacera* (Kukrondha) leaf extract, charmil ointment and normal saline solution. Evaluation was made on the basis of clinical, hematological, histological and certain histochemical examination. Gross observation of the wound showed least inflammatory reaction accompanied with lesser degree of pain from 3rd -7th post operative day in case of wounds treated with *Tagetes erecta* followed by *Blumea lacera* and charmil ointment. Formation of granulation tissue was observed from 4th to 8th day in *Tagetes erecta, Blumea lacera,* Charmil ointment and control wounds. It was first noticed in the wounds treated with *Tagetes erecta* leaf. Histopathological studies revealed that inflammation was less severe with excess fibroblastosis and budding capillaries in *Tagetes erecta,* followed by *Blumea lacera* leaf extract and charmil ointment. Density of the collagen fibres and elastic fibres increased as the healing progressed and its concentration was highest in *Tagetes erecta* treated wounds followed by *Blumea lacera* leaf extract, charmil ointment and control wounds. The contractions were 54.82%, 47.54%, 46.37% and 34.09% in respective groups on 12th post-treatment day. The contraction on 24th treatment day was 77.38% 71.82%, 70.15% and 53.74% in respective group. It was concluded that *Tagetes erecta* has a better healing efficacy than other treatment.

6.5 Treatment of Cutaneous Burns with Seabuckthorn Oil in Bovines: A Histological Study

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The study was conducted on 9 male calves, 6-12 months old and weighing 80-100 kg. All these animals were maintained on *ad.lib.* feed and water during the entire course of study. The animals were divided into 3 groups of 3 animals each. In each animal, six equidimentional (2cm X 2cm) full thickness cutaneous burn wounds, 3 on either side of the vertebral column at thoracolumbar region were created under infiltration analgesia. The animals of group I, II and III were treated with liquid paraffin, 5% povidone–iodine ointment and Seabuckthorn (*Hippophae rhamnoides*) seed oil respectively. Daily dressing with these materials started from the day of creation of the burns and continued till 28th day. The tissue biopsies for histopathological and histochemical examinations were collected on 0, 3rd, 7th, 21st and 28th day after creation of burns. The histological examination included degree of inflammation, granulation tissue formation, collagen, reticular and elastin synthesis.

The signs of inflammation on 7th post operative day was comparatively milder and subsided earlier in group III animals characterized by less number of neutrophils and mononuclear cells in the wound area as compared to group – II and group – I animals. The fibroblastic proliferation was also noticed earlier in the wounds of group – III animals. In the later stages, the fibrous connective tissue appeared somewhat more organized and the collagen fibres were arranged parallel to the skin surface in cutaneous wounds of group – III (Sea buckthorn) as compared to group – II and group – I animals. An early and organized healing was observed in Seabuckthorn oil treated wounds.

6.6 Studies on Cardio-Respiratory, Haematological and Biochemical Parameters of Survivors and Non-Survivors Buffaloes during Diaphragmatic Herniorrhaphy

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The purpose of this study was to appraise the differences in cardio-respiratory, hematological and biochemical parameters in 17 buffaloes that were operated for correction of diaphragmatic hernia under midazolam- thiopentone sodium anasethesia. Above parameters of group I (n=13) who survived the anaesthesia and surgery were compared with group II (n=4) who did not survive. Cardio-respiratory and hematobiochemical parameters were studied. Animals in group II (non survivors) registered a higher heart rate, MAP, Hb, PCV, TLC, Creatinine, BUN, ALT and AST values as compared to group I. Whereas group II animals had registered markedly lower tidal volume, minute volume and serum calcium levels than group I. Animals of group II regained much lesser tidal volume and minute volume after IPPV. Serum proteins, Na^+, K^+, Cl^-, Ca^{++} and Phosphorus levels did not differ appreciatively between both groups.

6.7 Treatment of Traumatic Reticulperitonitis in Buffaloes with Special Reference to Fluid Therapy

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Nineteen adult she-buffaloes suffering from traumatic reticuloperitonitis (TRP), were divided into two group based upon plasma chloride concentration and evidence of abomasal reflex i.e., Group A (evidence of abomasal reflex) and group B (no evidence of hypochloremia and abomasal reflex). In animals of group A, plasma concentration of sodium, potassium and chloride was lower preoperatively and become normal after 48 hours of treatment. Preoperatively, packed cell volume (PCV) and neutrophilic count were higher. Neutrophilic count became normal and PCV decreased but still remained higher than normal after 48 hours of surgery preoperatively, pH and buffering capacity of rumen fluid was higher than normal. In animals of group B, plasma potassium concentration was lower than normal preoperatively. It become normal after 48 hours of treatment. Preoperatively, PCV and neutrophilic count were higher but became normal after 48 hours of surgery. Five liters of 2.7 per cent saline solution was administered intravenously immediately and 24 hours after surgery in each animal of both groups. Animals of both the groups recovered within 4-6 days after treatment.

6.8 Peculiar Equine Surgeries at Bikaner

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Study included four peculiar equine surgeries preformed at the Surgery Clinic. First case was an 8 years old mare with rectovaginal fistula. It was repaired by a six–bite suture pattern under epidural anaesthesia in standing position. A laxative diet and postoperative treatment led to recovery of this case in two weeks. Second case was of laminitis caused by endometritis, which resulted due to a vice – wind sucking, from vagina. This case not responded to NSAIDS and corticosteroids treatment and finally Caslick's operation was done for partial closure of vulvar lips. Third case was of a hygroma turned into fibroma at elbow of a stallion. It was surgically resected under general anaesthesia and open wound healing was allowed. Healing took place in 3 weeks. Fourth case was a laceration of skin at frontal and nasal region with multiple fractures of frontal and nasal bones, which resulted due to an automobile accident. A reconstructive surgery was done under local anaesthesia in standing position. Sepsis occurred at few sutures at the junction of frontal and nasal region. Sutures were removed at this region and open wound healing was allowed. Healing took place in 3 weeks. Tetanus prophylaxis and standard postoperative treatment was done in all the cases.

6.9 Gross and Histopathological Evaluation of Anti-Adhesion Agents for Preventing Experimental Intra-Abdominal Adhesions in Cow Calves

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The study was conducted on 24 healthy cow calves to assess the effectiveness of sodium chromoglycate (SCG), hyaluronic acid (HA) and polyvinylpyrrolidone (PVP) in prevention of intra-abdominal adhesions. A model of ileal adhesions of transmural etiology was evolved by subjecting a 60 cm loop of ileum to 70 minutes of ischaemia by ligating mesenteric vessels and lumen of earlier ends of ileal group. The animals were allotted to four groups of six each. Treatment groups consisted of using different anti-adhesion drugs viz. sodium chromoglycate @ 2 mg/kg body weight (Group II), hyaluronic acid @ 0.1% solution (Group III) and polyvinylpyrrolidone, 30% solution (Group IV). Group I (control) remained untreated. Grossly, intra – abdominal adhesions of varying degree and severity were noticed in group I, II and III. The declining trend with regard to severity and degree of adhesion formation were seen in group I, II and III, whereas group IV remained free from any adhesions in all the animals. Histopathological assessment of sections of ileum showed +3 serosal thickening with proliferation of fibroblast in almost all the animals in groups I, II and III. In group IV (PVP treated) serosal thickening was seen. These findings advocated that there was either least inflammation or the inflammation subsided at the earliest in group IV which may be cause of least adhesion in the group. Polyvinylpyrrolidone (PVP) 30%, was found most effective in the prevention of adhesion formation.

6.10 Preseptal Orbital Cellulitis with or Without Third Eyelid Abscess: An Emerging Disease of Young Buffaloes

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The investigations over a period of nine years were carried out on various aspects of the disease such as incidence, influence of age, sex, season, species variation, etiology, progress of the disease, clinical signs, physiological, haematological and biochemical alterations. Suitable treatment was designed and the time for improvement and success rate were studied. The subject of study included a total of 350 cases of cattle and buffaloes suffering from different disorders of eye. Large cases of preseptal orbital cellulitis and eyelid abscesses were detected as an emerging disorder of buffalo calves. A total number of 78 cases were noticed with an incidence of 22.3% when compared with all other eye disorders. The incidence increased after every year from 11% in first year to 50% in ninth year when compared with all eye disorders. The incidence of the disease stood third among all eye disorders in the initial years and occupied the first position in subsequent years. The disease was restricted to subcutaneous space of preseptal region involving either along or third eyelid and upper or lower eyelid together in remaining cases. It involved both the eyes in 5% of the cases. Findings were recorded with respect to relation of the disease with age, sex, species of the animal, season and microbiological investigation. The clinical signs were mainly a large lemon sized welling involving upper or lower or both eyelids and nictitans. Other signs were closure of palpebral fissure, complete obstruction to vision and fever. Movement of globe and normal vision suggested that the disease was preseptal in nature. Significant change in physiological and hematobiochemical parameters were observed. Specific antibiotic, anti-inflammatory injections and surgical treatment reduced the swelling in three days. The recovery rate was 100% without recurrence or vision impairment. The details of the disease and surgical technique are discussed. The attempts to induce the disease experimentally through bacterial cultures failed to result in classical orbital cellulitis seen under natural clinical conditions.

6.11 Effects of Suture Techniques and Medicinal Plants on Nerve Regeneration in Buffalo Calves

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The deep branch of radial nerve was isolated and transected under sedation and radial nerve block in twenty four buffalo calves. The transected nerve was isolated and repaired by epineurial suturing technique under 10x magnification, using 6-0 silk in eighteen buffalo calves. These animals were divided into into three groups of six animals each. Group I animals were treated as control, whereas group II and III animals were treated with *Semecarpus anacardium and Sida cordifolia* respectively. In remaining six animals, transected nerve was repaired by perineurial suturing technique under 15x magnification using 8-0 silk and were considered as group IV animals. Locomotory examinations in animals of all groups revealed severe signs of radial nerve paralysis like dropped elbow, knee and fetlock during first week and it was corrected by the end of second week in third week dragging of fetlock and stumbling were occasionally noticed. During second month dragging of toe was noticed occasionally. During third month nothing

abnnormal could be noticed except partially dropped fetlock after prolonged rest. Histopathological examinations performed on 100th post operative day revealed thickened epineurium and perineurium, marked cellular activity around suture material, increased interfascicular tissue and vacuolation in group I and III animals. In group II animals thickening of epineurium and perineurium, interfascicular tissue and vacuolation were less than group I and III animals. In group IV animals wasting of nerve fibres and vacuolation were comparatively less than group I animals. On the basis technical dificulties and histopathological examinations epineurial suturing suplemented with *Semecarpus anacardium* may be recommended for peripheral nerve repair.

6.12 Surgical Manoeuvres to Remove Fecolith in a Mare: Standing Approach

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A six years old, approximately four months pregnant mare was presented to the Department of Clinics with the history of colic since 24 hours. The animal was medicated with ghee, asafoetida and ajwain by the laymen. Clinically, the colicy signs along with severe abdominal distension were noticed. The caecum was highly tense and only mucous could be removed during per rectal examination. Further, the animal had severe coughing and profuse foamy nasal discharge with greenish tinge. The mucous membranes were highly congested and there was rise in pulse and temperature. All these signs were suggestive of intestinal obstruction and drenching pneumonia. Hence, therapy consisting of tetanus toxoid, massive fluid, high doses of antibiotics, anti-inflammatory drugs, corticosteroids and analgesic drugs were advocated immediately. Consequently, the colicy signs subsided completely and respiratory distress also reduçed on second day. However, no improvement was noticed in abdominal distension. Hence, the aseptic surgery to remove obstructive mass "the fecolith" was performed in standing position under xylazine sedation and local infiltration analgesia through right paralumbar fossa. Post-operatively the fluid, antibiotic and anti-inflammatory treatment was continued for seven days. The animal passed the faeces after 18 hours of surgery. Animal was switched on to little quantity of green fodder and *ad libidum* water after 48 hours. The skin sutures were removed on 12th post-operative day.

ZOO ANIMAL SURGERY

7.1 Conservative Management of Simple Right Third Metatarsal Fracture in A White Tiger

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A white tiger aged 6 years of Nandankanan developed limping in right hind limb. It was tranquilized for physical examination and radiography revealed oblique fracture of right 3rd metatarsal bone at its proximal end. Detail of management is discussed.

7.2 Unusual Placental Retention in a Tigress

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A Royal Bengal tigress was reported for a protruding mass from the vagina seen after few days of parturition at Pench Tiger Reserve, Seoni (M.P.). The tigress was examined from a distance of about 8 feet over the elephant back with the help of a binocular. The mass was bright pinkish-tubular and protruding for about 2 to 3 inches through the vulvar opening however, the lower portion of the mass was blackish. The mass seemed to be prolapsed vagina. Animal was quite comfortable. It was decided to watch the animal for a week before making any decision for undertaking any surgical intervention. After a week the tigress was again examined with a powerful binocular from the same distance. A dark- brown- dried cord like structure of approximately 6 to 8 inches was observed, hanging from the ventral commissure of the vulva. The cord was shrunken, twisted with membranous covering wrapping an egg size vulva. The tigress was absolutely healthy and totally unconcerned with the condition. She was allowed to stand and move for a better and detailed look at the mass. On the basis of history and examinations, the case was differentiated from the aborted fetus, cyst, prolapse, tumour, foreign body and other conditions and tentatively diagnosed as retention of placenta. A team of the experts decided just to wait and watch for another 10 days. The park authorities later on informed that the mass automatically shed off after a week and the tigress was healthy.

7.3 Surgical resection of Lipoma(?) from the lumbosacral region of a Lion-Tailed Macaque (*Macaca silenus*)

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A male lion-tailed macaque (LTM) aged more than 15yrs had a history of a soft fatty growth on its loin extending from the level of the 10th thoracic vertebra to the sacro-coccigeal region of the trunk and flapping over its tail. The growth began as a fat deposition over the back, which is a normal phenomenon in aging male LTM's. But it started growing larger over last 5yrs and was over-hanging beyond the base of the tail at the time of examination. Looking to the advanced age of the animal an intervention was considered risky and unwarranted in the early stages. But the growth began to sag over the tail and almost occluding the anal region. As it was difficult for the animal to pass stools normally, an intervention became inevitable. The condition being so, the animal was

removed from exhibitory. Animal was restive and did not tolerate handling or examination. So, a plan was made to anesthetize him for examination and to undertake surgery if warranted.

0.75 ml of Ketamine HCl (100 mgm/ml) loaded on a dart syringe was delivered through a blow gun pipe. The anesthesia took effect in about 6 minutes and induction was complete in about 8-10 minutes time. For maintenance 0.25 ml of Ketamine had to be given in two installments during the course of surgery. A thorough examination indicated the possibility of a fat tissue tumour or over-growth. A surgery was decided keeping in view the inconvenience caused to the animal.

A large area extending from the 6th thoracic vertebra to the middle of the tail was shaved and prepared for surgery. A semi-lunar incision covering the entire width of the growth was made and the skin reflected carefully to expose the growth. The growth could be dissected slowly from its attachments to the muscle below. The growth was completely removed in an hour long procedure. After resecting a large portion of the skin, a pedicle was prepared to graft part of the tail and the loin. The wound was closed with chromic cat gut (No.1). No drainage was provided and a streptomycin-penicillin was topically applied before the skin was sutured.

Long acting penicillin was given post operatively. A 24 hr vigil with 3 attendants in shift was organised to discourage any possible mutilation by the patient. During recovery animal scratched the wound for which 5mgm of Diazepam + 1 ml of avil had to be given for 3 days. But later, the animal was extremely co-operative and was itself careful. BIPP was applied on the wound. To ward off the flies Neem oil was applied on the enclosure and a desert fan provided. Part of the graft did not "take", but wound healed with minimal scar. The treatment lasted for a month and a half. The animal made an uneventful recovery and is leading a normal life at present.

The lion-tailed macaque an endangered species, is the most striking of the 16 macaque species. It is the smallest among macaques, the most arboreal (tree dwelling) and the only macaques to live exclusively in dense rainforests. Their conservation is considered important; For their rehabilitation a study on their *in situ* behaviour is important.

7.4 Surgical repair of fracture of femur in a Lion-Tailed Macaque (Macaca silenus)

Rama Kumar, V., Jaya Kumar, K., Annie Verghese, Chandra, C.J. and Madhusudan
Kerala

A young female LTM which was newly introduced to the LTM exhibitory was found screaming and in a shocked state with a limping left leg. Being timid and submissive, the animal could be captured and shifted to the Zoo hospital. Primary examination revealed an oblique fracture of the mid-shaft of femur. A surgery was decided. The animal was kept off feed overnight and water was with held for 6 hrs.

The animal was anesthetized with 0.5 ml of Ketamine HCl (100 mgm/ml) loaded on a dart syringe and delivered through a blow pipe. The anesthesia took effect in about 6 minutes and induction was complete in about 8-10 minutes time. Another 0.1 ml of ketamine was required to be given in two installments for maintenance.

The entire region of the croup and thigh was shaved, cleaned, scrubbed and was prepared for surgery. The bone was exposed through a 7"-8" long incision. A 3mm stienmann's pin was mounted on a chuck and reduction and immobilization

effected through progressive pinning. 0.5 streptomycin-penicillin was topically applied before the wound was closed. The muscle and skin was closed with chromic catgut (number 0) and coated with a quick drying spray (Healex). The animal was moved to its cage.

Long acting penicillin was given post operatively. A 24 hr vigil was organised to prevent any possible post-operative mutilation by the patient. However, this animal was extremely 'co-operative, except that it frequently ran its fingers around the incision and peeled off the Healex spray.

The animal made an uneventful recovery in one a half months. The pin was removed under the same regimen of anesthesia. No maintenance dose was required for removal of pin. The female LTM is now removed to a breeding enclosure.

7.5 Fracture of tibia in a common jackal, *Canis aureus*

Rama Kumar, V., Jaya Kumar,K., Annie Verghese., Chandra C.J. and Madhusudan
Kerala

A young, jackal was seized and brought to the zoo with multiple wounds on the body and fracture of tibia. The animal was in a state of shock and was in pain. All the same it was extremely offensive. Since the animal was to be controlled to be provided the preliminary treatment, it was decided to organize repair of fracture along with the same.

The animal was sedated with 0.4 ml Xylazine. It vomited soon after Xylazine injection. A scalp- vein set was introduced to the radial vein and fixed *'in situ'* for fluid therapy and was anesthetized with thiopental sodium soon after. The animal was intubated and anesthesia was maintained with thiopental.

The entire region of the tibia was shaved, cleaned, scrubbed and was prepared for surgery. The bone was exposed through a 4"-5" long incision on the medial aspect of Tibia. The fracture was comminuted. A 3mm Stiennman's pin was mounted on a chuck and reduction and immobilization effected through progressive pinning. Two splinters were repositioned and maintained in position with a circlage 0.5 gms of streptomycin-penicillin was topically applied before the wound was closed. The tissue and skin was closed with chromic catgut (number 0) and coated with a quick drying spray (Healex). The animal was moved to its cage.

Long acting penicillin was given post operatively. A 24 hr vigil was organised to prevent any possible post-operative mutilation by the patient. But this animal was restive and not very tolerant to surgery. It had to be given 5 mgm of diazepam for next three days. The jackal frequently licked the wound and removed all the sutures by the fourth day. Neem oil was sprayed to prevent licking and to ward off the offending domestic flies. The animal was anesthetized on the 8th week to remove the pin. The treatment and confinement lasted for a 10 weeks. The animal made an uneventful recovery and is leading a normal life at present. The alternate options of anesthesia, treatment and the post operative management is being discussed.

7.6 Surgical intervention for a coelolith in a python

Rama Kumar, V., Jaya Kumar, K., Annie Verghese, Chandra C.J. and Madhusudan
Kerala

An adult Python, with a lump projecting on the latero-dorsal aspect of its middle third was presented for examination. The condition had

gradually developed over a period of six months to 1 year. The animal was disinclined to eat had to be fed through a feeding tube. Palpation revealed a hard mass, seemingly in the coelom. The mass was firm and slightly resilient, but was not freely movable. A surgery for exploration and/or removal of the offending mass was considered.

Operation was scheduled two days after the weekly feeding. The animal was removed from the cage with the help of six handlers, administered 2.2 ml of Ketamine HCl. The swirling movement eased in 10 minutes time when the animal was controlled on a square wooden bar with the help of adhesive tapes. As the anesthesia set in animal protruded its tongue and was immobile. After ascertaining absence of pain reflex, the site was prepared for surgery. Through a 6" long longitudinal incision part of the bowel containing the mass was exposed. The area was identified as esophagus. Through an incision the mass was then exposed. It was a grey white egg like mass and was firmly fixed on one side of the lumen. After relieving the mass it was observed that it was a multi-layered mass. Gut wall muscle and skin (with scale) was sutured with chromic cat gut no. 1. Healex was sprayed and the animal was removed to a clean cage. It recovered by evening and positioned itself on a beam near the roof. Subsequently it was brought down. The wound gaped a little on the next feeding that was done a couple of days after surgery. However, it was managed in time and subsequently healed without any problem.

The anatomical features, possible cause of the mass formation and other anesthetic options are being discussed.

SMALL ANIMAL SURGERY

10.1 A Vascular Anastomotic Technique of Femoral Artery in Canines after Partial and Complete Transection – A Study

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Repair of experimentally partial (n=8, group A) and complete (n=6, group B) transected femoral artery was done in mongrel dogs. Eight animals of group A were divided equally into two subgroups A_1 and A_2 where repair was done by using non absorbable monofilament polypropylene No.6 and polyglycolic acid suture material respectively by using continuous (n=2) and interrupted (n=2) sutures pattern. In animals of group B_1 completely transected femoral artery was repaired by end–to–end anaestomosis using non absorbable suture and in B_2 where a gap of 1 cm in the artery was created experimentally, was repaired by end–to–end anaestomosis using 6-0 non absorbable suture material. Animals were observed post-operatively upto 90 days for various clinical, physiological and haematological parameters.

10.2 Two Stage Surgical Management of Gastric Dilatation and Volvulus in a Great Dane

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A 2 years old male Great Dane dog developed sudden distension of the abdomen and respiratory distress. Clinical examination pointed towards gastric dilatation and volvulus (GDV) which was confirmed by plain radiography. The dog was in a state of shock and was first treated for the same. To releive gastric tension stomach was exteriorised through 2 cm incision made on the midline from the xiphoid backwards under local infiltration analgesia. A small nick in the distended stomach which appeared bluish in colour was given and stale food material was suctioned out from the stomach. Further exploration was not made at this point and a temporary gastrostomy was performed. The dog was kept under observation for 8 hours to observe any toxic symptoms. Fluid therapy was continued through out the period of observation. Eight hours later animal was prepared for gastropexy. The midline incision was extended further backwards and the stomach was detached from its attachment with the abdominal wall. The colour of serosal layer of the stomach had improved by that time. The 180^0 rotation of the stomach was corrected. Thereafter gastrotomy wound was closed with Lembert's suture. A circumcostal gastropexy was performed to prevent recurrence. The spleen appeared mildly distended but was healthy. The laparotomy wound was closed in a routine manner using No.1 Prolene. The animal gradually improved following antibiotic and fluid therapy on the 5^{th} post operative day

10.3 Occurrence of Canine Neoplasms: A Survey of 46 Cases

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Present study was conducted on 46 dogs presented with the history of tumourous/ hyperplastic growths. Age, sex and breed of all the animals were recorded. The biopsy samples were subjected to histopathology to distinguish between inflammatory lesion or benign neoplasm i.e. malignant neoplasm. The age of affected animals

varied from 6-18 years with a mean age of 8.24 ±0.64 years. The highest incidence was recorded in the age group of 8-12 years (41.81%). The occurrence of neoplasms was more (76.47%) in case of male animals than in female animals. Skin neoplasms were also found more in male (80%), than in females (20%). Seven animals (77.78%) were male as compared to 2 females (22.22%) affected with oral tumours. All cases of perianal adenoma were recorded in male animals. Nine (26.47%) cases were reported in Pom/Samoyeds followed by German Shepherd (n=5, 14.70%), Doberman (n=3, 8.82%), Labrador (n=3, 8.82%) and seven cases were recorded in non descript animals (20.59%). Out of 46 clinically suspected cases of neoplasms, 12 (26.09%) were diagnosed as inflammatory lesions/hyperplasia and thirty four (79.91%) cases were diagnosed as neoplasms histopathologically. Out of the 34 cases of neoplasms 14 (41.18%) and 20 (58.82%) were graded as benign and malignant respectively. The benign neoplasms (n=14) included four perianal adenomas, three fibromas, one haemangioma, one papilloma, one osteoma, one fibromatous epulis, two leiomyoma and one fibroadenoma. Malignant neoplasms (n=20) included adenocarcinoma (5), squamous cell carcinoma (3), basiloma (1), ameloblastoma (2), visceral form of TVT (2), osteosarcoma (2), malignant melanoma (1), transitional cell carcinoma (1), leiomyosarcoma (1), rhabdomyosarcoma (1), fibrosarcoma (1).

10.4 Explant Skin Culture: A Probable *in vitro* Alternative to Demonstrate the Effects of Low Level Laser Therapy on Healing Of Chronic Wounds in Dogs

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The dogs brought to the college hospital were screened for chronic wounds. Twelve cases of wounds aged above 14 days were divided into two equal groups. Three mm punch biopsies were taken on day 0 for attempting explant skin cultures. The tissue was processed and the cell pellet was mixed with growth medium. The cells were seeded into multiwell plates in duplicate and incubated in carbon dioxide incubator at 37°C. Cells were observed at 24 h intervals for growth. One set of plates was kept as control and the other set was subjected to low level laser therapy using Helium-Neon laser at an energy density of 4 J/cm^2 for 4 consecutive days. An inconsistent migration of cells from the explants was observed. A few plates had uniformly distributed sheets of cells in the first week. However, most of the plates had dispersed clumps of cells. No significant changes were observed between the laser treated and non-treated plates except in one set where the treated plate had denser clumps of cells compared to the non-treated plate. In the present study, the inconsistent nature of cell migration made it difficult to conclude on the effect of Helium-Neon laser *in vitro*.

10.5 Planimetric Analysis to Study the Effect of Helium-Neon Laser on Healing of Chronic Wounds in Dogs

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The dogs brought to college hospital were screened for chronic wounds. Twelve cases of wounds aged above 14 days were divided into two equal groups. All the cases were subjected to routine wound dressing and specific antibiotics were administered after studying the antibiogram. The animals in group II received Helium-Neon laser

therapy at an energy density of $4J/cm^2$ for 4 consecutive days in addition to the routine wound dressing and antibiotic therapy. Planimetric analysis of the wound surface area was performed on days 0, 3, 7, 14 and 21. The percentage of wound contraction, percentage of wound re-epithelialization, and percentage of unhealed wound area (unepithelialized granulation tissue) were calculated. Statistically a highly significant increase in the percentage of contraction and percentage of epithelialization was noted in the laser treated group. There was a highly significant decrease in the percentage of unhealed area in the laser treated group. Thus, it was concluded that Helium-Neon laser hastened the healing of chronic wounds in dogs.

10.6 Autogenous Free Full Thickness Mesh Skin Grafts in Thirty Clinical Cases of Wounds in Dogs.

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Autogenous free full thickness mesh skin grafting was carried out in thirty clinical cases of wounds in dogs. Clinical cases presented to the animal hospital with large wounds on head and limbs were taken up after preparation for autogenous free full thickness mesh skin grafting. Mesh skin grafting was carried out on limbs and head as skin immobility in these areas prevents tissue shifting for local repair. Out of the total 30 autogenous mesh graft performed, 100% viability was obtained in 18 cases, 50% viability was obtained in one case, 30% viability was obtained in two cases, 20% in one case and 10% in three cases. Grafts were completely rejected in five cases. In graft which showed 100% viability on 5^{th} post operative day, the viable graft appeared to have a reddish coloration. Edema of the graft was observed and graft became turgid. Mesh graft appeared to have a pigment gain and progressively become darker but hair growth was sparse. In some mesh grafts cosmetically undesirable diamond pattern was obtained. Loss of autogenous mesh graft was either complete or partial because of following factors or combination of following factors (a) accumulation of fluid beneath the graft, (b) imperfect immobilization of the graft, (c) infection and accumulation of discharges below the graft (d) mutilation of the graft (e) recipient bed being more deeper than the thickness of graft preventing adequate pressure on the graft (f) recipient site which has a history of maggot wound developed low quality granulation tissue thus rejecting the graft. The maximum size of the wound that could the grafted was 18-sq cm. Among the tests used for evaluation of the autogenous mesh graft the color test was better as compared to saline wheal test.

10.7 Incidence, Clinical, Haematological and Histopathological Study of Canine Mammary Tumour

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The present study was carried out on 18 clinical cases of mammary tumour in dogs referred to the veterinary college. They were randomly divided in three equal groups of six animals each. First group subjected to surgical excision; in second group chemotherapeutic agent doxorubicin HCl was administered while in third group vincristine sulphate was administered. Clinical parameters like body temperature, heart rate and respiration rate and hematological parameters, TEC, TLC, DLC, Hb and PCV were recorded on 0, 1, 3, 7, 14, 21,

22 and 28th day. Biopsies were confirmed histopathologically for canine mammary tumour. Clinical, hematological and histopathological examinations of clinical cases are discussed.

10.8 Comparative Study of Surgical Excision and Chemotherapeutic Agents in the Treatment of Mammary Tumours in Canine

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Nagpur Veterinary College, Nagpur

Eighteen clinical cases were randomly divided in three equal groups of six animals each. First group subjected to surgical excision; in second group chemotherapeutic agent doxorubicin HCL was administered @ 30 mg/M^2 while in third group vincristine sulphate @ 0.025 mg/kg was administered. Comparative study revealed surgical excision and doxorubicin treatment was observed more effective in treatment of canine mammary tumour. Doxorubicin was also observed to be effective in malignant as well as benign mammary neoplasm.

10.9 Papillary Adenocarcinoma of the Third Eyelid and Its Surgical Excision in a Dog

Ramani, C.; Balachandar, C.; Nagarajan, L.; Arun, P, Jayaprakash and Ameerjan, K.
Madras Veterinary College, Chennai –7

A four year old male Doberman dog was brought to the Ophthalmology unit of Madras Veterinary College Hospital with a history of growth in the left eye for the past 10 days. Examination revealed a fleshy growth in the medial canthus on the third eyelid. Impression smears of the growth revealed clusters of epithelial cells indicating carcinoma. Surgical excision of the growth alone was carried out by everting the third eyelid and haemorrhage was controlled using electrocautery. Histopathological examination of the growth revealed papillary adenocarcinoma. The animal was presented six months later with the same complaint. The growth on examination was found more inflamed, larger in mass, and infected ABST was done and the growth was operated along with the third eyelid and follow up for one month did not reveal recurrence.

10.10 Surgical Management of Cataract in Dogs: A Clinical Study

Tyagi, S.P.; Kumar, A.; Varshney, A.C. and Sharma, S.K.
College of Veterinary and Animal Sciences, Palampur –176 062

A number of clinical cases of blindness in dogs due to bilateral cataract which were presented to the department in the last one year have been included in this study. The dogs were subjected to various ophthalmic, hematological and biochemical examinations to ascertain the possible etiology of the condition, its prognosis as well as to minimize the anaesthetic risks during subsequent surgical interventions. For restoration of functional vision, surgical removal of cataractic lens of one eye by extracapsular extraction technique was undertaken in these cases. These case histories, the surgical technique, various intraoperative and postoperative complications, their management and the outcome of the surgical procedure have been discussed in detail.

10.11 Incidence and Treatment of Osteosarcoma in Canine

Dhanalakshmi, S.; Vasanth, M.S., and Ranganath, B.N.
Veterinary College, Bangalore.

A retrospective study of 14 cases of osteosarcoma in canines was made covering a period of 18 months from April 2002 to September 2003. The incidence of osteosarcoma was 0.128% of the 10,976 total clinical cases presented to Veterinary College Hospital, Bangalore. Incidence in male (64.3%) was higher than female (35.7%). Highest incidence was noticed in German Shepherds (28%) followed by Doberrman (21%), Boxer, non-descript (14%) and Great Dane, Basset Hound, Dalmation (7%). Highest incidence was noticed in 7 to 10 year age group. Most frequent occurrence was in tibia (28%) followed by equal incidence in other long bones like femur, humerus and radius-ulna. Chemotheraphy with Vincristine sulphate (0.025 mg/kg body wt.) and Cyclophosphamide (5 mg/kg body wt.) had no significant effect either in regression or spread of tumour. Amputation of affected limb appears to be the only satisfactory treatment.

10.12 A Retrospective Study of Hip Dysplasia in Small Animals

Vani, S., Vasanth, M.S. and Ranganath, B.N.
Veterinary College, Bangalore.

A total of 17 clinical cases of hip dysplasia were observed in dogs and in a cat from April 2002 to September 2003 with an incidence of 0.15% out of the total 10,976 clinical cases presented during that period. Of the 17 cases recorded, 16 (94.11%) were canines and one (5.88%) was feline. Six animals (35.29%) were less than 6 months of age, seven (41.17%) were between 6-12 months, three (17.64%) was between 12-18 months and one (5.88%) was more than 18 months. Incidence was more in male (76.47%) than in female (23.52%). Among the breeds, Great Danes were most affected (35.29%), followed by Labradors (23.53%), German Shepherds (17.64%) and Golden Retrievers (11.76%). Mudhol Hounds and non-descript were the least affected (5.88%). Bilateral hip dysplasia was seen in 4 cases (23.52%). Case history and clinical examination revealed symptoms viz., unsteady/abnormal gait, weakness and incoordination of hind limbs, limping, abnormal sitting postures, difficulty in climbing steps and pain on palpation of hip region. Radiological features include shallow acetabulum, and smaller head of femur, which may or may not be associated with luxation. In one case pseudoarthrosis was noticed. All the cases were conservatively managed with weight control, moderate exercise programme and NSAIDs. All of these animals even though considered unfit for vigorous exercise and work, were able to lead independent life.

10.13 Radiological Features of Canine Rubber Jaw Syndrome in Three Clinical Cases

Nair, S. S.; Vasanth, M. S. and Ranganath. B.N.
Veterinary College, Bangalore.

Three clinical cases of rubber jaw syndrome in canines were observed during a period of two years from 2001 to 2003 at the Veterinary College Hospital, Bangalore, making it a rare disease condition with an incidence of 0.02% out of 12546 total clinical cases. Important radiological features were cystic radioluscent areas in bones of skull, giving a "moth eaten" appearance, resorption

of alveolar socket bones and loss of lamina dura dentes. One case showed complication with giant cell granuloma involving the upper 2nd molar tooth. All the cases showed bilateral swelling of the face. The mandible was soft and pliable with severe fibrous osteodystrophy. One case showed a severe softening of maxilla with abnormal mobility. All the cases had elevated creatinine levels ranging from 2.2-16 mg %, reduced Hb and serum calcium levels. The cases were treated with antibiotics, calcium gluconate and Vit. D supplementation. It was helpful for preventing further progress of the disease, however no significant improvement was observed.

FIELD VETERINARIAN SESSION

11.1 Clinical Evaluation of Scavon Vet Cream in Elephants

Mathur, A.
Government Veterinary Polyclinic, Panch Batti, Jaipur, Rajasthan

Healing of wound is delayed in elephants than other animals and takes even months for the complete healing of various wounds. Scavon, a herbal product widely used as a dressing material in other animals for its excellent antiseptic, parasiticidal, fly repellent and antilick activities, was used in the present study for treatment of various wounds of diverse etiology, sinuses, abscess, superficial wounds, dermatitis and decay of the root of tusks etc. in thirty elephant of Jaipur. Healing was judged on the basis of gross (clinical) evaluation. It was observed that the Scavon vet cream was well tolerated by the elephants and it also enhanced the healing process in elephants.

11.2 Caesarean Section in Animals under Field Conditions A Retrospective Study of 50 Cases

Sharma, A.
Veterinary Polyclinic, Shahpur, Kangra

A retrospective study of caesarean sections performed under field conditions in 30 cows, 10 buffaloes, 5 goats, 3 sheep, and 2 bitches was conducted. The causes of dystocia were mainly maternal (90%) Pre-operative complications such as uterine torsion, spontaneous uterine rupture, handling by quacks etc. was observed in majority of cases (90%). The survivability of the dam was observed to be 55% as majority of the cases were presented after 24 hours of dystocia (95%). Among the non-survivors peritonitis due to uterine rupture, dehydration and shock following peritonitis

were the main causes of mortality. Among the survivors metritis was the major complication.

11.3 Some Unusual Conditions in Sheep and Their Surgical Management: A Report of 4 Cases

Sharma, A.
Veterinary Polyclinic, Shahpur, Kangra–176 206

Certain unusual and complicated conditions in sheep were presented in the polyclinic, which were managed surgically. In the present paper 4 such cases have been presented and their surgical management described. The conditions include congenital scrotal hernia in a lamb, intestinal fistula in a lamb, hypospadias and cleft scrota in a lamb and an unusual evisceration in a ram.

11.4 Fecolith in a Tom Cat

Rana, P.; Rathee, R.; Sharma, H. K. and Ravinder
Niti Bagh Pet Clinic, New Delhi

An indigenous Tom (male cat) with its X-ray of the abdomen (lateral view) was presented at the Clinic. History from the owner revealed that a veterinarian was trying to perform enema with the help of urinary catheter, to relieve constipation. The catheter slipped from the veterinarians hand deep inside the animal's rectum and was not retractable. The animal on presentation was dull, lethargic with a subnormal temperature of 98^0 F. The X-ray revealed presence of a metallic object inside the abdominal cavity of the animal. An emergency operation was performed and the catheter was removed from the large intestine. Along with the catheter fecoliths were also removed and the intestine was sutured with 2-0 catgut using simple interrupted pattern. A day after the animal recovered uneventfully and was hale and hearty till follow up period of 7 days.

7.2 ANAESTHESIOLOGY

7.2.1 Studies on Utility of Xylazine, Lignocaine and Their Combination as Epidural Anaesthesia in Buffalo Calves (*Bubalus bubalis*)

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Bihar Veterinary College, Patna-800014

Twenty apparently healthy male buffalo calves divided into four groups were used in the study. The results were drawn on the basis of clinical, physiological and biochemical parameters. Atropine sulphate @ 0.04 mg/kg body weight was injected 15 minutes prior to epidural injection in all experimental animals. Epidural analgesia was produced by injecting xylazine @ 0.1 mg/kg body weight (group II), lignocaine @ 0.22 mg/kg body weight (group III) and mixture of xylazine-lignocaine (group IV) at 1st intercoccygeal epidural space while in group I (control) 5 ml of normal saline was injected at 1st inter coccygeal epidural space. The earliest onset of analgesia was observed in group III (43.80 ± 2.32 second) followed by group IV (91.40 ± 1.08 second) and lastly in group II (541.60 ± 3.47 second). The animals of group III exhibited analgesia for longer duration as compared to that of group II and IV. Decrease in heart rate and rectal temperature at different intervals was observed in all the groups. A significant increase in serum glucose level in group II and III without any change in the level of serum urea nitrogen, sodium and potassium was observed in any groups. The alkaline phosphatase level was significantly increased in all the groups however it was maximum in group II. On the basis of results it is concluded that combination of xylazine and lignocaine was the safest and effective drug for epidural anaesthesia in ruminants.

7.2.2 Comparison of Systemic and Epidural Xylazine-Ketamine Anaesthesia for External Skeletal Fixation in Cattle

Kinjavdekar, P.; Amarpal; Aithal, H.P.; Hoque, M.; Maiti, S.K. and Singh, G.R.
Indian Veterinary Research Institute, Izatnagar – 243 122

Xylazine and ketamine administered epidurally and systemically were evaluated for analgesia during external skeletal fixation in large ruminants. Twenty-two bull calves weighing 100-250 kg were subjected to osteotomy and subsequent application of either circular or linear external skeletal fixators. In 4 bull calves (group I) weighing 200-250 kg (fixation in tibia), xylazine (0.05 mg/kg) and ketamine (100 mg) were administered epidurally. Whereas in 18 animals (group II) weighing 100-250 kg (av. 185.83 kg), xylazine administered intramuscularly (0.1 mg/kg) was followed 10 min. later by intravenous administration of ketamine to effect, for the fixation in tibia (7), radius (10) and metatarsus (1). Anaesthesia was maintained by intravenously administration of ketamine in the animals of group II. The two anaesthetic techniques were compared on the basis of degree and duration of analgesia, complications if any, standing recovery and weight bearing in the immediate postoperative period. In group I animals, good to excellent analgesia was maintained till the completion of surgery (90-120 min.), except in one case, where local administration of lignocaine was needed while drilling the transosseous wires. Additional dose of anaesthetic was not required in any animals. Standing recovery was delayed as compared to group II (100 to 135 min.) and the hind limb incoordination remained for longer duration. In animals of group II, mean doses of xylazine and

ketamine required were 22.23 mg (8-40 mg) and 928.12 mg (500-1900 mg), respectively, for the complete duration of surgery (av. 98.66 min., 30-150 min.). Animals regained standing position in 38.89 min. (average) after the completion of surgery. No complication was observed in any animals, except in one case where regurgitation was seen. The overall quality of anaesthesia was good to excellent in 12 animals, satisfactory in 5 animals and unsatisfactory in one animal. Most of the animals showed good weight bearing after standing, except for two animals, where ataxia and lameness were observed in the immediate postoperative period. The study indicated that epidural xylazine-ketamine though provided good analgesia for hind limb fracture fixation, however systemic xylazine-ketamine anaesthesia was better.

7.2.3 Acepromazine-Xylazine-Ketamine for Chemical Restraint of Pigs for Castration

Pawde, A.M.; Kinjavdekar, P.; Amarpal; Singh, G.R. and Aithal, H.P.
Indian Veterinary Research Institute, Izatnagar – 243 122

Ketamine with different pre-anaesthetics was used for chemical restraint of 10 pigs undergoing castration. In group I (n=4), xylazine (@ 2.0 mg/kg) and ketamine @ 10 mg/kg); in group II (n=4), acepromazine (@ 0.5 mg/lkg), xylazine @ 1.5 mg/kg) and ketamine (7.5 mg/kg); and in group III (n=2), medetomidine (@ 80 mg/kg) and ketamine (@ 7.5 mg/kg) were used to immobilize the 46 week old male Yorkshire White Large X Desi pigs (80-120kg) undergoing castration. Induction time was 10-14 min., 6-10 min. and 4 –5 min. in groups I, II and III, respectively. Restraint time was 25-35 min. in group I, 37-42 min. in group II and 45-55 min. in group III. The castration could be performed easily under 2 % lignocaine HCl local infiltration at the site in animals of groups II and III, while the animals in group I manifested grunting and struggled to raise head with repeated jerk of hind limbs.

7.2.4 Anaesthetic Effect of Epidural Bupivacaine in Goats Suffering from Obstructive Urolithiasis

Singh, K.; Kinjavdekar, P.; Amarpal; Aithal, H.P.; Singh, T.; Singh, G.R.; Pawde, A.M and Pratap, K.
Indian Veterinary Research Institute, Izatnagar- 243 122

The anaesthetic effect of bupivacaine was evaluated after its epidural administration in uraemic goats. The uraemic (n=6) and control animals (n=4) received bupivacaine (0.5 mg/kg), which was administered at the lumbosacral epidural space. The treatment was evaluated by clinicophysiological and haematobiochemical parameters. The onset of analgesia was faster in test animals than control animals. Bupivacaine produced complete analgesia of tail, perineum, inguinal and thigh regions in all animals. However, control animals produced longer duration of complete analgesia. Greater ataxia was produced by bupivacaine in control animals than uraemic ones. The physiological parameters (HR, RR and RT) did not show any significant change in both test and control groups. Similarly, haemoglobin, packed cell volume and differential leucocyte count showed significant change in both groups except significant higher values of total leucocyte count in uraemic animals. A significantly higher value of BUN and creatinine was recorded in test animals. The blood electrolytes (Na^+, K^+ and Cl^-) and blood gases (Po_2 and Pco_2) did not show any significant change in any group. However,

base excess was significantly higher in uraemic animals.

7.2.5 Clinico-Surgical Studies on Electroacupuncture of Acupoints BL-23, ST-36, SP-6, LU-1, SP-9 and Santai in Goats

Parai, S.; Kumar, A. and Jadon, N.S.
College of Veterinary and Animal Sciences, Pantnagar – 263 145

Twelve goats used in this study were divided in group 1, 2 and 3 and were subjected to electrostimulation at acupoints BL-23, ST-36, SP-6; BL-23, LU-1, Santai and BL-23, SP-9, and UB-40, respectively. Electrostimulation of acupoints using an electric current of 3-5 volts intensity in adjustable wave form with the frequency of 130-150 Hz for 30 minutes for induction followed by 50-80 Hz frequency alternating with 130-150 Hz frequency for 10 minutes each was used till the completion of operation. The extent of analgesia and muscle relaxation was graded from excellent to poor in order of group 1 followed by group 3 and group 2. The animals of group 2 had shown inadequate level of analgesia while surgical operation could be performed smoothly in animals of group 1 and 3 without any post-operative complications.

7.2.6 Use of Propofol for Castration in Horses

Tripathi, S.M.; Lokhande, D.U.; Sarkate, L.B. and Khandekar, G.S.
Bombay Veterinary College, Mumbai – 400 012

Eighteen apparently healthy horses of 3-6 years of age brought for gelding were used for the evaluation of propofol in combination with acepromazine and xylazine. Standardization of dose of propofol was undertaken in six horses, where propofol was administered at the dose rate of 4 mg/kg, 6 mg/kg and 8mg/kg body weight. On the basis of this a dose of 6 mg/kg of propofol was selected as standard. Acepromazine (0.088 mg/kg) in group I and xylazine (1mg/kg) in group II was administered intramuscularly 15 minutes prior to intravenous injection of standard dose of propofol (6mg/kg). Induction of anaesthesia, duration of anaesthesia and recovery time was studied. Induction of anaesthesia was smooth in both the groups; degree of analgesia and muscle relaxation was good in all except one animal of each group. The duration of anaesthesia was 16 minutes in group I and 22 minutes in group II. No complication of anesthesia was observed in any group. Recovery from anaesthesia was smooth and rapid in both the groups. A significant increase in the heart and pulse rate and significant decrease in respiratory rate during anaesthesia was noted in both the groups. Hematological parameters remained within normal limits in both the groups. No significant difference in arterial blood Ph, Pco_2, and plasma bicarbonate levels were noted.

7.2.7 Evaluation of Analgesic Effect of Pre-Emptively Administered Piroxicam and Keterolac Tromethamine in Dogs after Ovariohysterectomy.

Singh, V.; Bisla, R.S.; Singh, J.; Singh, K. and Sahu, A.
College of Veterinary and Animal Sciences, Hisar – 125 004

This study was done on 12 female dogs randomly divided in two groups of six animals each subjected to ovariohysterectomy through right flank incision. Nonsteroidal anti-inflammatory drugs keterolac tromethamine (0.5 mg/kg) and piroxicam (0.6 mg/kg) were administered intramuscularly 30 minutes before surgery in different groups. For

assessment of postoperative pain a numerical rating scale was used. In brief, it is concluded that preemptive administration of both keterolac (0.5 mg/kg) and piroxicam (0.6 mg/kg) effectively control postoperative moderate pain caused by ovario-hysterectomy in dogs.

7.2.8 Field Use of Acepromazine/Xylazine–Buprenorphine Neuroleptanalgesic Combination in Mules

Bhadwal, M.S.; Gupta, A.K.; Singh, N.K. and Bhardwaj, H.R.
Faculty of Veterinary Sciences and Animal Husbandry, Jammu

Acepromazine/xylazine – buprenorphine combination was used in 64 mules presented for various surgical interventions such as castration (52), wound suturing (6), eye worm removal (6) and management of scirrhous cord and carcinoma of the third eye lid in one mule each, along with local infiltration / nerve block with 2% lignocaine HCl as per the requirement of individual case. The animals were evaluated clinically to assess degree of sedation and analgesia. The onset of sedation was considerably slower with acepromazine than with xylazine mixture. Obvious signs of sedation were apparent for 30-40 minutes with both the combinations though degree of sedation with xylazine–buprenorphine combination was better than combination involving acepromazine. This period was found adequate for performing the surgery without exaggerated limb movements and excessive physical restraint.

7.2.9 Ketamine or Propofol Anaesthesia for Caesarean Operation in Goats

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Veterinary College, Bidar, Karnataka–585 401

Eight pregnant goats divided into 2 groups of 4 animals in each group were subjected to caesarian operation. All the goats were premedicated with haloperidol (0.8 mg/kg intravenously) and pentazocine (1 mg/kg). Ketamine was given in group I for induction @ 6mg/kg intravenously and for maintenance @ 2.5 mg/kg intravenously. Propofol was given in group II to induce anaesthesia @ 5 mg/kg intravenously and also for maintenance by slow infusion @ 0.22 mg/kg/ min. Caesarian operation was performed using low flank approach in both the groups. The feasibility of anaesthetic combination for caesarian was evaluated. Early induction was observed in group II (23.25 ± 0.75). Induction dose was sufficient to remove foetus during the caesarean in both the groups but maintenance dose was required to complete suturing. Recovery period was shorter in group II when compared with group I. Cutaneous analgesia was good in groupI. Analgesia to deeper tissues was less satisfactory for caesarean operation in both the groups. Postoperative depression of dam and fetus was more pronounced with propofol (Group II) than ketamine although, the recovery was quicker. All the dams survived following cesarean in both the groups. Fetus survivability was 2/4 in both the groups due to relatively immature nature of fetuses. It is concluded that ketamine and propofol could be employed safely at this dose for caesarian operation in goats.

7.5 ORTHOPAEDIC SURGERY

7.5.1 Technique of Static Intramedullary Interlocking Nailing- an Illustration

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A technique of open method of fracture repair with static intramedullary interlocking nailing has been illustrated. The point of insertion of nail in femur, tibia and humerus was same as of simple intramedullary pinning. Interlocking nail mounted on the aiming device and insertion handle attached to it, was introduced into the medullary cavity of proximal fragment. Fractured ends were reduced and nail was driven into the distal fragment. Initially, distal locking was done. The appropriate hole was selected, marked, drilled and tapped after measuring the depth. Then the hole was fixed with screw interlocking with bone. After desired number of holes were locked in distal fragment, the same procedure was repeated on proximal fragment. Then the aiming device was detached leaving the nail fixed within the repaired bone.

7.5.2 Management of Supracondylar Fractures of Femur in Dogs

Singh, S.S.; Mahajan, S.K.; Singh, S.; Singh, H.; Raghunath, M.; Saini, N.S.; Anand, A. and Mohindroo, J.
College of Vet. Sciences, Ludhiana–141004

Fifty two cases of supracondylar fractures of femur in dogs were surgically treated with cross pinning, intramedullary cross pinning, threaded intramedullary pinning and retrograded intramedullary pinning. Intramedullary cross pinning using two, three and four pins was observed most suitable technique for supracondylar fracture repair in dogs.

7.5.3 Surgical Management of Talocrural Subluxation Following Open Malleolar Fracture in a Dog

Ramani, C., Pushkin, Raj, H.; Arun, P.; Ganesh, T.N.; and Ameerjan, K.
Madras Veterinary College, Chennai – 7

An adult male nondescript dog with a history of non–weight bearing on the left hind limb immediately after a road traffic accident and having lacerated wound extending from the medial aspect of the stifle joint upto the distal metatarsal region with an open subluxated tibiotarsal joint was referred to clinics for treatment. Radiograph of the tarsus did not reveal fracture. Joint mobility towards the lateral aspect was due to shearing injury of the medial collateral complex of the tarsal joint. Surgical reconstruction of both the long and short functional complex was performed using three cortical screws and 22 G stainless steel wires to give stability to the joint in flexion and extension. Adjunctive stabilization was provided by application of a plaster of paris gutter splint. The detailed surgical procedure and post operative management are discussed.

7.5.4 Diagnosis and Chemotherapy Regimen for Osteosarcoma of Maxilla in a Dog

Ramani, C.; Ganesh, T.N.; Pushkin Raj, H.; Arun, P.; Divedi, D.K. and Ameerjan, K.
Madras Veterinary College, Chennai – 7

An eight-year-old female Boxer was referred to the ophthalmology unit with moderate exophthalmos, conjunctivitis, and corneal opacity in the left eye. Clinical examination revealed a hard swelling below the eye involving the maxilla. Radiograph of the skull revealed mild lytic changes in the left maxilla. The dog was administered a course of antibiotics, corticosteroids, and NSAID

eye drops for a period of 10 days, which resulted partial improvement in the condition. Further investigation revealed osteosarcoma of maxilla. The dog was treated with three doses of cisplastin at seven days interval. Though there was marked improvement in the reduction of the cancerous mass, the animal died a week after the third chemotherapy injection.

7.5.5 Surgical Management of Lateral Condylar Fracture of Humerus in a Pup

Ganesh, T.N.; Ramani, C.; Pushkin Raj, H.; Jose Mathew and Ameerjan, K.
Madras Veterinary College, Chennai – 7

A 6 months old Lhasa Apso male pup was presented with history of non-weightbearing on its left forelimb following a fall from the first floor. Radiographic investigation revealed fracture of the lateral condyle of the left humerus. The bone was exposed through craniolateral approach and condyle was reduced and stabilized by passing a temporary 1mm K-wire through the proximal part of the condyles without opening the joint. A partially threaded 3.5-mm cancellous screw was then inserted as transcondylar lag screw parallel to the K-wire. The K-wire was then removed and the screw was finally tightened. Additional stabilization was provided by passing another 1 mm K-wire from the lateral epicondyle to the medial cortex. The extra length of wire was cut and bent. The post-operative care, ambulation and follow up are discussed.

7.5.6 Surgical Management of Supracondylar Fracture of Femur in a Cat

Ganesh, T.N.; Ramani, C.; Jayaprakash, M. and Ameerjan, K.
Madras Veterinary College, Chennai – 7

A non-descript 8 months old female cat was reported with the history of non- weightbearing on its left hind limb following a fall from the first floor. Clinical and radiographic examination revealed complete overriding fracture of the distal metaphysis of the left femur which was stabilized by cross pinning with two 1.4-mm Kirschner wires one from the lateral condyle to the medial cortex and another from the medial condyle to the lateral cortex. Post-operative care and follow up are discussed.

7.5.7 Surgical Management of Contracted Tendon in a Cross Bred Cow Calf

Jaiswal, S.; Singh, H.N. and Singh, S.V.
College of Veterinary Sciences and Animal Husbandry, Faizabad- 224 229

A five days old cross bred cow calf with bilateral flexion of both fore limbs from fetlock joint was treated for congenital contracted tendon by superficial and deep digital flexor tenotomy. Both limbs were straightened maximally and kept in the plaster cast for 21 days. After removal of cast the limbs were observed nearly straight but did not flex on movement. The owner was advised to give massage on affected joints with "lord". The calf was again represented after 6 months and it appeared completely normal.

7.5.8 Arthroscopic Diagnosis and Management of Biceps Tenosynovitis in a Dog

Nagarajan, L.; Venogopal, Syam, K.; Ameerjan, K.; Ramani, C. and Ganesh, T.N.
Madras Veterinary College, Chennai-7

A 3 year old German shepherd male dog with a history of limping from right fore limb over a month and pain on palpation of the right shoulder joint was presented for treatment. Survey radiograph did not reveal any bony involvement. Shoulder

arthroscopy using a 2.7mm 30^0 forward oblique telescope revealed severe hyperaemia at the origin of the biceps tendon and the tendon sheath alongwith the thickening of the synovial villi, hyperaemia of the glenoid cartilage and humeral cartilage. The joint was continuously flushed with Ringer Lactate through out the entire procedure. 40mg of gentamicin and 10mg of Prednisolone was instilled into the joint at the end of the procedure. There was a marked improvement in the gait following arthroscopic joint lavage and parenteral antibiotic and prednisolone for 5 days. The details of the arthroscopic procedure is discussed.

7.5.9 Pulmonary Osteoarthropathy Secondary to Bone Tumour in a Labrador

Aithal, H.P.; Amarpal; Kinjavdekar, P.; Pawde, A.M.; Singh, T.; Singh, G.R. and Setia, H.C.
Indian Veterinary Research Institute, Izatnagar- 243 122

A Labrador male dog aged 8 years was presented with the history of lameness in the left fore leg and soft tissue swelling at the distal radius ulna region for about a week. Radiography revealed an old healed fracture at the middle third of radius/ulna with a large radiolucent area and periosteal reaction at the distal metaphyseal region of radius. Soft tissue swelling was also present. Suspecting for osteomyelitis, the animal was treated with broad-spectrum antibiotic. However, after 2 and a half months, the animal was presented with severe swelling at the carpal region. Radiograph revealed extensive destruction of distal metaphyses of radius/ulna and osteogenic reaction along the periphery, suggesting osteolytic bone tumour. Distal articular surfaces of both the bones were intact. Marked soft tissue swelling was also visible. The limb was amputated at the level of distal humerus. The animal recovered from the surgical trauma and started normal activities with 3 legs. Subsequently, after 2 and a half months (5 months after the start of initial signs), the animal was again presented with a diffuse soft tissue swelling along the whole length of right radius/ulna. Radiographs revealed periosteal new bone formation along the whole length of radius/ulna indicating the signs of pulmonary osteoarthropathy. Chest X-ray revealed a large radio-dense space-occupying lesion in the lungs suggesting metastatic tumour. The owner was advised to euthanize the dog. This put on record a rare case of pulmonary osteoarthropathy secondary to bone tumour in a long bone with healed fracture. It could not be ascertained whether the tumour was a sequel to fracture.

7.5.10 Clinical and Radiological Findings in Growing Dogs with Different Skeletal Diseases: A Study of 77 Cases

Kushwaha, R.B.; Aithal, H.P.; Singh, G.R.; Amarpal; Kinjavdekar, P.; Pawde, A.M. and Setia, H.C.
Indian Veterinary Research Institute, Izatnagar- 243 122

Among 387 growing dogs (aged up to 1 year) presented to the clinic during the year 2002-2003, 77 (19.90%) cases had different skeletal abnormalities, which included nutritional secondary hyperparathyroidism (NSH) (38), rickets (20), retained cartilage core (RCC) (11), premature closure of physis (PMCP) (11), hypertrophic osteodystrophy (HOD) (8) and metaphyseal chondrodysplasia (MCD) (2). Clinically almost all the animals exhibited different degrees of lameness, hindquarter weakness, enlarged distal metaphyses of radius/ulna, bending of fore limbs

(mostly carpal valgus) and pain on palpation of limbs. The most common radiological signs recorded in NSH were marked thinning of cortices, a radiodense band adjacent to the physis of long bones, broadening of metaphysis in the form of saucer shape and folding fractures. Whereas in rachitic cases, widening of physis of long bones (more frequently distal radius/ulna) and cup shaped distal metaphysis with flaring of metaphyseal border were characteristic radiographic signs. In cases of HOD, a radiolucent zone in the distal metaphysis adjacent to the physis was the characteristic radiographic sign. In cases of RCC, the most prominent feature was an inverted radiolucent cone, extending proximally from distal ulnar physis up to the metaphysis. Whereas in cases of chondrodysplasia, the radiolucent area at the distal metaphysis of radius was seen extending up to proximal third of diaphysis.

7.5.11 The Incidence and Pattern of Fractures in Growing Dogs with Osteopenic Bones

Kumar, K.; Mogha, I.V.; Aithal, H.P.; Kinjavdekar, P.; Amarpal; Singh, G.R.; Pawde, A.M. and Setia, H.C.

Indian Veterinary Research Institute, Izatnagar- 243 122

A total of 310 cases of fractures were recorded in growing dogs aged up to 1 year during the period from April, 1993 to March, 2002. Among them, in 91 cases (29.35%) of fractures, the bones were osteopenic. Minor trauma was the major cause of fracture in dogs with osteopenic bones (25.30%). Non-descript breeds were most commonly affected with pathological fractures (38.46%), followed by German Shepherds (21.98%) and Spitz (18.68%) Within the breed, the incidences of fractures were maximum in German Shepherds (35.08%) and Dobermans (34.29%). Fractures in growing dogs with osteopenic bones were most commonly recorded in the age group of 2-4 months (53.89) and males were significantly more affected than the females. Maximum fractures were recorded in femur (56.19%) and are equally distributed along the whole length of the diaphysis and among the proximal and distal metaphyses/epiphyses. The oblique fractures were most commonly recorded (46.29%), however, incomplete/folding fractures were more common in cases with osteopenic bones (15.73%) than in normal bones (6.33%) and also multiple fractures were more common in osteopenic bones.

7.5.12 Surgical Stabilization of Tarsal Instability due to Peroneal Paralysis using Kirschner Wires in a Pup

Ganesh, T.N.; Ramani, C.; Pushkin Raj, H.; Arun, P. and Ameerjan, K.

Madras Veterinary College, Chennai – 7

A four month old Pomeranian cross pup was treated for right hind limb lameness. Clinical examination revealed tarsal instability, knuckling of right hindpaw, secondary laceration on the dorsum of the paw and sensory nerve deficits. The pup was administered a course of antibiotics, corticosteriods and vit. B_1, B_6, B_{12} injections. Physiotherapy using surge faradic current, for a period of seven days was also provided. The limb was supported with a spoon splint. Though the sensory perception revealed improvement following the treatment, a marked degree of knuckling and hyperextension of tarsal joint still persisted, hence, surgical stabilization of tarsal joint was attempted by two K-wires (1.4mm) drilled through the plantar

aspect of the tarsus in to the distal third of the tibia after keeping the hock in a semi-flexed position. Postoperatively, the pup started ambulating, near normally, using the affected limb with placement of paw in normal position. The follow-up details are discussed.

7.5.13 Management of Comminuted Fracture of Femur using a Position Screw and Buttress Plate with Cancellous Bone Graft

Ganesh, T.N.; Ramani, C.; Jayaprakesh, R.; Pushkin Raj, H. and Ameerjan, K.
Madras Veterinary College, Chennai –7

A two year old male Weimaraner was presented with signs of non-weight bearing on the left hind limb since an accident. Clinical and radiological examination revealed comminuted fracture of left femur. Under ketamine xylazine anaesthesia open reduction and internal fixation was performed. The large fragment of bone was fixed to the proximal fragment of femur with position screw using a 3.5mm cortical screw. The proximal and distal fragments of femur were brought into alignment and immobilized using a 10 hole, 3.5mm DC Plate with three screws on the proximal fragment and three screws on the distal fragment loaded in neutral position. The gap at the fracture site was filled with cancellous bone graft harvested from the proximal humerus. Closure of surgical wound was carried out in a routine fashion. Sutures were removed on the 10th day. Post operative care and follow up are discussed.

7.5.14 Open reduction and Internal Fixation of Long Bone Fractures using the Dynamic Compression Plate: Clinical Experience in 26 cases (1998-2000)

Ayyappan, S.; Thilagar, S.; Radhakrishnan, C.; Md. Shafiuzama,; Govind, P. and Ameerjan, K.
Madras Veterinary College, Chennai – 7

Twenty-six clinical cases of femur, tibial and radial fractures were subjected to open reduction and internal fixation using the dynamic compression plate. The plates were applied based on guidelines outlined by the AO/ASIF group. Techniques of buttress, neutralization and compression were used depending on the fracture configuration. The plates were selected based on the type of bone and the weight of the animal. The clinical outcome, techniques and complication are discussed.

7.5.15 Surgical Approaches for Correction Hip of Dislocation in Buffalo Calves

Jain, P.; Khairwal, S.; Sharma, A.; Singh, S.V. and Sharma, V.K.
College of Veterinary and Animal Sciences, Pantnagar-263 145

In four male buffalo calves, between one and a half to two years of age and weighing between 150 to 200 Kg hip joint was dislocated experimentally. Theanimals were then subjected for correction of hip joint dislocation by two different approaches. In two animals hip joint was approached by transecting the gluteus muscles and repair was attempted byusing transarticular stainless steel wires (18G) through greater trochanter to acetabular rim. In another two animals the hip joint was approached by trochanteric osteotomy and transarticular was applied in similar manner. Evaluation was made clinically and radiologically. It is concluded that approach to hip joint is esear via trochanteric osteotomy as compared to transection of gluteus muscle.

7.6 LARGE ANIMAL SURGERY

7.6.1 Surgical Management of Teat Injuries in Bovines

Singh, S.V.; Sharma, Aditi; Sharma, V.K.; Parai, S.; Kumar, S. and Jain, P.
College of Veterinary and Animal Sciences, Pantnagar- 263 145

Three cases of teat injury (2 cattle and 1 buffalo) were reported at Veterinary teaching hospital. All of them were lactating. In cows, injury was due to teat tramping by neighboring animals while in buffalo, it was due to barbed wire. In buffalo, there was longitudinal separation of muscularis with skin without perforation of teat sinus. Wound was cleaned and debrided aseptically with diluted povidone–iodine (1:10) solution. Operation was performed under ring blockade using infiltration of 2 % lignocaine hydrochloride. After placing a polythene canula in the teat canal, wound edges were trimmed to make fresh. The teat was repaired by simple continuous pattern with 4-0 chromic catgut followed by closure of connective tissue and muscles by simple continuous pattern with 3-0 chromic catgut. Skin was closed with simple interrupted pattern using 2-0 mersilk suture. Post operatively systemic antibiotic was given for 5 days and milking of the quarter was restricted for 7-8 days. Cleaning and dressing of wound with povidone – iodine was continued till removal of suture on 10th post operative day.

7.6.2 Thoraco Abdominal Haematoma in a She Buffalo

Bhargava, M.K. and Shahi, A.
College of Veterinary Sciences & Animal Husbandry, Jabalpur

A she buffalo having swelling 95 cm long and 48 cm wide diagnosed as haematoma of thoraco andominal region, was operated under xylazine sedation. Two incisions of four inches length were made on the dependent part in the centre of swelling on either side. All the fluid and blood clots were removed, which measured 25 kg. After removing all the blood clots and fluid both the incisions were further extended to join each other. All the necrosed tissue from the inner surface was debrided and removed and then entire length of incision was sutured by placing interrupted sutures, leaving 3 inches opening for the purpose of drainage and dressing on the dependent part of incision on either side. Alternate day dressing with hydrogen peroxide and liquid povidone iodine was done for first 15 days, followed by a 2-3 days interval. Local application of Lorexane ointment was also done on the surface of suture line. Parenteral administration of Streptopenicillin 2.5 gm was given for 5 days. The wound healed completely in about 45 days without any postoperative complications.

7.6.3 A Fetal Monster Delivered by Caesarean Section in a Buffalo

Kumar, S.; Kumar, S.; Bhatt,P. and Rawat, A.
College of Veterinary and Animal Sciences, Pantnagar-263145

A pluriparous buffalo was presented at Veterinary Teaching Hospital with the history of dystocia in its third gestation. The forced extraction and other obstetrical manoeuvers proved futile hence the animal was subjected to Laparohysterotomy. The fetus was delivered by Laparohysterotomy through a 12-14 inch long left flank oblique incision under local anaesthetic infiltration under stricts aseptic precautions. A dicephalus conjoined monster with duplication of abdominal cavities was delivered.

7.6.4 Surgical Removal of a Tumour in a Cross-bred Cow: A Case Report

Bhatt, P.; Kumar, S. and Kumar, S.
College of Veterinary and Animal Sciences, Pantnagar-263145.

A cross-bred cow was presented to Veterinary Teaching Hospital with an excessive outgrowth on the posterior aspect of left thigh near pin bone. The animal had a history of small growth since birth, which gradually increased in due course of time. The animal was prepared for aseptic surgery under local anaesthesia and a large sized tumour was excised at its base. The wound was closed by flap method after removal of the pedunculated growth and sample from tumourous growth was sent for histopathology.

7.6.5 Clinical Features and Survival in Reticular Abscessation in Buffaloes and Cows

Saini, N.S.; Singh, S.S.; Kumar, A.; Anand, A.; Mohindroo, J. and Mahajan, S.K.
College of Veterinary Sciences, Ludhiana-141004,

Retrospective evaluation of clinical cases of reticular abscess in buffaloes (n=97) and cows (n=5) was done. Majority of the buffaloes (92.8%) were more than 4 years of age. A total of 80 buffaloes and 4 cows recovered, while 17 buffaloes and one cow died after surgical treatment. Most of the non-survivor buffaloes had recurrent tympany and were off feed for more than three weeks, whereas, surviving buffaloes had it for less than three weeks. Rumen motility had increased and a gradual fall in milk yield was observed. Total leukocyte count more than 10,000 per mm^3 was observed in 13 survivors and 6 non-survivors. Majority of survivors (77.7%) and non-survivors (87.5%) had neutrophil count of more than 50%. Most of the surviving buffaloes (89.5%) were either recently parturated or were in advanced gestation (66.7%). In 5 out of 28 surviving buffaloes and 2 out of 7 non-survivor cases, the reticular abscesses were confirmed, radiographically. Metallic foreign bodies were recovered from reticulum in 78:8% (n=63) and 88.2% (n=15) during rumenotomy in survivor and non-survivor buffaloes, respectively. Single reticular abscess was observed in 84 buffaloes and in all the cows. Majority of the buffaloes and all cows had abscess located on cranio-ventral aspect of the reticulum. Rumen Ph >7.0 was recorded in 11 survivors and in 3 non-survivor buffaloes. In survivor buffaloes, 20 had reticulo-phrenic and 5 had peritoneal adhesions. Uneventful recovery was observed in 74 buffaloes and 4 cows within 5-10 (63.4%, n=38) days postoperatively. Some surviving buffaloes had associated diseases like diaphragmatic hernia (n=2), localized peritonitis (n=4) and pedunculated leomyoma (n=1), whereas, non-surviving buffaloes had diaphragmatic hernia (n=4), traumatic pericarditis (n=1) and fibrous tract (n=1). Majority of cows having reticular abscess had similar symptoms as seen in buffaloes and also had abomasal impaction (n=1) and traumatic pericarditis (n=1).

7.6.6 Oral Tumours in Bovines – Clinical Reports

Singh, P.; Chander, S.; Singh, A.P.; Singh, J. and Gupta, R.P.
College of Veterinary and Animal Sciences, Hisar-125 004

Twelve cases of adult cattle and buffaloes were brought to the University Clinic with the history of presence of growth in the oral cavity, involving incisors (n=4), molars and premolars

(n=3), extending deep upto the pharyngeal area (n=3) and in remaining 2 cases, in the gums without involving the teeth (n=2). In all the animals there was difficulty in feed intake and mastication along with constant salivation. In the 3 cases where the growth was extensive, respiratory discomfort was also observed. The animals were getting weak and debilitated day by day. Growths were removed under xylazine sedation and regional nerve block. The surgery was easier in cases where growth were small and present in the cranial region involving incisors; out of these 4 cases, 2 cases were of mandibular cysts. These cysts were removed surgically along with the incisors involved. In cases where growth was present in the caudal portion of buccal cavity, externally the mandibular region was swollen. These growths were removed along with the teeth involved by applying mouth gag. The hemorrhage was checked by inserting gauge soaked with Tincture Benzoin-co at the site of operation. Postoperatively the antibiotics, non steroidal anti-inflammatory drugs and injection anthiomaline were used along with mouth wash with Condey's lotion. The histopathological examination of these growths showed various neoplasm i.e. odontoma, amyloblastoma, osteoma, myxoma and squamous cell carcinoma. The case where histopathology revealed malignancy, there was recurrence in 4 cases, rest of the cases were cured without any postoperative complication.

7.6.7 Surgical Treatment of Sublingual Salivary Cyst in Deoni Cattle

Dilipkumar, D.; Shivaprakash, B.V. and Usturge, S.M.
Veterinary College, Bidar-585 401

Four clinical cases over a period of ten years were treated by surgical drainage. The cysts were located on either side of frenulum linguae. After thorough drainage of cyst povidone iodine impregnated gauges were placed in the cavity for a period of three months. All the animals showed uneventful recoveries.

7.6.8 Ocular Acinar Adenocarcinoma in A Buffalo: A Case Report

Chandrapuria, V.P.; Pandey, S.K.; Swamy, M. and Shrivastava, A.B.
College of Veterinary Science and Animal Husbandry, Jabalpur

An adult murrah buffalo aged approximately 9 years was operated thrice for recurring tumerous growth in the eye. In first surgical intervention, the growth was excised through canthotomy and showed recurrence in a month. Second surgical intervention included extirpation of growth with eyeball and recurrence was seen in 15 to 20 days. Third time, complete excision and chemical cauterization detained the growth for only 12 to 15 days. The microscopic examination of the biopsy tissue revealed it as acinar adenocarcinoma. The tumour was thereafter completely destroyed by electrocautery but it reappeared only in 10 days period and turned to ulceration with maggotic invasion in the eye. Animal died after ten days and postmortem examination revealed metastatic nodules of the tumour in the lungs and liver.

7.6.9 Rectovaginal Fistula with Atresia Ani in a Nellore Lamb

Jayaprakesh, T.; Syama Sundar N. and Viroji Rao, S.T.
Livestock Research Station, Palamaner, Chittor-517 408

A case of congenital rectovaginal fistula with atresia ani in a 3 days neonatal lamb was presented

with a history of tenesmus while passing faeces. On physical examination, absence of anal opening was noticed along with passing of faeces through vigina. It's surgical reconstruction and complications will be described.

7.6.10 Surgical Management of Congenital Biglossia Glossoptosia with Bifid Jaw and Adenoma in Buffalo-calf: A Case report

Sharma, P.D.; Behl, S.M.; Chawla, S.K. and Tayal, R.

College of Veterinary Sciences, Hisar-125004

A case of congenital anomaly of oral cavity in a buffalo calf was presented in College Clinics. The tongue was bifurcated (Biglossia) and hanging downwardly (Glossoptosia) with separate frenum lingue. The lower jaw was also bifid. Animal was unable to close the mouth properly due to hard growth of circket ball size on the left commissure of mouth. The surgical repair was done under xylazine sedation and local infiltration of 2% lignocaine hydrochloride. The growth was resected out. Adjoining tongue edges were freshened upto frenum lingue and sutured together with absorbable suture material. Post operatively systemic antibiotic, non-steroidal anti-inflammatory drugs were given along with topical application of boroglycerine for seven days. The animal was kept on fluid therapy. There was uneventful recovery and the calf started suckling milk normally after 10 days. Histopathological examination of the hard growth revealed to be of adenoma.

7.6.11 Obstructive Urolithiasis in Male Cattle and Buffaloes

Singh, T.; Amarpal; Kinjavdekar, P.; Aithal, H.P.; Pawde, A. M.; Pratap, K. and Singh, G.R.

Indian Veterinary Research Institute, Izatnagar-243 122

The study involves retrospective analysis of 42 cases of obstructive urolithiasis in bovines treated at IVRI polyclinics in a period of two years (2002-2003). The affected animals included 7 bullocks, 5 cow calves and 30 buffalo calves. Buffalo calves in the age group of 3-6 months had highest incidence and constituted about 76% of buffaloes affected with urolithiasis. Only 10% buffalo were in the age group of 1 year or above. In contrast, in cattle, young calves and adult animals were affected at the frequency of 41% and 59% respectively. Diagnosis of the cases was made on the basis of history, clinical examination, radiological and ultrasonographic findings and abdominocentasis. Eleven buffaloes (36%) and 3 cattle (25%) had ruptured urinary bladder while 4 (13%) buffaloes and 2 (16%) cattle had rupture of urethra. The incidence of urolithiasis was more in the months of December to March and 22 (73%) buffaloes and 4 (80%) cow calves and 3 (42%) bullocks were recorded during this period. Urine Ph was alkaline and ranged from 7-9 in buffaloes and 7.5-9 in cattle. Haematobiochemical examination showed increased TEC, TLC, Hb, PCV, ALP, GOT, GPT enzymes BUN and creatinine. Blood gas analysis revealed a trend towards hypochloraemic, hyponatraemic, hypocalcaemic and slight metabolic alkalosis. The effect of different etiological factors on incidence, managemental strategies, postoperative complications and final out come of cases are discussed.

7.6.12 Surgical Management of Unusual Esophageal Fistula in a Heifer

Rameshkumar, B.; Alphonse, R.M.D.; Balagopalan, T.P. and Aruijothi, N.
Rajiv Gandhi College of Veterinary and Animal Sciences, Pondicherry – 9

A cross bred heifer aged about three years was referred to the College Hospital, with the history of frequent regurgitation and leakage of partially digested food material through a wound at the ventral aspect of the neck region since a week. The animal was reported to be administered with calcium solution intravenously two weeks back. Since then a hard swelling was noticed at the cervical region which lateron opened by its own. On clinical examination, condition was suspected to be oesophageal fistula. Lateral plain and contrast radiographs of the cervical region confirmed the diagnosis, location and the extent of fistulous tract. Under sedation with xylazine hydrochloride, and local infiltration of 2% lignocaine hydrochloride, the fistulous tract was dissected out of adhesion. The wound on the oesophagus was closed by 2/0 polyglycolic acid suture material. The necrotic tissue was debrided and the skin wound was closed in routine manner after fixing a corrugated drain sheet for drainage. The animal was put under postoperative antibiotic and fluid therapy for 7 days. The cutaneous sutures were removed on the 10^{th} postoperstive day and the animal recovered uneventfully.

7.6.13 Comparative Efficacy of Anthelmintics and Surgical Techniques for the Removal of Setaria from the Anterior Chamber of Eyes of Horses

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TVCSC Center, Regional Research Station, Karnal

Seventeen horses suffering from corneal opacity, kerato-conjunctivitis, perfuse lacrimation and parasite movement in aquous humour were studied. The medicinal treatments with doramectin @ 200mg/kg b.wt. subcutaneously, levamisole hydrochloride (@ 7.5 mg/kg b.wt. orally) and topical instillation of procaine penicillin plus betamethasone were found ineffective. The drainage of parasite through stab incision or paracentasis on the corneo-scleral junction at 12 o'clock position was found effective in one out of four animals operated. The post operative complication observed in the remaining three were iris prolapse, haemorrhage, adhesions, corneal opacity, vision loss and retention of parasite. These techniques were modified by using scalp vein 18 G needle fitted in syringe, inserted in the anterior chamber through corneo-scleral junction at 11 o'clock position. The parasite was adhered in the scalp vein needle bevel by suction pressure in the syringe and removed by withdrawing the needle. Anaesthesia was maintained with xylazine (@ 1.1mg.kg i.v.) and ketamine (@ 2.2 mg/kg i.v.) combinations, followed by auriculo–palpebral and Peterson nerve blocks. Topical application of atropine sulphate was found efective in preventing postoperative adhesions. This technique was applied successfully in four out of eight horses. In one case lignocaine hydrochloride was also used as additional surface anaesthesia. The parasites were identified as *Setaria digitata* on the basis of their morphological characteristics.

7.6.14 Successful Surgical Management of Incised Penis in A Cow Calf- A Case Report

Tiwari, S.K.; Sharda, R.; Dubey, S. and Mishra, O.P.

College of Veterinary Sciences, Anjora, Durg

A male cow aging 7 months was brought with the complaint of profuse bleeding from the wound just above the penis. The animal had fallen on the trishul that was fixed near a temple. Clinical examination revealed that the penis was clearly bisected at its anterior part along with preputial injury. A polyethylene catheter was inserted in the urethra to cannulate it. Then the muscle was sutured with cat gut No. 1/0 in simple interrupted pattern in the first row followed by simple continuous sutures in the second row under xylazine sedation and local infiltration. Catheter was kept in place for 8 days. Complete recovery was observed within 21 days.

7.6.15 Squamous Cell Carcinoma of Horn: A Case Report

Singh, S.P.; Pandey, R.P.; Kumar, P. and Verma, P.K.

Pandit Deen Dayal Upadhyay Pashu Vigyan Vishwavidyalay Evam Go Anusandhan Sansthan Mathura – 281 001

A non descript eight year old cattle was presented to Department of Surgery with bending of left horn downwards, frequent shaking of the head, rubbing of the horn, blood mixed discharge from nostrils and soft cauliflower like neoplastic growth with foul smell. Hematological examination revealed increased level of the total leucocytes count, hemoglobin content, PCV and hypoalbuminemia. On histopathological examination infiltration of the lymphocyte polymorphonuclear cells with presence of the epithelial pearls and cell nests were observed. The cow was premedicated with xylazine (20mg). The area was prepared for aseptic surgery through blocking of the corneal nerve by 2% lignocaine, hydrochloride, ligation of the superficial temporal artery. The cancerous tissue was completely removed from the site under xylazine sedation and cornual nerve blockade. Ligation and cauterization achieved haemostasis. Postoperative care included antiseptic dressing, analgesic and chemotherapy for 15 days. 5 ml SPE cancerous tissue was given IM in the cattle that enhanced the recovery and reduced the convalescent period.

7.6.16 Successful Repair of Large Ventral Hernia Using Nylon Mesh in a Crossbred Female Calf

Kumar, N.; Sharma, A.K.; Singh, T.B.; Gupta, O.P. and Singh, J.

Indian Veterinary Research Institute, Izatnagar – 243 122

A six month old crossbred female calf was presented with history of swelling at the ventral abdomen since last 2 months. The swelling was 15 cm in diameter and increasing in size with the growth of animal. No pain was observed on palpation of swelling and the contents were reducible. The case was diagnosed as ventral hernia. The animal was sedated with xylazine @ 0.22 mg/kg and ketamine @ 11 mg/kg intramuscularly. Local analgesia was achieved by infiltrating 2 % xylocaine solution. An elliptical skin incision was given over the swelling and hernial sac was opened. The hernial contents which consisted of intestine and mesentery were pushed back in the abdominal cavity. The large abdominal wall defect was repaired with double layer of nylon mesh. The mesh was placed as an inlay graft and sutured with abdominal wall by interrupted mattress sutures using medium

vetafil. The hernial sac was closed with vicryl No.-1 suture and skin incision with nylon suture. Skin sutures were removed after 2 weeks and the animal had an uneventful recovery. Strong fibrous tissue was formed at the site four months postoperatively.

7.6.17 Rectal Prolapse Caused by A Fibroma in a She Camel

Jhirwal, S.K.; Gahlot, T.K.; Dhadich, H.; Qureshi, S.M. and Bishnoi, P.
College of Veterinary and Animal Sciences, Bikaner – 334 001

A she camel aged about five years was brought to the Clinic with a history of tenesmus, protrusion of rectal mass and passing of scanty faeces since last two days. Reposing the prolapsed rectum and application of purse string sutures together with an antibiotic and anti-inflammatory therapy brought a relief for one week only. The condition recurred after removal of purse string sutures with a great magnitude. Per rectal examination under epidural anaesthesia revealed a tennis ball sized pedunculated growth having an attachment at about 8 inches inside rectal wall from the anus. The peduncle was transected close to its attachment after placing a transfixation ligature with chromic catgut no. 2. Purse string sutures were not placed at anus. Animal recovered well after routine post operative care.

7.6.18 Surgery of Thoraco-Oesophageal Obstruction in a Buffalo: Standing Approach

Dabas, V.S.; Chaudhary, S.; Suthar, B.N. and Mistry, J.N.
College of Veterinary Science and Animal Husbandry, Sardarkrushinagar, Gujarat-385506

A seven years old recently calved buffalo was presented to the College Clinics with the history of off feeding abruptly since 24 hours. The animal had difficulty in swallowing water. Clinically there was absence of tympany, salivation and cervico-oesophageal region was free from any noticeable swelling. The probing could be passed only up to the base of heart which confirmed the partial oesophageal obstruction in the thoracic region. Under Xylazine sedation @ 0.025 mg/kg body weight, the animal was secured in the trevis. The rumenotomy was performed aseptically in standing position under local infiltration analgesia using 2% lignocaine hydrochloride and the obstructive foreign body was forced back to the cervical oesophagus through cardia with the help of probang. The foreign body recovered following oesophagotomy was a piece of hard and coiled leather. The wounds were closed in routine fashion and post–operatively, the animal was kept on massive fluid therapy, high dose of antibiotic and anti-inflammatory drugs for five days. Routine antiseptic dressing was continued up till complete healing. The animal was provided little quantity of green fodder on day 6^{th} which, however was increased gradually. The skin sutures were removed on 12^{th} post-operative day.

7.6.19 Surgical Extirpation of Vaginal Hemangioma in a Mare

Dabas, V.S.; Mistry, J.N.; Sharma, V.K. and Joshi, D.V.
College of Veterinary Science and Animal Husbandry, Sardarkrushinagar, Gujarat -385 506

A thirteen years old and six months pregnant mare, in her eighth parity was presented to the College Clinics with the history of swelling on right vulval labia and bloody discharge since two months. Per vaginal examination revealed a lemon sized ulcerated growth on the right inner wall of vagina just two inch interior to the skin of vulval lips. Further,

it was spongy and broad at base, and had tendency to bleed on slight disturbance. Surgical removal of the growth was performed in standing position using 2% lignocaine hydrochloride solution as posterior epidural block and local infiltration analgesia (10 ml for each). The base of the growth was sutured first adopting through and through interrupted horizontal mattress sutures using cotton thread and it was severed just above the suture line. The free edges of the vaginal mucosa were sutured by continuous sutures using chromic catgut No. 1. Post–operatively the animal was given intramuscular injections of Dicrysticin® and diclofenac sodium, 2.5g and 20ml, respectively daily for five days. Routine antiseptic dressing of the wound was done by povidone iodine solution. The base line sutures were removed on 7th post-operative day. Histopathologically the growth was confirmed to be hemangioma.

7.6.20 Diagnosis and Treatment of Ulcerative Keratitis in Buffaloes

Satish, M.P. and Aher, V.D.
College of Veterinary and Animal sciences, Parbhani – 431 402

Eight cases of ulcerative keratitis in buffalo were reported in Veterinary Polyclinic Parbhani. The condition was clinically characterized as severe epiphora, blepharospasm, photophobia, neovasularization and zone of corneal haziness around the corneal ulcer. It was diagnosed by clinical examination and confirmed with fluorescein stain strip. The ulcerative area of cornea was visualized as bright green fluorescence. The ulcer was cauterized with one percent silver nitrate solution and applied atropine sulphate and chlormycetin eye ointment. One ml human placental extract was given subconjunctivally in four clinical cases. Membranoplasty was performed in all the cases. The ulcer took an average of 15 days to heal and complete clearing of corneal opacity took an average of 30 days in cases where placental extract was not administered, while in cases where placental extract was administered healing of ulcer took 13 days and complete clearing took 22 days. Administration of human placental extract produced early healing.

7.6.21 Foreign Body in Cornea in a Cow- A Case Report

Satish, M.P.; Aher, V.D. and Panchbhai, V.S.
College of Veterinary and Animal sciences, Parbhani – 431 402

A 5 year old cross bred cow was presented to the Veterinary Polyclinic, Parbhani, with complaints of severe epiphora, photophobia and blepharospasm. Detailed examination of eye under influence of auriculopalpebral nerve block revealed a foreign body in the corneal stroma alongwith localized keratitis. The eye was prepared for aseptic surgery. The eye was cleaned with one percent silver nitrate solution and atropine drops were instilled. Retrobulbar nerve block was achieved by injecting 20ml of 2 percent lignocaine. The foreign body was removed with help of lens forceps by gentle traction. The corneal wound was cauterized with one percent solution of silver nitrate, chlormycetin and atropine eye ointments were smeared over wound and membranoplasty was performed. In this case a spicule of Jowar Kadbi about 1.5cm long was removed. Cauterization of stromal wound with one percent silver nitrate produced good result. Cauterization with one percent silver nitrate prompted regeneration of the cornea by counter irritation and transparency of cornea is restored. On removal of membranoplasty

suture on 7th day, corneal haziness was reduced and cornea acquired transparency leaving nebulous dot at the site of injury.

7.6.22 Surgical Management of Corneo-scleral Laceration in Buffalo

Satish, M.P.; Aher, V.D. and Panchbhai, V.S.
College of Veterinary and Animal sciences, Parbhani – 431 402

Surgical management of corneo scleral laceration in a buffalo is reported and discussed. These were complete rupture of cornea at corneoscleral junction with prolapse of iris, loss of aqueous humor, viterous humor and lens. Evisceration was performed. Torn edges of cornea well freshened and sutured. Membranoplasty was performed. By this technique cosmetically acceptable globe was achieved. This method can be adopted to maintain cosmetic look of animal instead of performing enucleation.

7.6.23 An Unusual Case of Athalia in a Gir Cow – A Case Report

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Veterinary Officer, Abattoir Mumbai-12.

The veterinarian was called for pregnancy diagnosis of a cow. On complete physical examination, the cow was noted to have no udder or teat. History revealed that the cow was suspected to be pregnant for second time. It had a normal delivery first time and the calf was raised on the milk of surrogate mother. On per-rectal examination the cow was confirmed to be six months pregnant second time also. Gaurya *et al.*(1968) had also reported a similar case of mammary aplasia in a fertile cow.

7.6.24 Head Bifidism (Monster) in a Buffalo Calf and Goat Kid- A Case Report

Pawar, L.D.; Tripathi, S.M. and Zunjare, V.V.
Veterinary Officer, Abattoir Mumbai-12

A six year old she buffalo with inability to parturate since last 12 hrs was presented. After thorough clinical examination attempt was made to relieve dystocia manually. However, since it could not be relieved manually, caesarian section was performed using left flank approach. The animal was prepared as for normal aseptic surgery. The buffalo was sedated using xylazine @ 0.1 mg/Kg body weight. Local infiltration with xylocaine 2% was carried out. A 12 inch long incision was taken on left flank. After entering the abdominal cavity the uterus was pulled out through the incision. The uterine horn was incised longitudinally and the dead fetus with bifid head was removed. The incision was closed as per the standard procedure. Post-operatively the buffalo was kept on Oxytetracycline (5mg/Kg i/v), Novalgin (30 cc i/m) and Beplax forte injection (10 ml i/m) for seven days. The sutures were removed on the 12th day. Post-operatively the buffalo recovered uneventfully and later conceived normally. A similar case of fetal dystocia was solved by caesarian section in a ewe. The monster fetus survived for three hours after the operation.

7.7 ZOO ANIMAL SURGERY

7.7.1 Critical Care of an Elephant Calf Suffering from Femur Fracture in Assam State Zoo

Sharma, B.; Lekharu, J.C.; Dutta, B. and Mahato, G.

College of Veterinary Sciences, Khanapara, Gauhati -781 022

A female elephant calf of 3 years age, weighing 600 kgs got his right femur fractured due to fall from a height. Fracture was confirmed with the help of radiography. The calf had developed bedsores and congestion of lungs with mucopurulent nasal discharge due to prolonged lateral recumbency and was off-feed with extreme dehydration. The fracture leg was immobilized with continuous knitting bamboo splints, after thick cotton padding, which was changed on every alternate day. Antibiotic and steroid was used to reduce congestion. Four bottles of DNS and fructodex were injected I/V, twice daily for 45 days and mineral supplements were provided for a month. Bedsores were dressed daily with betadine. To provide uniform blood circulation and to avoid pressure atrophy, the calf was kept standing for an hour twice daily by using a specially devised sling. The pulley operated sling hanged from a iron stand and fitted to the abdomen of the calf, which helped in weight bearing. Ultimately the calf was able to stand and walked after 3 months.

7.7.2 Management of Open Pneumo-thorax in A Tiger (*Panthera tigris*)

Nath, I.; Pattnaik, T. K.; Mehton, J. S.; Kumar, S. and Bose, V.S.C.

Orissa Veterinary College, Bhubaneswar-751 003

A tigress aged 3 years of Nandankanan Zoo was injured by another tiger. There were multiple lacerated wounds at different places on the body. The tigress was tranquilized with xylazine and ketamine injected through a pressure gun. An open pneumothorax was diagnosed as a result of a sucking thoracic wound. Detailed treatment methods are discussed.

7.7.3 A Case of Multiple Abscesses in a Baby Elephant

Nath, I.; Bose, V.S.C.; Mehton, J.S. and Kumar, S.

Orissa Veterinary College, Bhubaneswar -751 003

A captive born 3 months old baby elephant of Jenabil elephant camp developed multiple wounds at its naval region, left knee joint, area below left ear and at sternal region. The detail of treatment methods is discussed.

7.10 SMALL ANIMAL SURGERY

7.10.1 A Report on the *Thelazia callipaeda* Infection in Dogs

Tyagi, S.P. and Mittra, S.
College of Veterinary and Animal Sciences, Palampur -176 062

After detection of a rare eye worm infection '*Thelazia callipaeda*' in a dog one year ago, the eyes of dogs present in college kennels and the surrounding area as well as the cases presented to college clinics in the last one year was subjected to random ophthalmic examination. The survey revealed a number of cases of such infection in the eyes of dogs with variable intensity of clinical symptoms since then. The *Thelazia callipaeda* is an extremely rare nematode and has been reported to infect dogs, cats, badgers, foxes, monkeys, cattle, rabbits and humans. Its occurrence has been reported in only a few countries of world and in India only two cases of such infection in humans has been recorded so far. In this communication we report its incidence in dogs first time in India. The incidence of this infection, the season of its occurrence, the general features of worms, its mode of transmission and zoonosis, the various clinical symptoms caused by it and their management has been discussed in details.

7.10.2 Evaluation of Nylon and Cotton Sutures in Canine Abdominal Defects

Sahu, A.; Sharma, P.D.; Raj, H. and Singh, P.
College of Veterinary and Animal Sciences, Hisar–125 004

The study was conducted on two adult female dogs premedicated with atropine and triflupromazine and general anaesthesia was induced and maintained by thiopentone sodium. On lateral abdominal wall, a 3 inch incision was made through skin and muscles without disturbing the peritoneum. Abdominal muscles were apposed by using nylon and cotton sutures material by overlapping technique whereas skin was closed by horizontal mattress with silk. Evaluation of Nylon and Cotton sutures has been done on the basis of clinical, haematological and histopathological observations of abdominal wall defects in dogs.

7.10.3 Surgical Management of Explosion Injuries of Face and Oral Cavity in Dogs

Tyagi, S.P.; Kumar, A. and Varshney, A.C.
College of Veterinary and Animal Sciences, Palampur -176 062

The pattern of trauma in animals due to explosion is always unpredictable and its management is often tedious. The present communication describes unusual cases of explosive injuries in dogs and their management. Two adult male Gaddi dogs were presented to the clinics with the history of sustaining multiple injuries in a blast after accidental chewing of explosive devices one day back. Both the animals were dull, depressed and not eating, drinking and barking since then. Clinical examination revealed multiple injuries and burns of face and oral cavity of both animals. One animal had moderate avulsion of lower lip from its rostral surface, full thickness fissure at philtrum and moderate trauma and burns inside oral cavity. The other animal was more serious and had extensive avulsion of both lips on either side with moderate loss of cheek tissue on right side, a maxillary fracture on right side extending up to nasal cavity and extensive burns and wounds in oral cavity. The wounds were lavaged with Ringer's lactate and dressed with 5% Povidone-Iodine ointment. Animals were stabilized by appropriate fluid

therapy, analgesics, antibiotics and oral protectants for three days. Then reconstructive surgery were performed under general anaesthesia on both animals that included debridement of necrosed tissue, covering of cheek defect by pedicle graft, repair of lip avulsion by placement of transosseus sutures, repair of maxillary fracture by orthopaedic wiring and repair of philtrum fissure by two layers of sutures. A course of antibiotics, analgesics, fluid therapy, antiseptic dressing of wound and boroglycerine application in oral cavity was used postoperatively for variable periods. One animal made an uneventful recovery within 10 days whereas another one developed the complication of maggot infestations and subsequent extensive wound dehiscence; later it did not respond favorably to treatment and was euthanized after 28 days.

7.10.4 Microflora in the Diseased Canine Eye

Sood, A.C.; Mohindroo, J.; Sharma, N.S.; Joshi, K. and Dwivedi, P.N.
College of Veterinary Sciences, Ludhiana -141 004

The present study was conducted in 43 clinical cases, reported for various eye disorders e.g. protrusion of the gland of 3rd eye lid, cataract, micro-ophthalmia and entropion, glaucoma, corneal affections and some specific cases like dermoids, ehrlichiosis and vaccination induced blindness. Bacteria was isolated, characterised and identified on the basis of morphological and cultural characteristics. Culture harvested from 43 cases revealed appreciable bacterial growth. The most common ocular microorganism of the diseased canine eye was *Staphylococcus* sp. followed by *E. coli* and *Micrococcus* sp. The concurrent signs observed with *Staphylococcus* sp. were conjunctivitis, epiphora, ciliary injection, and corneal vascularisation. *Micrococcus* and *E. coli* were also observed in some cases showing signs of conjunctivitis and panophthalmitis. Gentamicin proved to be effective in treating all the conditions.

7.10.5 Clinical Study on Diagnosis and Management of corneal affections in canines

Sood, A.S and Mohindroo, J.
College of Veterinary Sciences, Ludhiana – 141 004

The present work was undertaken to evaluate the role of general ophthalmic examination, ophthalmoscopy and fluorescein dye staining in diagnosis and management of corneal affections in canines. The study was conducted on twelve clinical cases of corneal affections in dogs reported at small animal clinic of the department. The age, sex, breed were recorded for all the animals. A general ophthalmic examination was conducted for all the animals which included gross examination, evaluation of reflexes like menace reflex, cotton ball test, obstacle test, pupillary light reflex. Direct ophthalmoscopy and fluorescein dye staining were performed. The most common cause of corneal affections were recorded to be corneal oedema followed by physical and chemical insult and injudicious use of steriods. In present study it was evident that injudicious use of corticosteroids, without confirming corneal epithelial integrity by staining of cornea with flourescein dye, can lead to permanent corneal damage and irreversible condition. Direct ophthalmoscopy was very helpful in diagnosis of corneal affections.

7.10.6 A Case of Foreign Body in the Stomach of Dog

Bhargava, M.K. and Shahi, A.
College of Veterinary Sciences and Animal Husbandry, Jabalpur

A one-year-old male German Shepherd dog weighing 16 kg had swallowed a full packet of blade containing 10 blades three days before it was referred to the department with history of no vomiting and passage through stool. Radiographic examination revealed a packet of blade in the stomach. Gastrotomy was performed under diazepam and ketamine anaesthesia and packet of blade was removed. The gastrotomy and laparotomy incisions were closed in the routine manner. The examination of packet of blade after removal revealed that the plastic and paper covering of the packet of blade was completely disintegrated but ten blades were held together with their individual paper covering. Animal recovered completely in 10 days.

7.10.7 Multiple Intestinal Obstruction in a Female Dog: A Case Report

Chandrapuria, V. P.; Bhargava, M. K.; Shahi, A. and Madhu, S.
College of Veterinary Sciences and Animal Husbandry, Jabalpur

A 11 years old German Shepherd female dog was brought to college clinic with anorexia, abdominal distension, vomiting and gradual hind leg peresis since two weeks. Clinical examination revealed ascites and confirmed by abdominocentesis. On palpation, a fluctuating, hard, round mass was felt in the anterior abdominal region. Radiography also revealed a big oval mass with various small radiopaque bodies forming a chain in the intestine. Ascites was evident as homogenous ground glass appearance of the abdominal cavity. The radiographic lesions were very similar to the intestinal tuberculosis in the human beings though the aspirated fluid examination did not reveal the presence of any bacteria. Medicinal treatment was given without any significant response. Exploratory laparotomy was performed under general anaesthesia via right flank. The hard mass was identified in the jejunum and exteriorized. Egg size mass consisting of two black polythene bags was taken out by performing enterotomy. About 4-6 inches posterior to the enterotomy incision, 5-6 hard nodular masses were palpated in the loop. These faecolith balls were gently crushed and evacuated from the enterotomy incision. The incision was closed and the bowel was replaced. While repositioning the gut, again a big hard mass was palpated caudal to the operated loop. It was exteriorized and identified as a tumerous growth, approximately 3 inches in length and involving the mesentery and muscular layer of intestine. The tumourous growth was resected by enterectomy and ends were anastomosed. The entire gut and the abdominal cavity were searched thoroughly for other pathological lesions and thereafter the laparotomy incision was closed as usual. Postoperative care with extensive fluid therapy, antibiotic and analgesics recovered the bitch in 10 days. Histopathological examination of tumour revealed it as intestinal adenocarcinoma.

7.10.8 Gun-Shot Injuries in Thoraco-Abdominal Area of Dogs

Sharma, P.D.; Singh, P. and Sangwan, V.
College of Veterinary and Animal Sciences, Hisar

Two cases of gun shot injuries in thoraco-abdominal area in dog have been included in the study. The hitted bullets got retained in

subcutaneous tissues of thoracic area in first dog and abdominal area in second dog. The exact location of these bullets in both dogs was confirmed by radiography. After sedation with xylazine and local infiltration analgesia both bullets were removed. Both the removed bullets from first and second dogs were of 0.22 caliber and 1.3 and 1.25 cm in length respectively. Since the bullets were hit near the vertebral column therefore paresis of hind limb was observed as most potential complication. Physiotherapy in form of infrared fomentation along with turpentine liniment massage continued for 20 days in addition to systemic antibiotics and anti-inflammatory drugs. The first dog where bullet was in thoracic area showed complete recovery after 20 days while other dog with bullet wound in abdominal area did not show complete recovery.

7.10.9 Oesophageal Diverticulum in a Dog and its Surgical Management

Nagarajan, L.; Sureshkumar, R.; Ramani, C. and Ameerjan, K.

Madras Veterinary College, Chennai -7

A seven year old male non-descript dog was presented to the hospital with a history of chronic vomiting immediately following feeding. Survey radiograph of the thorax revealed a pouch in the oesophagus filled with foreign material having a radiographic density of sand. A sharp needle and a nail were also found in the stomach. A left lateral thoracotomy was performed through 6th intercostal space under propofol anaesthesia maintained with isoflurane. The diaphragmatic lobe of the lung was pulled forward and a huge oesophageal diverticulum of 5 cm in length was noticed. A 2 cm incision was made on the oesophagus and the contents of the oesophagus were carefully evacuated after protecting the thoracic structures with saline moistened sponges. The cavity was found packed with sand and the two sharp foreign bodies (nail and needle) detected in the X-ray were also retrieved. Next stage of the surgery consisted of careful excision of the pouch. Extreme care was taken to avoid excess trimming of the diverticulum in order to maintain the normal luminal diameter of the oesophagus. Later the oesophagus was closed in two layers – the mucosa separately with in-out-out–in suture and the muscular layer with simple continuous suture. The thoracotomy incision was closed in the routine manner. The dog made an uneventful recovery following antibiotic and fluid therapy and did not show signs of vomiting during a 6 months follow up.

7.10.10 Mega Colon in Cats–A Review of 7 Cases

Nagarajan, L.; Sureshkumar, R. and Ameerjan, K.

Madras Veterinary College, Chennai -7

Seven adult cats, aged between 6 and 9 years were brought to the hospital with a history of severe constipation over a period ranging from 30 to 90 days. The cats were anorectic and varying degrees of wasting was noticed depending upon the duration of illness. Vomiting was a consistent sign in all the cats. Abdominal palpation revealed hard faecal material in the colon. Since medical management failed to improve the condition all the cats were subjected to surgery. Colocotomy was performed in 3 cats through midline incision. The hard faecal material was evacuated taking care to avoid spillage of the faecal material into the peritoneal cavity. Subtotal colectomy and colocostomy was performed in 4 cats.The cats were maintained on Cephalexin, Metronidazole and maintenance fluids for 4 days and later given solid

diet over a period of 15 days. Recurrence of the condition was seen in one cat after 3 months, which underwent colotomy. One cat in which colocolostomy was performed died during the postoperative period due to toxaemia and shock.

7.10.11 Retrieval of a Bone Piece from Oesophagus of a Female Dog: A Case Report

Bishnoi, P.; Jhirwal, S.K.; Gahlot, T.K. and Khandelwal, S.K.
College of Veterinary Sciences, Bikaner.

A bitch aged 5 years was presented to the Surgery Clinics with a history of vomiting and dysphagia. The bitch was fed with chicken on the last evening. On clinical examination, retching movements were observed. Radiographical examination revealed a bone piece in the proximal part of oesophagus. The bone piece was removed manually under general anaesthesia.

7.10.12 Scrolling of Third Eyelid and its Surgical Management in a Dog

Ramani, C., Arun, P., Dwivedi, D.K., Syam, K.V. and Ameerjan, K.
Madras Veterinary College, Chennai-7

A female Doberman dog aged about one year was presented to college hospital with the complaint of increased lacrimation and presence of a small red mass in the medial canthus of left eye for the past one week. Examination revealed that the mass was scrolled third eye lid and corrected surgically by partial excision of the curled portion of tendon-shaped cartilage through a small linear incision on the bulbar surface of mucosa overlying the involved cartilage under ketamine-xylazine anaesthesia. The surgical wound was left unapposed. The postoperative care and management is presented.

7.10.13 Management of Canine Urolithiasis: A Review of Three Interesting Cases

Amarpal; Kinjavdekar, P.; Aithal, H.P.; Singh, T.; Pawde, A. M.; Pratap, K. and Singh, G.R.
Indian Veterinary Research Institute, Izatnagar-243 122

The present paper deals with the surgical/ medical management of urolithiasis in three dogs. A Doberman dog with large quantity of cystic calculi diagnosed by plain radiography was treated by hydropropulsion and cystotomy. Animal recovered uneventfully but the recurrence of urethral obstruction was reported after six months. Cystotomy, flushing of the bladder with normal saline and postoperative administration of urine acidifiers, antibiotics and cystone tablets resulted in complete resolution of the problem. Another dog, a spitz brought for the treatment of urolithiasis was treated by surgical removal of calculi by conducting urethrotomy. This animal was also having severe cystitis, and hence repeated blockage of indwelling catheter was observed. The condition was successfully managed by tube cystotomy. In another dog indwelling catheter fixed in urethra after urethrotomy had migrated to the bladder, which was diagnosed accidentally during postoperative follow-up radiography. Complete haematobiochemical profile, radiographic findings, acid-base changes and surgical/ medical approaches adopted for successful management of these cases will be discussed.

7.10.14 Successful Surgical Management of an Unusual Intestinal Obstruction by a Feeding Bottle Nipple in a Dog

Singh, H. N. Jaiswal, S.; Singh, S. V. and Singh, B.
College of Veterinary Science and Animal Husbandry, Kumargunj, Faizabad- 224 229

A 2 year old Doberman dog was presented to college clinics with a history of vomition, anorexia and absence of defecation from last three days. Clinical examination revealed severe distress, abdominal pain, severe dehydration, accumulation of gases in GIT and empty rectum. The case was tentatively diagnosed as intestinal obstruction and exploratory laparotomy was performed under general anesthesia achieved by xylazine and ketamine combination (1:1) @ 1 ml. /10 kg. body wt. after atropine sulphate premedication. On exploration of intestine, an obstructive mass was palpated in proximal jejunum, which was removed by performing enterotomy. It was a feeding bottle nipple. After repairing the intestinal wound abdominal incision was repaired in usual manner. The dog was kept on fluid therapy for two days and after that the owner was advised to give only liquid diet for one week. Other postoperative management was performed in usual way. The dog recovered completely without any complication.

7.10.15 Surgical Management of Mammary Tumour in a Pomeranian Female Dog

Jaiswal, S.; Singh, H.N. and Singh, S.V.
College of Veterinary Science and Animal Husbandry, Faizabad- 224229

A 9 year old Pomeranian female dog was presented to college hospital with an outgrowth of an apple size, involving central pair of mammary glands. The case was tentatively diagnosed as mammary tumour. The tumourous mass was removed surgically under general anesthesia achieved by xylazine and ketamine combination (1:1) @ 1 ml. /10 kg. body wt. after atropine sulphate premedication. The closure of skin wound and postoperative care was done in usual manner. The animal was recovered uneventfully. Histopathological examination of excised mass was confirmed as adenocarcinoma of mammary gland.

7.10.16 Cervical Oesophageal Obstruction Due to Bone Pieces in Dogs

Dilipkumar, D. and Ameerjan, K.
Madras Veterinary College, Chennai –7

Four dogs had cervical esophageal obstructions due to bone pieces. Cervical oesophagotomies were performed on the foreign bodies. After removal of foreign body from esophagus, the esophageal wounds were sutured in two layers. The mucosal layer with in-out–out–in interrupted pattern using No.2-0 silk. Remaining three layers were sutured with catgut No.2-0 by simple continuous pattern. Skin wound by silk with horizontal mattress .All the animals showed uneventful recoveries.

7.10.17 Oesophageal Obstruction in an Emu Chick and its Surgical Management

Ameerjan, K.; Nagarajan, L.; Ramani, C.; Sureshkumar, R.; Syam K.V. Raj, R. and Varghese, R.
Madras Veterinary College, Chennai-7

A five-month-old female Emu chick was presented to College Hospital with the history of oesophageal obstruction. On examination of the neck region, a hard swelling was palpable indicating the site of obstruction. Plain radiography revealed

the presence of a conch shell with sharp spines. Contrast radiography following barium swallow revealed partial occlusion of the lumen of the oesophagus. The bird was anaesthetized with ketamine Hcl @ 50mg/kg body weight, intramuscularly and cervical oesophagotomy was performed over the swollen segment of oesophagus. The conch shell was removed and oesophageal lacerations were repaired. The oesophagotomy wound was closed with simple interrupted sutures followed by skin closure in the standard pattern. The bird had an uneventful recovery and the skin sutures were removed on the 8th postoperative day.

7.10.18 Helium-Neon Laser in the Treatment of Chronic Perianal Sinus- A Case Report

Varghese, R.; Sureshkumar, R.; Ameerjan, K. and Jayaprakash, R.
Madras Veterinary College, Chennai - 7

A 4-year-old male Spitz was presented to college hospital with a history of intermittent diarrhoea and tenesmus since 6 weeks, not responding conventional therapy. On physical examination a 7 cm deep perianal sinus could be observed. The sinus was apparently uncontaminated. On studying the antibiogram gentamicin was found to be sensitive. Inj. gentamicin was administered @ 4 mg/kg body weight, intramuscular bid for three days. Laser therapy was given using Helium-Neon laser at an energy density of 4 J/cm^2 for 4 consecutive days. Complete closure of the sinus was observed on the 12th day from the start of treatment, and healing was complete on the 14th day.

7.10.19 A Survey of Canine Mammary Neoplasms

Sharma, H. and Mohindroo, J.
College of Veterinary Sciences, Ludhiana–141004

The present study was conducted in 43 clinical cases of canine mammary neoplasms (CMN's) presented at college hospital. CMN's were found to be primarily a disease of old dogs and were a specific disease of females with no male mammary neoplasms recorded. White Spitz was the most commonly affected breed. Majority of the animals were nulliparous. All the 43 cases were observed in intact bitches and all were non-pregnant at the time of presentation. Psuedopregnancy was absent in 90.70% cases and majority of the animals were not mated at first heat. Number of glands involved varied from one to all. Fourth and fifth pairs were found to be most commonly affected. Seventy four percent cases had slow rate of growth. Expansive mode of growth was recorded in 69.7% cases and the animals had better survival rates than those with infiltrative type or mixed type of growth. Size of neoplasms varied from 1 to 20cm. Majority were recorded with diameter <3 cm. The average disease free survival (upto the follow up period) recorded in the animals with neoplasms >5 cm was 190.72 days as compared with 315 days for smaller lesions.

7.10.20 Tracheal Rupture in a Dog and its Surgical Management

Tiwari, S.K.; Bhandeker, S.K. and Dubey, S.
College of Veterinary Sciences and Animal Husbandry, Anjora, Durg

A two days old dog bite case of 5 year old

Pomeranian dog was brought to college hospital with enormous emphysematous swelling in the thorax region. Clinical examination revealed in the presence of air subcutaneous tissue and crepitation on palpation. The dog was premedicated with medetomidine @ 20 mg/kg, I/M and anaesthetized with ketamine @ 5 mg.kg, I/V. After incisiing the site of bite and exposing the trachea, a clear vent was visible in the trachea. The tracheal opening was sutured using thick nylon in simple interrupted suturing pattern. The muscle was sutured with chromic catgut 1/0 in simple continuous pattern. The skin was sutured in cross mattress suturing pattern using silk. Postoperatively, antibiotics, corticosteroids, antihistaminics and antiseptic dressing was done for 8 days. There was uneventful recovery in a time period of 10 days.

7.10.21 Adenocarcinoma Involving Mammary Glands in Bitches-A Report of 2 Cases

Tiwari, S.K. and Ghosh, R.C.
College of Veterinary Sciences and Animal Husbandry, Anjora, Durg

A labrador (5 years) and Lhasa Apso (12 years) female dogs were presented to the department of Surgery and Radiology with the complaint of the swelling at the mammary glands for last 2 months. Both the dogs were operated after premedication with medetomidine @ 20 mg/kg, I/M and propofol @ 4.5 mg/kg, I/V. The growths were preserved in 10% formalin for histopathological examination. Postoperative dressing alongwith antibiotics and analgesics was done for 8 days. There was uneventful recovery in a time span of 10-12 days in both the cases. Histopathological examination revealed presence of mitotic figures and fibrous tissue proliferation suggestive of adenocarcinoma in both the cases.

7.10.22 Surgical Management of an Unusal Asymmetrical Spleenomegaly in a Dog

Rameshkumar, B.; Balagopalan, T.P.; Aruljothi, N. and Lakkawar, A.W.
Rajiv Gandhi College of Veterinary and Animal Sciences, Pondicherry –9

An eight year old male German Shepherd dog was presented to the teaching hospital with the history of chronic anorexia, swelling of hindlimbs below stifle and scrotum and frequent incontinence of urine since a week. On clinical examination a palpable mass in the midventral aspect of the abdomen was evinced. Radiological examination of the abdomen revealed the presence of a massive radiodence area in the mid abdominal region. Haemogram was showing leukocytosis with low total erthrocyte count and haemoblobin concentration. An exploratory laparotomy at midventral site was performed under general anaesthesia using Halothane-oxygen mixture with Boyletech anaesthetic apparatus. The spleen was found to be abnormally enlarged (21" in length and weighing 4.250 kg) with an abscess at its middle. Spleenectomy was performed following the routine surgical procedure. The dog was administered with antibiotics and fluid for 7 days postoperatively and recovered well. Histopathological examination of the spleen was suggestive of capillary haemangioma.

7.10.23 Surgical Management of Mixed Tumour of Apocrine Gland in a Dog

Aruljothi, N.; Balagopaian, T.P.; Alphonse, R.M.D.; Ramesh Kumar, B. and Varshney, K.C.
Rajiv Gandhi College of Veterinary and Animal Sciences, Pondicherry –9

An eleven year old German Shepherd dog was presented to the teaching hospital with the history of hard, progressively growing swelling at the perineal region on the right side of the base of the tail since 6 months. The animal was having constipation for 3 days and showed foul smelling serosanginuous discharge from the swelling since then. Radiological examination of the perineal region revealed the presence of round hollow mass of 7 cm in diameter with an air pocket inside. Focal radiodence areas were also noticed extensively in the pelvic region. Haemogram was showing leukocytosis with low total erythrocyte count. Under triflupromazine hydrochloride premedication and general anaesthesia using 2.5% thiopental sodium, the perineal region was opened and a hollow mass was excised after ligating blood vessels attached to it. Multifocal regions with pus and necrosed bone were flushed with normal saline and the dead space was reduced by suturing with polyglycolic acid suture material. The skin wound was closed in routine manner keeping a corrugated drain sheet. The dog recovered well following routine postoperative antibiotic treatment. Histopathological examination of the tissue was carried out and found to be a mixed tumour of apocrine gland.

7.10.24 Comparison of Tensile Strength of Different Suture Materials

Sahu, A.; Kumar, R.; Sharma, P.D. and Peshin, P.K.
College of Veterinary and Animal Sciences, Hisar - 125 004

The present study was conducted to compare the tensile strength of chromic catgut before and after application, dry vs wet cotton and sterilized, unsterilized and wet silk. Before application, the tensile strength of chromic catgut (Ethicon) No. 1 and No. 3 was 10.66% and 15.78% less as compared to the catgut (Stericat) No.1 and No.3 respectively. The elaticity of Ethicon No.1 was 1.27% more than that of Stericat No. 1 however elasticity of Ethicon No. 3 was 21.9% less than the corresponding Stericat. Two days after application, the tensile strength of Ethicon No. 1 and No. 3 reduced to 37.96% and 39.96% while that of Stericat No. 1 and No. 3 reduced to 56.85% and 59.04% respectively. The tensile strength and elasticity of wet cotton was 18.38% and 32.94% more as compared to dry cotton respectively. The tensile strength of sterilized and wet silk (No. 4) was 8.97% and 9.19% less and its elasticity was 9.19% and 9% less as compared to unsterilized silk respectively. This findings indicate that Ethicon possess more strength to hold tissue closer for longer duration than Stericat.

7.10.25 Inguinal Hernia in A Bitch and Its Surgical Management

Kumar, N.; Singh, T.B.; Sharma, A.K.; Maiti, S.K.; Singh, J.; Babu, K. and Gupta, O.P.
Indian Veterinary Research Institute, Izatnagar– 243 122

An eight year old female spitz was presented with history of swelling at mammary gland since one month. The swelling was firm and increasing in

size. Lateral radiograph of abdomen showed that the swelling contains a fetus and hence it was diagnosed a case of hysterocele. No pain was observed on palpation of swelling and the contents were non-reducible. The animal was operated under xylazine- ketamine anaesthesia. An elliptical skin was given over the swelling and on exploration it was observed that the left uterine horn was migrated through the inguinal canal under the subcutaneous tissue anteriorly and fetus developed at the site. There were serve adhesions of uterus at the site and the uterine wall was necrosed. On ovariohysterectomy through midventral laparotomy, the fetus was found under developed. Both the incisions were closed routinely. Animal had an uneventful recovery in about 10 days.

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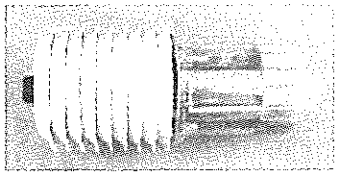

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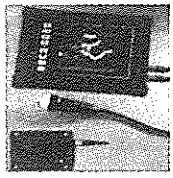

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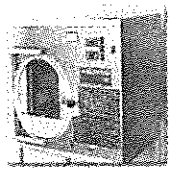

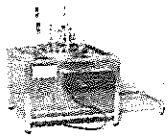

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कुमाऊं क्षेत्र, हल्द्वानी

- यह परियोजना विश्व बैंक द्वारा वित्त पोषित रामनगर एवं हल्द्वानी क्षेत्रों के दाबका, खिचडी, करकटनाला, चोरगलिया, नन्दौर तथा पोखरिया उप जलागम क्षेत्रों के 124 ग्रामों में कार्य कर रही है।
- इन कार्यक्रमों का मुख्य उद्देश्य ग्रामीणों की सहभागिता से क्षेत्र में उत्पादकता को बढाने एवं गरीबी दूर करना है।
- कार्यक्रम मुख्य रूप से ग्रामीणों द्वारा उनकी प्राथमिकता के आधार पर प्रस्तावित योजनाओं को ग्रामीणों द्वारा ही सम्पादित कर कराये जा रहे है।
- कार्यक्रमों के अन्तर्गत ग्रामीणों द्वारा मुख्य रूप से वानिकी, कृषि, लघुसिचाई, ग्रामीण सडकें, उद्यानीकरण, भूमि संरक्षण तथा नदी नाला नियंत्रण, पशुपालन, बायोगैस प्लान्ट स्थापना तथा सामुहिक सहभागिता के कार्य कराये जा रहे है।
- इन कार्यों से सृजित परिसम्पत्तियों का भविष्य में रखरखाव भी ग्रामीणों द्वारा स्थापित चकीय कोष से किया जायेगा, जिससे कि इन कार्यों की चिरन्तरता बनी रह सकेगी।
- विभिन्न ग्रामों में कुल 130 स्वयं सहायता समूह कार्यरत है, जिनमें आय सृजन के मुख्य कार्य – मुर्गी पालन, सिलाई, कढाई, सुअर पालन, दुग्ध उत्पादन, परम्परागत हस्त शिल्प, मछली पालन, मौन पालन, मोमबत्ती उत्पादन आदि कार्य किये जा रहे है। जिससे रोजगार उपलब्ध होने के साथ–साथ गरीबी उन्मूलन भी हो रहा है।
- जलागम परियोजना ग्रामीण क्षेत्रों में ग्रामीणों के विकास हेतु ग्रामीणों द्वारा संचालित की जा रही है, जो कि सत्ता के विकेन्द्रीकरण का एक अद्भुत उदाहरण है।

(डी0जे0के0 शर्मा)
परियोजना निदेशक
समेकित जलागम विकास परियोजना
कुमाऊं क्षेत्र हल्द्वानी

ग्रामीणों का, ग्रामीणों के लिये, ग्रामीणों द्वारा विकास

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Objectives :

- To carry out cattle and buffalo breeding activities in accordance with the states breeding policy under one common umbrella.
- Progressively bring all breedable cattle and buffalo population under the gambit of organized artificial insemination Program.
- Strengthening of the natural breeding infrastructure for cattle and buffalo in the remote corners of Uttaranchal.

Current Activities & Achievements:

- **Artificial Insemination Program:** Board is supplying Deep Frozen Semen, Liquid Nitrogen & other breeding inputs to 355 Artificial Insemination Centers (267 Government, 40 Paravets of Uttaranchal DASP, 16 Private Inseminators & 32 Dairy Society Centers). The Board has also developed software to monitor the artificial Insemination work & progress.
- **Natural Breeding Program:** The board has procured & distributed 269 breeding bulls for natural breeding program (192 breeding bulls from NPCBB fund & 77 breeding bulls were procured from the fund received from other sources viz. Uttaranchal DASP, Social Welfare Department & District Rural Development Agency).
- **Training Program:** The Board has provided training to 1087 Veterinary Officers / Livestock Extension Officers / Pharmacists / Farmers at esteemed organizations viz. G.B. Pant University of Agri. & Tech. Pantnagar & Northern Region Demonstration & Training Center, Jallandhar.
  Training Center, Pashulok, Rihikesh has been strengthened & trainings are commenced.
- **Deep Frozen Semen Production Program:** The board has strengthened Sperm Station, Shyampur, Rishikesh & production of Deep Frozen Semen has commenced.
- **Embryo Transfer Program:** The board has acquired State Embryo Transfer Center, Lalkuan, Nainital & till now total 168 progenies were obtained by adopting this modern technique at the farmer's door step.

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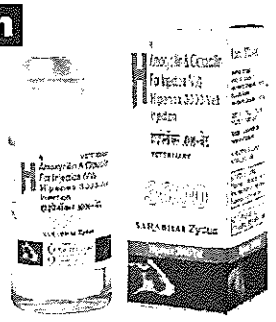

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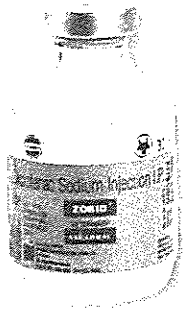

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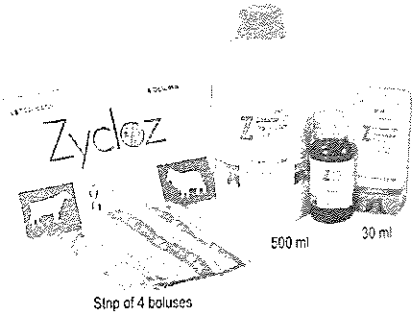

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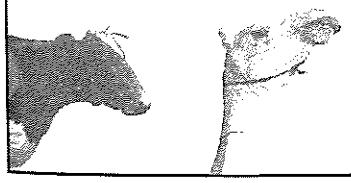

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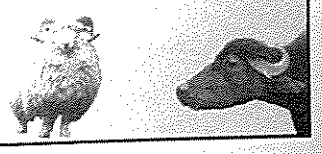

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