

SOUVENIR



5-7 NOV

National Symposium on the Role of Veterinary Radiology in Animal Health and Production
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Department of Surgery & Radiology
College of Veterinary Sciences
Haryana Agricultural University
Hisar-125 004 (Haryana) INDIA

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DEPARTMENT OF SURGERY AND RADIOLOGY
COLLEGE OF VETERINARY SCIENCES
HARYANA AGRICULTURAL UNIVERSITY
HISAR, INDIA.

SOUVENIR

National Symposium

Role of Veterinary Radiology in Animal Health and Production

*Sponsored by Indian Council of Agricultural Research
New Delhi*

and

10th Convention

Indian Society for Veterinary Surgery



Editor : P. K. PESHIN
Asstt Editors : B. M. JANI
HARDEEP GILL
Lay out : MUNISH MAKKAR



Department of Surgery & Radiology
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**Department of Surgery & Radiology,
College of Veterinary Sciences,
Haryana Agricultural University,
Hisar-125 004, (Haryana) INDIA**

From the Desk of Convenor :-

Dear Colleague,

I have pleasure to welcome you all on 10th Convention of the Indian Society for Veterinary Surgery and National Symposium on the Role of Veterinary Radiology in Animal Health and Production. Let me in brief introduce the host of the venue:-

Haryana Agricultural University

The Haryana Agricultural University was established on 2nd February, 1970, as a result of bifurcation of the erstwhile Punjab Agricultural University, through a Presidential Ordinance, ratified later by the Haryana and Punjab Agricultural Universities Act, 1970, passed by the Lok Sabha on 29th March, 1970.

At the time of bifurcation, this university inherited an area of 2263 acres of land: out of which 2098 acres were set apart for research and farming and 147 acres constituted the old campus and came under academic and residential buildings and playgrounds.

The Haryana Agricultural University has made rapid progress in building an excellent infrastructure. Today, this university can be said to have the best developed campus in India which meets all the academic and extra-curricular needs of the students and staff. Great care has been taken in planning the welfare of all categories of university employees and the students in particular. Also available at the campus are banking and postal facilities. For the technical and administrative visitors, there is a well furnished cosy 38 rooms Faculty House. Among the off campus buildings, the Krishi Gyan Kendras at Hissar, Gurgaon, Rohtak, Ambala, Mahendragarh and Karnal have been completed besides completing research station at Kaul and Bawal.

Some of physical facilities available or being provided in this university, are so comprehensive and unique that no other university today, has any thing comparable to it. The beautiful Giri Centre for Students Welfare and Activities inaugurated in March, 1973, is a complex of sports and recreational facilities where sports competitions of all India level and regional levels have taken place a number of times.

A unique feature of the university is its district level farmers' advisory

centres called Krishi Gyan Kendras. They are located at all district headquarters. Each Kendra has nine subject matter specialists.

The university has a directorate of publications which publishes, besides all the extension literature: regular magazines, journals and research publications. Its prestigious publications are the monthly Haryana Kheti (Hindi) and Haryana Farming (English), Journal of Research and Thesis Abstracts. The directorate also publishes university level text and reference books, laboratory manuals and handbooks in hindi and english.

The Nehru Library, dedicated to the memory of our beloved prime minister Late Shri Jawahar Lal Nehru, occupies a place of pride in the university. It is a four storeyed building and has a capacity for 3 lakh volumes, 2000 current journals and 650 readers, besides a number of other facilities like browsing hall, class rooms, seminar rooms, study carrels, exhibition halls, bindry and reprography etc. Its reading halls on the first floor are air-conditioned.

The university has, at present, the following constituent colleges:

1. The College of Veterinary Sciences
2. The Colleges of Agriculture, Hissar and Kaul
3. The College of Basic Sciences and Humanities
4. The College of Animal Sciences
5. The College of Sports
6. The Indira Chakravarty College of Home Science.
7. The College of Forestry

College of Veterinary Sciences

The History of this college dates back to the year 1882, when the first Veterinary School was established in India at Lahore. After the partition of India in 1947, with the help of the staff of the Lahore College who had migrated to India, the Punjab Government set up a Camp Veterinary College at Hisar in February, 1948. With the formation of the Punjab Agricultural University, the college was transferred to the university and now it is a part of the Haryana Agricultural University. The college offers following courses:-

1. Stock Asst/Vety. Compounders Course (One year course).
2. B. V. Sc. & A. H. (Bachelor of Vety. Sciences and Animal Husbandry).
3. M. V. Sc.
4. Ph. D.

Attached to the college of veterinary sciences is a veterinary clinics which is one of the biggest in the country. The college has ambulatory vans for clinical and disease investigation work throughout the state. Students accompany the staff on such tours as part of their training.

The present excellence in physical facilities, teaching, research and extension and above all, the resultant socioeconomic development of the region loudly speaks of its former vice-chancellor Shri A. L. Fletcher for his foresight drive and imagination in planning and initiating the programme of building up the university. His successor vice-chancellors have very ably carried on the various programmes of its development. No less is the role played by the financial and moral support bestowed unhesitatingly by the State Government and also the Indian Council of Agricultural Research which enabled the university to shape into an excellent centre of teaching, research and extension.

Today, HAU stands towering amongst its sister institutions and is acclaimed as a pioneer in teaching, leader in research and exemplary in its extension activities.

Our Department

In the department of Surgery & Radiology at HAU, we are proud of our past grandeur. Eminent persons have been professor of surgery here and students of this department are now holding top positions in the country. Dr. Jagnandan Singh PVS-I was the first professor of Surgery when college was started at Hisar in 1948 after partition as counterpart of the then Punjab Veterinary College, Lahore (now in Pakistan). Dr. Dalip Singh PVS-I was the second man to occupy this chair who was succeeded by Dr. Ajit Singh. However, during all this period surgery was in infancy with very meager physical facilities and faculty positions.

This department had made great strides under the dynamic leadership of Dr. R. P. S. Tyagi (1964-1975) now Dean P. G. Studies. In the past years, this department has made all round progress under the patronage of Dr. J. M. Nigam (1975-81) Dr. I. S. Chandna (1981-84) and Dr. Krishnamurthy (1985—) as heads of the department. Keeping in view, the rapid developments in all sub-disciplines of this department and professional excellence of the faculty, the department has well equipped four sections viz. Radiology, Special surgery, Orthopaedic surgery and Anaesthesiology. This department had carved out a niche in the annals of veterinary surgery in India by taking a lead in starting Ph. D. programme for the first time in India, installation of large animal x-ray machine, thoracotomy/experimental cardiac transplant in animals etc.

The department is now the leading institute in Surgery and Radiology in the country with excellent physical facilities and its faculty members have won number of awards and honours. The idea of forming Indian Society for Veterinary Surgery was mooted out in this department in 1977. It has now a Newsletter and Journal of its own. Dr R. P. S. Tyagi, Dr J.M. Nigam and Dr. I. S. Chandra were the founder President, Secretary and Treasurer respectively, of this society.

The department offers both undergraduate, post-graduate programmes and imparts clinical training to the students. So far 42 M.V.Sc. and 28 Ph. D. degrees have been awarded by this department. Field extension programmes also form a part of the departmental activities.

The department has excellent physical facilities for undergraduate and post-graduate teaching and to carry out research work in various fields of the subject. Important building facilities include air conditioned anaesthesiology laboratory, air conditioned small animal operation theatre, large animal operation theatre, large animal x-ray room, small animal x-ray room with facilities for fluoroscopic and spotfilm device, biochemical laboratories, histopathology laboratory, sterilization room, seminar-cum-library room etc. A new block of Radiology and Surgery includes modern large animal x-ray room-cum-operation theatre, recovery room, small animal x-ray facilities and human radiographic facilities apart from facilities for physiotherapy, radiation therapy, microradiography and autoradiography.

Research Highlights

A. Research schemes completed:

1. Etiology, diagnosis and treatment of urolithiasis in animals with special reference to bovines
2. Studies on various aspects of upward fixation of patella in large animals.

B. Ongoing research schemes:

1. Studies on reticular hernia in bovines (State Govt.).
2. Studies on different techniques of immobilization of fractures in large animals (State Govt.).
3. Studies on thoracic disorders in large animals (State Govt.).
4. Studies on various preanaesthetic and anaesthetic agents in camels (ICAR).
5. Studies on various preanaesthetic and anaesthetic agents in bovines (IPL-480).
6. Studies on contrast radiography in large animals (ICAR).

Anaesthesiology:

Xylazine and ketamine combination was found to be suitable in bovines and xylazine alone showed an excellent result in camel for short duration surgical operations. Ether anaesthesia was not found to be suitable in buffaloes. Chloral hydrate and magnesium sulphate was found to be better combination than chloral hydrate alone in camels/bovines. Suitable balanced anaesthesia for thoracic surgery was evolved in large animals. Studies on effects of intravenous regional anaesthesia of limb in bovines was studied. Effects of tourniquet ischemia in cattle was not found to be safer upto 90 minutes. Corticosteroids, prethamide, mephentermine have beneficial effects when used for combating thiopentone induced cardio-pulmonary emergencies in buffalo-calves.

Ophthalmology:

Various anaesthetic techniques, tonometry, cytology of aqueous humor and autogenous and homogenous lamellar corneal grafting were studied in bovines.

Orthopaedic surgery:

Various techniques i. e. simple coaptation, hanging pin cast, plating, screwing, bone grafting, transfixation etc. were used successfully in large and small animals for the treatment of fractures of long bones. Studies on bone healing inducers, various techniques of tendon repair were also undertaken in bovines. Comprehensive studies on upward fixation of patella in bovines, camels and foot diseases in bovines and sheep had also been conducted.

Urogenital surgery:

Complete pathophysiology and treatment of urolithiasis in bullocks was studied with special reference to biochemical changes in blood, urine, chemical composition and bacteriological analysis of urinary stones, urinary inhibitors, crystallization, urethra and bladder repair, caecocystoplasty, urethral transplantation with vein grafts. Systemic effects of different uremic model i. e. bilateral nephrectomy, ureteral ligation and ruptured bladder in bovines and ovines with special reference to blood chemistry, acid-base and blood gas changes were studied.

Abdominal surgery :

Evaluation of different techniques in intestinal anastomosis have been studied in bovines. Pathophysiological studies on massive bowel resection in buffalo calves and intestinal obstruction at different levels in various species of animals have been studied. Major breakthrough was achieved by evolving suitable surgical correction of diaphragmatic hernia by thoracic and abdominal approaches in buffaloes. Effects of pancreatomy, bile duct obstruction and hepatic lobectomy have been studied in dogs.

Neurosurgery :

Surgical approaches for craniotomy, surgical treatment of vertebral fracture and dislocation was tried in goats. Effects of vagotomy was also studied in dogs.

General surgery :

Pathophysiology and treatment of haemorrhagic, septic and endotoxic shock have been studied in bovines. Systemic effects of shock created by occlusion of superior mesenteric artery was also studied in dogs and sheep. Comparative merits of different cleansing agents in open wound healing and role of infection in wound healing have been studied in bovines and lab. animals respectively. Techniques for open renal biopsy and adrenalectomy in bovines have been standardised. Granulomatous lymphadenitis in buffaloes was extensively studied.

Radiology :

Various special radiographic techniques were extensively studied both in small & large animals. Certain techniques i.e. osteomedullography, veinography and arteriography for studies on bone healing and other bone diseases have also been standardised. Studies on cardiac catheterization was undertaken in bovines.

Thoracic surgery :

Experimental studies on cardiac transplantation and mitral valve replacement in dogs was carried out under deep surface hypothermia. Studies were also conducted on effects of graded canine cardiac denervation, vascular grafts as arterial prosthesis in dogs. Detailed studies on pathophysiology of traumatic pericarditis with special reference to its treatment i.e. thoracotomy, pericardioplasty and pericardiectomy and effects of experimental pneumonectomy have also been studied in bovines.

Extension activities :

This department has been organizing and participating in surgical camps in state

of Haryana and also involved in attending clinical cases brought to college clinics and also at different places of Haryana. It also organises short term courses for field veterinarians of this state and outside states and participates in kisan melas of this university and clinical workshops organised at district level for field veterinarians.

Publications :

1. Monograph on upward fixation of patella.
2. Monograph on diaphragmatic hernia in buffaloes.
3. An atlas of clinical radiology of animals.
4. Practical manuals on anaesthesiology, radiology, special surgery and orthopaedic surgery for under graduate classes.
5. Contributed a chapter in Indian year book of veterinary and animal sciences (HAU) 1984-85.
6. Final technical report on etiology, diagnosis and treatment of urolithiasis in animals with special reference to bovines.
7. Total research papers published so far in national and international journals by this department are around 500.

Awards/honours :

- I. Dr. R. P. S. Tyagi
 1. Rafi Ahmed Kidwai memorial Award 1974-75
 2. Team research award by ICAR 1977-78.
 3. Thrice honoured with Dr. R. Swaminathan Iyer memorial award by Indian veterinary association (1971, 1975, 1979).
- II. Dr. J. M. Nigam :- Honoured with Dr. R. Swaminathan Iyer memorial award by Indian veterinary association (1971)
- III. Dr. D. Krishnamurthy :-
 1. Dr. V. P. Kashyap gold medal by HAU, for Ph. D. research.
 2. ICAR team research award (1977-78).

Sd-
(Dr. D. Krishnamurthy)

STAFF OF THE DEPARTMENT

- Professor:** Dr. J.M. Nigam (*Now - Director Students' Welfare,
HAU, Hisar*)
- Associate Professor:** Dr. D. Krishnamurthy (*Head of Department*)
Dr. A.P. Singh (*Presently on teaching assignment
in Iraq*)
Dr. Jit Singh (*Presently on teaching assignment in Libya*)
- Assistant Professor:** Dr. P.K. Peshin (*Now - District Extension Specialist*)
Dr. Kuldip Singh
Dr. S.K. Chawla
Dr. Sandeep Sharma
Dr. Mohinder Singh
Dr. Rishi Tayal
Dr. Sukhbir Singh

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Theme Lecture

Dr. A. K. Bhargava

Role of Veterinary Radiology in Animal Health and Production.

Prof. A. K. Bhargava, M. S., Ph. D. (U. S. A.)

*Head, Division of Expt. Med. & Surgery,
I. V. R. I., Izatnagar, (U. P.)*

Introduction : During the last two decades, radiation has changed the concepts of understanding metabolic pathways of nutrients, differential diagnosis, and therapy of malignant tumours. In human medicine one can see two well established fields of diagnostic and therapeutic radiation. Nuclear medicine, a parallel discipline is based on the use of isotopes (natural or man made). No medical check up is complete without chest x-ray or total body counts (wherever facilities are available). Wide application is seen in industries for sterilization of disposable glasswares, needles and food stuff. Irradiation of wheat to induce mutation has been the back bone of green revolution.

Screening of personnels for safety at air-port; examination of sensitive joints in aeronautical and industrial equipments were known uses of radiation for safety purposes.

In veterinary medicine the use of radiation has become an indispensable tool in teaching, research, extension and production programmes.

Teaching : Techniques in radiographic examination are used to narrow down the differential diagnosis from degenerative, anatomical, metabolic, neoplastic, infectious and traumatic categories. Diagnosis is based on the changes in density patterns which are due to differential penetration of x-ray through tissues of varying densities and resultant chemical reaction in silver halides coated on plastic films.

Experimental radiography : In India since 1971, introduction of various techniques in research work of postgraduate students has stipulated further interest in experimental radiology and one can see beautiful x-ray documentation in practically every postgraduate thesis in Surgery and Radiology. Probably since then,

experimental radiology using animals as model has introduced, newer techniques like intrasosseous phlebography, sialography, lymphangiography, selective angiography, fasciography, arthrography, double contrast cystography, gastrography, pleurography, ventriculography, cerebral angiography, micro-angiographs etc. barium meal, bronchography, cystography, pyelography, myelography and like wise.

Instrumentation : Viewing to the demand of its application high mA machines (1000 mA) with ceiling suspension tubes, cassette changer, image intensifier are available in this country. State governments in assistance with ministry of agriculture or ICAR, are establishing 500 mA x-ray plants with accessories as an integrated part of polyclinics.

Rule of Thumb : For an accurate diagnosis, one has to remain completely unbiased while examining a radiograph even before reading the case history. After making interpretation one can discuss history and other clinical examination to correlate x-ray diagnosis; second viewing of radiograph can be done if required to confirm the first diagnosis. Magnifying glass may be used to study finer details.

Autoradiography : Biologist in animal science, are using isotopes for estimating biological half life or excretion of different chemicals through labelled isotopes. This needs careful estimation of radiation pulse counts and can provide concentration pattern, or stagnation. Autoradiography is an easy technique of using slow x-ray film which can provide areas of isotopic uptakes. The technique, is not only handy, cheap, readily available but also documentary.

Diagnostic value : Practically there is no disease or pathological lesion which can not be diagnosed/documentated or localized by radiography. Such a science which provides insight into an animal without even a pinprick though, mastering in art of interpretation requires the deepest understanding of all aspects of disease processes. Radiography is an integrated part of discipline because without a good quality radiograph there remains a chance of wrong interpretation and sometimes operation on such evaluation may lead to disasters.

In animal practice any disease undergoing irreversible process limits the productivity within physiological limits. Increase in animal production can not be credited only to selective breeding but equally to practices of disease prevention, control, and prompt treatment. To enlist few radiographic pathology following lesions can be diagnosed by veterinarians, osteodystrophy, periostitis, luxation, dislocation, osteomyelitis, sinusitis, space occupying lesions, neoplasms, intra-

luminal/extra luminal lesions, pneumonia, malignant metastases; differentiation between benign and malignant lesions, anthracosis, (environmental pollution), cardiomegaly, hepato-megaly, vascular defects, foreign bodies ulcerative lesions lymphadenopathy, pleural and peritoneal lesion, extra cellular fluids, hernias, chronic bacterial and fungal lesions, calculi and finally spinal lesions.

Lameness a potential cause of animal power loss : Diagnosis of lameness in bovines and equines needs special mention as working ability/productivity lies on the strength of locomotor system; few of the examples can be enlisted to demonstrate different manifestations of bone, joint, tendons, muscles, periosteum, vascular and nerve origin and knowledge of radiographic anatomy is essential to exclude possibilities of variations within species for different joint structures.

Early diagnosis of fracture and its immobilization can prevent irreparable changes of malunion, ankylosis leading to complete loss of function. Vets have started using neurological examination and peripheral angiography for establishing soft tissue conditions. Aneurysm, varicosity of vein, neuromas, arteriovenous shunts, collaterals, gangrene, are attracting attention of surgeons. The fact is undebatable that radiology is providing immense valuable tool in animal health and thus in augmentation of production.

Nuclear Medicine : The subject deals with the use of radioactive isotopes (radionuclides) for diagnosis and treatment. It is expensive to establish nuclear laboratory/detection equipment, and still needs licence for handling, in interest of preventing public hazards.

A few nanocuries can be detected easily by many counting system. Labelled serum albumin can be used to evaluate blood volume and hemodynamic disorders and even metabolic pathways of chemicals. Selective concentration by specific organs is used to provide rate of uptake. Examples of this method are iodine uptake by the thyroid, and hippurans concentration/excretion by the kidneys.

Immuno-Biologicals : Ionizing radiations are now being used in genetic engineering to disrupt structure of molecules. The changes attenuates the organism thus can work as antigen specific antibody productions thereby helps in preventing various deadly diseases. Examples to this type of application is seen in various vaccine productions against bacterial, viral, protozoan and helminth parasites. Lung worm vaccine produced after 50 KR irradiation of larve is well known to clinicians.

Radiation therapy : Deep x-ray therapy (100-150 kvp, co50, cesium 137) is being used as an ionizing agent effectively to control number of diseases and cancer. It can not be applied indiscriminately therefore requires scientists trained in therapeutic radiology. Therapy can not be given in a single large dose without causing severe complications in normal tissue; thus, total dose (6000-7000 rads) is given in several fractions allowing normal cells to recover between treatment.

Radiation is given before and after the surgery depending upon their oncological characteristics, the main aim is of limiting metastasis.

Clinical cases like, granulomas, arthritis, chronic myositis (as counter irritant) mammary tumour, squamous cell carcinomas, mast cell tumours, perianal tumour response well to radiation therapy. In India so far radiation therapy is not practiced in animals.

Radiation safety : Discussions on the subject will remain incomplete if we do not keep in mind/review the safety measures while handling the sources of radiation. It is an essential requirement that every veterinarian learns how to monitor and evaluate radiation hazards in order to protect themselves and their colleagues from long term damages. By a large energy from a photon ultimately disrupts DNA, changing the genetic structure of molecules (chromosomal aberrations) hematopoietic system from severe neutropenia which permits the development of fulminating infection. The maximum permissible cumulative occupational dose is $5 \text{ ram} \times (N-18)$ where N is age equal in year and is greater than 18. It has been reported that even with all precautions (lead aprons, gloves, glasses, exposure time etc.) a person working in radiology unit loses 3 to 5 years from normal life span. Govt. of India has already compensated such workers through risk allowance or special leaves.

Still all workers in radiological unit are advised to be careful in handling materials and get periodical check up through monitoring system.

" Man is more important than machine as far as handling radiological equipment is concerned "

Dr. A. K. Bhargava

Coronary angiography in domestic animals.

Bhargava, A. K., Gupta, O. P., Singh Gaj Raj and Mogha, I. V.

*Division of Experimental Medicine and
Surgery, Indian Veterinary Research
Institute Izatnagar (U. P.)*

Coronary angiographic studies were conducted in cattle, sheep, goats and pigs. Angiographic findings revealed that two to three principal coronary arteries emerge from the base of aorta and reach upto the apex of the heart. However, their fine tributaries were not visualized. Physiological anastomosis between two principal coronary arteries was doubted in cattle and pigs where as presence of such anastomosis was not confirmed in sheep and goat. Further studies in relation to haemodynamics of coronary circulation following coronary ligation in different species of animals are in progress and it will be too premature to conclude any thing at this stage.

Radiation hazards while working for animal radiography.

Bhargava, A. K. and Setia, H. C.

Radiation hazards from diagnostic radiography in animals using 50-1000 ma machines & varying exposures of subjects ranging from a rat to an elephant is alarming. Phantom study correlating skin exposure indicate range of radiation from 6 mr to 170 mr. Motion, size, contour, and anatomical variation further complicates the possibilities of more hazards. Various exposures in dogs, sheep, & cattle indicate that due preventive measures should be adopted so as to reduce chances of irreparable radiation injuries to scientists and attendents helping in restraining the animals during radiography.

Notes :—

Dr. V. K. Sharma.

Optic thecography in dogs using Conray-280

Sharma V. K., Bharat Singh, Amresh Kumar and Harpal Singh.

*Department of Surgery & Radiology
Univ. of Agril. & Tech., Pantnagar.*

Radiographic visualization of the optic nerve, eye ball, optic chiasma, hypophysia and blood vessels of the cerebral arterial circle was attained by subarachnoid injection of Conray-280 @ 0.25 ml/kg body weight in dogs. The contrast agent was injected through a cisternal puncture under general anaesthesia after removing equal volume of C S F. Dorso-ventral and lateral radiographs of skull within 1 minute after injection visualized these structures. Muscular convulsions and reduced body temperature were observed immediately after injection and an increased ESR, leucocytosis in blood and C S F were observed at 24 hours after the injection. The changes in these parameters returned to near normal levels by 48 hours, except the C S F leucocytes, which returned to its normal value after 72 hours. It is concluded that optic thecography can be successfully accomplished using Conray-280 in dogs.

Comparative study of Conroy-280 and Lipiodol for myelography in buffalo calves

Sharma, V. K., Bharat Singh, Amresh Kumar, Harpal Singh and Varshney A. C.

Myelography using Conray-280 (meglumine iothalamate 60%) with and without lignocaine hydrochloride 2% and Lipiodol ultra fluid (an ethyl ester of the fatty acid of poppy seed oil) was carried out in 4 buffalo calves by injecting contrast agents @ 2.5 ml/kg body weight in the subarachnoid space through lumbo-sacral junction. Conray-280 satisfactorily delineated the entire spinal cord at 10 minutes post injection. Lipiodol ultra fluid failed to produce desired radiographic density and fine granular densities due to droplets of contrast medium appeared on the radiographs. In animals given Conray-280 without lignocaine, there were marked neurological symptoms like stiffness of neck, myoclonic spasm, increased heart and respiratory rates, fall in rectal temperature, pale mucous membrane and retention of urine for 10-12 hours after injection.

Notes :—

Dr C.C. Wakankar

Plain and contrast radiography of the urinary tract in experimental dogs.

Uma Dalal, Wakankar, C.C. and Deshpande K.S.

*Bombay Veterinary College,
Bombay.*

Twenty four healthy dogs, divided into four groups of three males and three females each, were subjected to plain and contrast urography after preparation. Inguinal urography (IVU) was performed on the dogs in the first group, with either abdominal compression or distention of the bladder with air to prolong contrast medium retention in the kidneys and ureters. The dogs in the other three groups were subjected to negative, positive and double contrast retrograde urethro-cystography respectively, with pneumoperitoneum also being performed on half the dogs in each group.

The results indicated that radiographic evaluation of the urinary tract should be undertaken as follows:

If evaluation of entire urinary tract is indicated, IVU with bladder distention, with films exposed immediately and at five minutes is recommended. This technique provided better visualization than did IVU with abdominal compression. If catheterization is difficult or impossible, IVU with abdominal compression may be used with films exposed immediately and at 20 minutes. A lateral view at 30 minutes is useful for evaluation of terminal ureters and the bladder.

If only the lower urinary tract is to be evaluated, negative contrast urethro-cystography with room air is recommended. For urethral stricture or bladder rupture positive contrast urethro-cystography should be performed. If negative contrast studies prove inadequate double contrast may aid in detection of mucosal lesions and filling defects.

Notes :—

Dr. Rishi Tayal

Selective renal angiography in sheep

Rishi Tayal, Sharma S. K. and Mohinder Singh

*Department of Surgery and Radiology
Haryana Agricultural University, Hisar.*

Selective renal angiography was done in six adult anaesthetized sheep to study the normal vascular pattern of kidney. It was done under fluoroscopy by retrograde catheterization of the renal artery. Good renal angiograms showing details of intrarenal arterial supply were obtained when Sodium Iothalamate (70% w/v), the contrast medium, was used at dose rate of 0.2 ml per kg body weight.

Notes :—

Dr. S S Misra

Cornual angiography in relation to horn cancer in bullocks

Misra, S S.

*Department of Surgery and Radiology,
C. S. A. University of Agriculture and
Technology, Mathura-Campus, Mathura.*

Cornual angiography has been done in three bullocks by injecting Conray-420 into the maxillary artery. The afflicted bullocks with pronounced squamous cell carcinoma depicted different grades of delineation of the structures supplied by the artery. The present study, however, being preliminary can well be applied if extensively done experimentally/clinically. It was also observed that cornual and frontal-sinus radiography concurrently can be considered meaningful clinically. Sub-clinical diagnosis by the technique may not succeed.

Notes :—

Lead Paper

Dr. Gaj Raj Singh

Standardization of implants for large animal orthopaedic surgery

Gaj Raj Singh, M. V. Sc., Ph. D.

*Division of Experimental Medicine and
Surgery, I. V. R. I., Izatnagar, U. P.*

Notes :—

Dr. Gaj Raj Singh

Physical, mechanical and chemical properties of horn plates

Gaj Raj Singh and Harpal Singh.

*Department of Surgery, G. B. Pant
University of Agri. & Technology
Pantnagar (Nainital) U. P.*

In vitro studies were carried out to estimate the density, ash contents, bending stiffness, ultimate bending strength and to evaluate the effects of dry and weak acids on plates prepared from bovine horn.

The horn plates are much lighter in weight in comparison to stainless steel plates of similar size. The density of horn plates ($1.72 \pm 0.009 \text{ gm/cm}^3$) is much less than that of stainless steel plates ($> 5.00 \text{ gm/cm}^3$). The horn plates contain very negligible amount of inorganic component (ash content $0.179 \pm 0.01\%$) and hence they are radiolucent. Mechanical testing of horn plates indicated that plates were quite strong and flexible in nature. Their ultimate bending strength varied between 3.0 to 3.68 Nm.

The horn plates were found to be resistant to moist heat and weak acids, however, dry heat made them more flexible and weaker.

Notes :—

Dr. B. M. Jani

Tuber coxae osteotomy in a buffalo to treat nonhealing deep penetrating wound

Mohinder Singh, Jani, B. M., Behl, S. M., Sharma, S. K., Rishi Tayal and Chawla, S. K.

Department of Veterinary Surgery and Radiology, Haryana Agricultural University, Hisar.

A she-buffalo was brought to the veterinary clinic with the history of non-healing wound of about one month duration after an accident. Clinical examination revealed avulsion fracture of tuber coxae and separation of muscles around tuber coxae. The healing was seen restricted around tuber coxae. Tuber coxae osteotomy was performed under chloral hydrate narcosis and local infiltration analgesia. Wound edges were freshened and necrotic tissue was removed. Open wound dressing with BIPP was carried out. Recovery ensued without complication.

Notes: --

Dr. Mozammel Hoque

A new approach for the surgical management of irreparable patellar fracture using horn prosthesis

Mozammel Hoque

*Division of Experimental Medicine &
Surgery I. V. R. I, Izatnagar (U.P.)*

Management of patellar fracture greatly differs from other bone fractures due to the presence of great tensile force from the pull of quadriceps muscle and having an articular surface. In veterinary practice, surgical management is accessible in case of nonarticular, nondisplaced and transverse fracture only. Comminuted and other irreparable patellar damage have been regarded as hopeless cases till now. Patellectomy has been attempted sporadically without detailed investigation and there is no record in veterinary literature on the use of a patellar prosthesis in an attempt to overcome the problems associated with irreparable injury to the patella, which warrants a detailed experimental research. A pilot study has shown encouraging results with patellar prosthesis prepared from bovine horn in contrast with patellectomy. It needs further detailed experimental study for its possible adoption in clinical cases following irreparable damage of the patella.

Notes :—

Management of bursitis in crossbred cattle

Das, B. K., Ojha, S. C. and Mohanty, J.

*Department of Surgery, College of
Veterinary Science and Animal Husbandry,
Bhubaneswar, Orissa.*

Ten clinical cases of bursitis, both septic and aseptic types in crossbred cattle were investigated and therapeutic approach is discussed. Intransynovial administration of prednisolone with antibiotic and surgical drainage gave satisfactory results.

Notes:—

Dr. I. S. Chandna

Radiographic changes in experimentally produced arthritis in buffalo calves

Lekheru, J. C., Chandna, I. S., Singh, A. P., and Chawla, S. K.

*Department of Surgery and Radiology,
Haryana Agricultural University, Hisar.*

An experimental study was carried out to study the radiographic changes in infectious arthritis of metatarsophalangeal joint in buffalo calves. Moderate to intense soft tissue swelling, increased joint space and osteolytic changes resulting in destruction of articular surfaces were observed on 15th day. Almost similar changes were observed at 30th and 45th day of infection. However osteolytic changes, osteophyte formation and increased joint spaces were more pronounced than at 15th day.

The radiographic changes in *E. coli* group, were confined to only that joint in which the injection was made. The overall pathological changes were severe in animals where rumen fluid was injected.

Notes :—

Dr. S. K. Chawla

Foot disorders in cattle and buffaloes—A radiographic study

Chawla, S.K., Chandna, I.S., Jit Singh, Nigam, J.M., and Pashin, P.K.

*Department of Surgery & Radiology,
Haryana Agricultural University, Hisar.*

Thirtyfive animals having swelling of fetlock/coronet joint or overgrown hooves were included for radiographic study. Arthritis of foot joints, exostosis, tumorous growth, abscessation, rotation of third phalanx, under-running of sole, fracture of third phalanx and interdigital swelling were observed in plain radiographs.

Increased joint space and loss of articular surfaces were characteristics of septic arthritis. In cases of aseptic arthritis, obliteration of joint space was observed. Exostosis was more prominent along axial and abaxial borders of first and second phalanges. Bony changes, in osteoarthritis varied from small spur like formation to extensive bony proliferation. Abnormal bony growth around fetlock joint was observed in case of tumorous growth. Radiolucent areas were visible in case of foot abscess. Acute angulation of third phalanx was seen in rotation of third phalanx. In one case of overgrown hoof of one claw, radiograph showed absence of third phalanx and old exostosis along abaxial surface of pastern joint of opposite claw. Radiolucent areas due to air pockets were observed in under-running of sole. Excessive osteoperiosteal reaction leading to large callus formation was observed in old healing fracture of third phalanx.

Notes :—

Dr. A. P. Bhokre

Reticulography in cattle and buffaloes-A retrospective study

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

*Department of Surgery
College of Veterinary and Animal
Sciences, MAU, Parbhani.*

Reticulography of the cattle and buffaloes were performed in left lateral recumbency. Out of 266 radiographs, 141 radiographs were positively diagnosed as foreign body in reticulum, 43 radiographs diagnosed as diaphragmatic hernia and 22 radiographs as traumatic pericarditis. The other lesions noticed were unusual location of foreign body, pleurisy and pneumonia. The definite diagnosis of foreign body could not be made only in 5 cases while 134 radiographs were negative for any lesions. Reticulography is of immense value for definite diagnosis of foreign body syndrome in cattle and buffalo.

Notes :—

Dr. M.S. Dewan, Muthu, Md.

Role of radiolucent foreign bodies in rumen, their diagnosis and treatment in bovines

Dewan Muthu Mohammed, M.S., Suresh Kumar, R., Godfrey David and Balasubramanian, N.N.

*Department of Surgery,
Madras Veterinary College, Madras.*

Traumatic reticulitis was suspected in 24 cases (16 cows, 5 buffaloes, 2 heifers and a bull calf). Symptoms were recurrent tympany, anorexia and hypermotility. Twenty three cases were radiographed and foreign bodies like nails, hairpins and metallic objects were found only in 8 cases. But on rumenotomy X-ray opaque foreign bodies were found in 12 cases. But totally in 22 cases radiolucent foreign bodies like rags, peastic sheets and bags, nylon and coir ropes and leather pieces, which were twisted in knots, were recovered. The weight ranged from 125 grams to 7.5 kg. The conclusion is that the rumenotomy is to be performed to relieve the condition eventhough the X-ray opaque foreign bodies are not seen in the radiographs.

Notes:—

Double contrast peritoneography in dogs

Sobti, V.K.

*Department of Surgery and Radiology,
Punjab Agricultural University, Ludhiana.*

Six clinically healthy, non-descript dogs, aged 10-12 months and weighing 12-17 kg were anaesthetized with 5% thiopentone sodium and intubated. The dog was shifted to dorsal recumbancy and an area around xiphoid cartilage was shaved and prepared for aseptic procedures. About 1" posterior to xiphoid cartilage, 100-150 ml of air was injected into the peritoneum with an air insufflator. From the same site, 7-10 ml of Conray 420 was given into the peritoneum. The animal was rolled 2-3 times and the abdomen was gently massaged. Series of radiographs were taken at 15, 20, 30, 40, 50 and 60 minutes and 24 and 48 hrs after infusion of air and the positive contrast material. The kidneys were fully outlined within 15-20 min. The pelvis of the kidney and the ureters were demarcated within 50 min while the bladder was fully visualized within 60 min. The liver and stomach could be outlined against the negative contrast of air. The loops of intestines showed a good contrast within 30 min. Traces of dye in the kidney and some air in the peritoneum could be observed 24 hrs after the infusion. However, the air and the positive contrast material were completely eliminated within 48 hrs. This technique of double contrast peritoneography seems to be quite useful for scanning various abdominal organs.

Notes:—

Cholecystography in the goat

Sharma, S. K., Mohinder Singh, Rishi Taysal and Nigam, J. M.

*Department of Surgery and Radiology,
Haryana Agricultural University, Hisar.*

Contrast radiographic studies of gall bladder were conducted in six adult goats. Animals were prepared for cholecystography. Telepaque tabs in the dosage of 200-225 mg/kg body weight were used as contrast medium. Radiographs were obtained in lateral and VD positions before and after 6 hours onwards upto 24 hours after oral administration of the contrast medium. Complete filling and visualization of gall bladder was observed from 12 hours to 18 hours. Right lateral view was adequate for the visualization of gall bladder.

Notes :—

Basic needs in veterinary anaesthesia

Leslie W. Hall.

University of Cambridge, England, (U. K.)

Veterinary anaesthesia as it is now practised in the major academic centres seems all too often to be complicated and difficult to understand for in any individual animal it may involve the use of numerous very potent, costly drugs and expensive, sophisticated apparatus. While such methods may be justified for the small minority of very ill patients, financial considerations make it necessary to question whether they are essential for the vast majority that are relatively fit or healthy. In an attempt to answer this question trials are being conducted to investigate whether simpler, less expensive techniques can be used in veterinary anaesthesia without detriment to the safety of the patient or the convenience of the surgeon.

Techniques of local analgesia undoubtedly provide the simplest and least expensive methods for many operations but their successful application often requires a high degree of skill and, moreover, not all veterinary patients are suitable subjects for them. Slight complication by the use of concurrent heavy sedation can make them more acceptable in some animals without greatly increasing the expense or decreasing their safety. Lignocaine hydrochloride is generally accepted as being an effective agent for local analgesia and there are numerous effective sedative agents (some costly, others inexpensive) for most of species of animal.

Intravenous anaesthesia, using older agents such as thiopentone and chloral hydrate, or more modern drugs such as xylazine and ketamine, is simpler than inhalation anaesthesia and requires the minimum of apparatus, but it can be dangerous in inexperienced hands unless the agents have a very wide safety margin in the particular species of animal concerned. Safety is always greatly increased by the concurrent inhalation of oxygen enriched air but this requires a minimum of suitable apparatus.

In small animal patients, or young farm animals and young horses, inhalation anaesthesia can be safely applied using either simple draw-over vaporizers and a delivery system which incorporates a non-rebreathing (e.g. Ambu) valve or

a conventional T-piece system. In adult large animal patients economy dictates the use of specially designed to-and-fro or circle absorption systems for the inhalation agents, these pieces of apparatus must be connected to a source of oxygen and are expensive to purchase or construct. Their use can only be justified when large numbers of animals are anaesthetized in any one year. With any agent other than perhaps ether, the inspired gases of a spontaneously breathing animal should contain at least 30% of oxygen and hence, as for intravenous anaesthesia, some source of oxygen under pressure is required for even the simplest methods of administration of inhalation anaesthesia.

Thus, whenever local analgesia is inappropriate, and intravenous or inhalation anaesthesia has to be used, a source of oxygen under pressure is usually required to ensure maximum safety for the spontaneously breathing patient. Moreover in the event of an overdose of a general anaesthetic being administered, successful resuscitation depends on efficient artificial ventilation of the animal's lungs; in small animals this can be performed with air from a self-inflating bag and non-rebreathing valve but in large animals at least an oxygen injector (e.g. Hudson demand valve) or a bag, oxygen supply and face-mask, are essential.

In veterinary practice a supply of cylinders containing oxygen under pressure for all these purposes may not be readily available, cylinders are heavy, difficult to handle and have a tendency to become exhausted just when the gas is most needed. Attention is, therefore, now being given to the development of portable oxygen concentrators and generators as alternative sources of oxygen under pressure. The concentrator is a complicated apparatus involving compressors and switching valves which need regular servicing and it generally delivers oxygen mixed with argon. The generator is a very simple device with no moving parts other than a cooling fan which requires the minimum of attention. It delivers pure oxygen and can be run from a 12 volt battery if there is no convenient mains supply of electricity. It seems likely that very simple, efficient, safe apparatus for veterinary anaesthesia can be constructed around an oxygen generator.

Notes :—

Thiopental sodium induced biochemical alterations in dogs

Srivastava, A. K., Prabhakar, S., Chaudhary, R. K. and Malik, J. K.

*College of Veterinary Sciences,
Punjab Agricultural University,
Ludhiana.*

The present study was undertaken to investigate the effects of thiopental sodium on various blood biochemical indices in healthy dogs. The animals were kept under anaesthesia for two hours by repeated intravenous injection of 5% thiopental sodium (40.6±5.12 mg/kg). The repetition of injection was based on appearance of palpebral and pedal reflexes. Blood samples were collected at 0.25, 0.5, 1, 2, 4, 6, 12 and 24 hr after first injection of thiopental sodium. The blood levels of cholinesterase, transaminases, phosphatases, total protein, glucose, cholesterol, creatine and blood urea nitrogen were estimated by spectrophotometric method. Administration of thiopental sodium caused a significant ($P < 0.01$) increase in levels of blood glucose (35-112%) and plasma levels of aspartate aminotransferase (16-154%), alanine aminotransferase (22-81%) and acid phosphatase (19-96%) from 15-360 min. There was marked decrease in plasma levels of total cholesterol (26-80%) and alkaline phosphatase (12-87%). During course of study no significant changes were observed in plasma levels of cholinesterase, total protein and creatinine and blood urea nitrogen. The altered levels of blood biochemical parameters approached their normal values within 18-24 hours of administration. All the animals became apparently normal within 5-7 hours after termination of anaesthesia.

Notes :—

Dr. P.K. Peshin

Management of cardiopulmonary dysfunction due to thiopentone in buffaloes

Peshin, P.K., Tyagi, R.P.S. and Chawla, S.K.

*Department of Surgery and Radiology,
Haryana Agricultural University, Hisar.*

Circulatory insufficiency characterised by a stable fall in arterial pressure to 40.9 ± 1.5 mm Hg and a flat EEG was induced with excessive doses of thiopentone in 3 groups (5 buffalo calves each). Ventilation was controlled in these animals. In group-I no drug was used and served as a control. In other two groups mephentermine @ 0.5 mg/kg or dexamethasone @ 4mg/kg was given. In another group of 5 animals, ventilatory failure was induced and no mechanical ventilatory support was provided but instead prethcamide was given @ 9 mg/kg. In 5th group the induced circulatory insufficiency and accompanied ventilatory failure was not supported by mechanical ventilation, instead mephentermine and prethcamide were administered. Results indicated:-

The difference between the dose of thiopentone for inducing ventilatory failure and circulatory insufficiency was narrow.

Mephentermine controls the circulatory insufficiency induced with excessive doses of thiopentone, effectively and effects are sustained.

Prethcamide causes stimulation of thiopentone induced depression of CNS and ventilatory failure.

Combination of mephentermine and prethcamide appears to be a suitable to control circulatory insufficiency and ventilatory failure, although oxygen therapy should provide additional beneficial effects. In an emergency when artificial means of ventilation are not available, use of this combination can be considered.

Dexamethasone could be a valuable adjunct to therapy of circulatory insufficiency under such circumstances.

Notes :-

Dr. K. K. Mirakhur

Potential of diazepam in veterinary anaesthesia

Mirakhur, K.K., Sharma, S.N., and Rama Kumar, V.

*Department of Surgery and Radiology,
Punjab Agricultural University,
Ludhiana.*

Diazepam has been found to be an excellent sedative/induction agent in cattle, buffaloes and dogs. Clinical and experimental evidence has proved its wide margin of safety when compared with other anaesthetics in routine use. It has been found to be an economical anaesthetic agent too. The cardio-respiratory effects are minimal.

Clinical and biochemical effects of diazepam and its combination with thiopentone sodium in bovines

Mirakhur, K. K., Sharma, S. N., and Srivastava, A. K.

Intravenous diazepam was evaluated in calves either alone or in combination with thiopentone sodium. Induction to thiopentone sodium anaesthesia by diazepam was found to be satisfactory and the duration of anaesthesia was prolonged. A mixture of diazepam and thiopentone sodium provided a good basal anaesthesia. The haematological and biochemical parameters evaluated were not affected significantly.

Notes :—

Dr. K. S. Bhullar

Some physiological effects of diazepam-ketamine anaesthesia in calves

Bhullar, K. S., Sharma, S. N., Sukhpal Singh, Mirakhor K. K. and Rama Kumar, V.

*Department of Surgery & Radiology,
Punjab Agricultural University,
Ludhiana*

Diazepam (1.18 mg/kg) was administered intravenously in five clinically healthy male cow calves followed by ketamine (10.63 mg/kg) to achieve surgical plane of anaesthesia. The combination resulted in smooth induction and recovery. The muscle relaxation was good. Heart rate increased transiently where as MAP and CVP did not change significantly. A significant increase in respiration rate and decrease in tidal volume was observed. E. C. G. components did not change.

Administration of ketamine resulted in respiratory acidosis for 15 minutes. PaO₂ decreased significantly but no significant change was noted in OER. Haematological (PCV, Hb, TEC, DLC) and biochemical parameters (plasma Na⁺, K⁺, Cl⁻ and glucose) did not show any change.

Notes :—

Dr. Bharat Singh

Meperidine and diazepam as preanaesthetic agents in thiopentone sodium anaesthesia in goats

Bharat Singh and Amresh Kumar

*Department of Surgery and Radiology,
G. B. Pant Univ. of Agril. & Tech.,
Pantnagar.*

The preadministration of meperidine HCl @ 10 mg/kg b. w. i.m. and diazepam @ 0.5 mg/kg b. w. i.v. significantly reduced the doses of thiopentone and produced excellent muscular relaxation and surgical anaesthesia lasting for 20.25 ± 4.25 and 39.50 ± 4.20 minutes, respectively, and animals recovered uneventfully in 99.00 ± 8.16 and 85.00 ± 10.00 minutes. There was increase in heart rate and decrease in rectal temperature. Respiratory rate was not affected but varying degree of respiratory acidosis was observed. The mean arterial pressure (MAP) significantly increased ($P < 0.05$) from 5 to 30 min and central venous pressure decreased after thiopentone administration followed by gradual decline. In diazepam pretreated animals the MAP remained more or less stationary. ECG abnormalities included primary T-wave changes in one of the animals of each group.

There was no significant effect on PCV, serum OCT, bilirubin, BUN, blood creatinine and serum electrolytes (Na^+ , K^+ , Cl^-) but a non-significant increase in blood glucose at 1/2 to 3 hours after thiopentone administration was observed which returned to near normal levels by 6 hours. The plasma thiopentone showed a gradual decline and was not related to anaesthetic effects.

Notes:—

Dr. Amresh Kumar

Clinical and physiological effects of ketamine with and without diazepam or pethidine in dogs

Amresh Kumar, Narendra Kumar and Bharat Singh

*Deptt. of Surgery & Radiology,
G B Pant Univ of Agril & Technology,
Pantnagar (Nainital).*

Intramuscular administration of ketamine @ 22 mg/kg with and without premedication with diazepam @ 5 mg/kg i.v or pethidine @ 5 mg/kg i.m. produced anaesthesia lasting upto 68.25 ± 7.32 minutes. Their preadministration significantly increased the duration and extent of muscular relaxation and anaesthesia. The ketamine alone produced poor anaesthesia lasting 29.50 ± 5.72 minutes. A significant increase in heart rate, respiration and mean arterial pressure ($P < 0.05$) occurred after ketamine administration. Arterial carbon dioxide tension, BUN, creatinine and glucose increased and PCV and pH decreased at maximal anaesthesia and 24 hours after atropine-diazepam-ketamine. These values returned to pre-administration level by 72 hours. No significant alteration were observed in ECG, SGOT, SGPT and serum electrolytes (Na^+ , K^+ , and Cl^-). A variety of surgical operations viz, gastrotomy, cystotomy, ovariohysterectomy and amputation of tail and dew-claw were performed under atropine-diazepam ketamine anaesthesia. Recovery was smooth and uncomplicated in all the animals and no complications were observed.

Notes :—

Lead Paper

Dr. Amresh Kumar

Advances in general anaesthesia in large animals

Prof. Amresh Kumar, M. V. Sc., Ph. D. (Illinois)

*Professor and Head,
Department of Surgery & Radiology,
G. B. Pant Univ. of Agril. & Tech.,
Pantnagar.*

Notes :—

Dr. D. K. Sharma

Physio-metabolic changes during electroanaesthesia in dogs

Sharma, D. K. and Hariwir Singh

*Department of Anaesthesiology,
Post Graduate Institute of Medical
Education and Research, Chandigarh.*

Physio-metabolic changes were studied during electroanaesthesia by employing low frequency square waves (500-10 000 HZ) high frequency square and sine bursts (10,000-40, 000 HZ) and combination of low frequency square waves and high frequency sine bursts in interference pattern. Physio-metabolic changes were suggestive of increased sympathoadrenal and muscle activity during electroanaesthesia and were minimum when electroanaesthesia was induced and maintained by interference currents. There was increase in mean arterial pressure, heart rate with variable and transient ECG changes, increase in respiratory rate and minute volume with unchanged tidal volume. There was a rise in blood sugar, LDH, cortisol, lactic acid with insignificant changes in pyruvic acid. Excess lactate formation was minimum in the group of EA by interference currents. Cerebral circulation and metabolism studies revealed a prolongation of cerebral circulation time and no evidence of excess lactate formation. These studies are suggestive of intact cerebral blood flow and no evidence of cerebral hypoxia.

Notes:—

Dr. V. K. Sobti

Physiological effects of halothane anaesthesia under spontaneous breathing in calves

Sobti, V. K. and Prasad, B.

*Department of Surgery & Radiology,
Punjab Agricultural University, Ludhiana.*

Six clinically healthy, crossbred male cow calves of 12-15 months were used to study the effects of halothane anaesthesia on the cardiovascular dynamics, acid base status, blood gas tensions and various biochemical constituents of the body. Significant pulmonary hypertension, tachycardia and respiratory acidosis were noticed following halothane anaesthesia. The mean arterial blood pressure, central venous pressure, electrocardiogram and the plasma Na^+ , K^+ and Cl^- did not vary appreciably.

Some cardiovascular and biochemical effects of intermittent positive pressure ventilation under halothane anaesthesia in calves

Sobti, V. K. and Prasad, B.

Experiments were performed in 8 clinically healthy, male crossbred calves of 1-15 years, to study the effects of intermittent positive pressure ventilation (IPPV) at awake pCO_2 and low pCO_2 under halothane anaesthesia. The pulmonary artery pressure and central venous pressure remained significantly above the base during normocapnic and hypercapnic IPPV. A mild hypotension could be noticed during normocapnic and hypocapnic IPPV. There was no significant changes in the electrocardiogram during these types of IPPV. Significant positive correlations could be established between arterial pH and pH of CSF and between pCO_2 and pCO_2 of CSF following normocapnic, hypercapnic and hypocapnic IPPV.

(PTO)

Cardiovascular, biochemical and radiographic evaluation of pulmonary lobectomy by rib resection and mid sternal approach in calves under halothane anaesthesia and intermittent positive pressure ventilation

Subi, V. K., Prasad, B. and Rama Kumar, V.

Twelve healthy male cross bred calves were randomly divided into 2 groups of 6 animals each. In one group, the pulmonary lobectomy was performed by rib resection thoracotomy and in second group by mid sternal approach. There was a significant drop in the paO_2 following thoracotomy by rib resection or mid sternal approach. The acid base status of these animals exhibited a trend of metabolic alkalosis. The mean arterial pressure, central venous pressure and pulmonary artery pressure maintained a low profile during mid sternal thoracotomy as compared to rib resection method. The tachycardia and the ECG changes were more marked in the mid-sternal thoracotomy. Lobectomy has no effect on mean arterial pressure, central venous pressure and the pulmonary artery pressure. When the animals were weaned from the ventilator after lobectomy and chest closure by both methods, the paO_2 decreased tremendously along with an increase in $paCO_2$. Postoperative radiography revealed moderate pulmonary oedema.

Notes :—

Dr. M. A. Malek

Studies on visceral procain blockade as compared to lumbar epidural and local infiltration anaesthesia

Melak, M. A., Patil, Deepak B., Sukumaran, K., Parsania, R. R. and Patel, M. R.

Gujarat Veterinary College,

Gujarat Agricultural University, Anand.

A comparative clinical study on the efficiency of visceral procaine blockade, lumbar epidural anaesthesia and local infiltration anaesthesia with particular reference to the haematological and biochemical changes were carried out on buffalo calves divided into three groups of 6 animals each. All the three anaesthetic procedures were sufficient enough to perform operations like enterotomy, intestinal anastomosis and abomasotomy. Haematological changes were found to be statistically non-significant in all the three groups. Among biochemical changes, blood glucose level increased significantly in visceral procaine blockade and lumbar epidural groups. Serum glutamic pyruvic transaminase increased significantly only in visceral procaine group. Based upon clinical, haematological and biochemical changes and the response to pain stimuli, it was concluded that visceral procaine blockade is superior to lumbar epidural and local infiltration anaesthesia.

Notes :—

Dr. Syed Sajjad Hussain

Long lasting caudal epidural analgesia with ammonium sulphate and benzyl alcohol, adjunct to procaine HCl in buffaloes

Syed Sajjad Hussain and Amresh Kumar

*Department of Surgery and Radiology,
G. B. Pant University of Agriculture &
Technology, Pantnagar.*

Procaine hydrochloride 2% was administered epidurally @ 0.10 ml/kg b.wt. One hour after its administration, 5 ml of 10% ammonium sulphate was injected epidurally in six buffalo calves. In another group of six buffalo calves thirty minutes after the similar treatment benzyl alcohol was administered epidurally @ 0.01 ml/kg b. wt. (max. dose 3 ml). Clinical signs, onset, duration and extent of analgesia etc. have been discussed.

Histological changes following administration of long acting epidural anaesthetic agent in buffaloes

Syed Sajjad Hussain and Amresh Kumar

Lignocain HCl 2% with adrenaline (1 : 100,000) @ 0.06 ml/kg b.wt. was given epidurally followed one hour by amyl alcohol 90% @ 0.31 ml/kg b.wt. (max. dose 3 ml) in six buffalo calves. In another group of six animals procaine HCl 2% @ 0.01 ml/kg b.wt. given epidurally was followed one hour later by 5 ml of 10% ammonium sulphate and 30 minutes later by 60% benzyl alcohol @ 0.01 ml/kg b.wt. (max. does 3 ml). The animals of both groups were sacrificed on 4th, 30th and 60th days for histological changes in sacral and coccygeal nerves. Histological changes and time of regeneration have been discussed.

Notes: ---

Lead Paper

Dr. S. K. Pandey

Pre and post-operative treatment perspective in small animal surgery

Dr. S. K. Pandey, *M. V. Sc., Ph D.*

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

Notes:—

Dr. S. K. Pandey

Serum cholesterol levels in ovariectomized and orchidectomized dogs

Sharma, I. J., Pandey, S. K. and Guru, V. K.

*College of Veterinary Science and
Animal Husbandry, Jabalpur, (M. P.)*

The dogs brought to the Veterinary College Hospital for ovariectomy (5) and orchidectomy (5) were taken for this study. The operations were performed under triflupromazine hydrochloride sedation and spinal anaesthesia using 2% lignocaine. Blood samples were collected from each dog before operation to serve as control and subsequently each day upto 8 days post operation. The serum total (T), free (F) and esterified (E) cholesterol were estimated. The E/F ratio and percentage esterified cholesterol were also calculated. The serum total and esterified cholesterol levels increased after gonadectomy, however, there was no much variation recorded in the levels of free cholesterol. Similarly E/F ratio and percent esterified cholesterol were also high after operation. All the fractions of cholesterol were higher in females than in males, whereas reverse was true with respect to E/F ratio and esterified cholesterol percent.

Notes :—

Urethroplasty by autologous preputial sheath

Sengupta S. K. and Dipak Kumar De

*Department of Surgery and Radiology,
Bidhan Chandra Krishi Viswa Vidyalaya,
Nadia, West Bengal.*

An experimental study was made on 10 adult mongrel dogs. An autologous tissue collected from the inner lining membrane of the preputial sheath was grafted over the artificially created urethral fistula produced at the floor of the urethra between the os penis and peno-scrotal junction. The object of the study is after urethroplasty the visualization of the urethral tract and detection of any stricture at the point of fistula, narrowing of the lumen or adhesion or strangulation by cystourethrography. The results were almost uniform in nature in all the cases of study. This new technique is not only simple but also free from usual postoperative complication in respect of above object of study. The operative procedure, repair process and observation findings are discussed.

Notes :—

Dr. A. K. Ray

Urolithiasis in dogs treated by laparo-cystotomy and retrograde urethral flushing

Bose, V. S. C., Ray, A. K., Nayak, S. and Mitra, A. K.

*Department of Surgery,
Orissa College of Vety. Sc. & A. H.,
Bhubaneswar.*

Two male dogs with urinary obstruction were confirmed by radiography to be due to urethral calculi posterior to os-penis. Cystotomy was performed using thiopentone. Retrograde urethral flushing by catheter was done to remove stone through the bladder. The technique is discussed.

Notes :—

Dr. M. K. Bhargava

Ovarian medullary adenocarcinoma in a bitch

Bhargava, M. K., Awadhiya, R. P., Shrivastava, S. M. and Pandey, S. K.

*Department of Surgery & Radiology,
College of Veterinary Science & A.H.
Jabalpur M. P.*

Examination of a bitch aged 8.5 years, weighing 10 Kg and suspected for pyometra, revealed the presence of a hard mass behind the umbilicus. The animal was operated and a dead foetus was removed from the left uterine horn. Further examination of the genital tract showed tumorous growths involving right ovary and body of the uterus. Ovariohysterectomy was performed and ovarian and uterine growths were processed for histopathology. The neoplastic growth in the ovary was the rare medullary adenocarcinoma with metastasis in the uterus. The animal completely recovered after the operation. No complication has been reported even after a year of operation.

Notes :—

Dr. P. K. Bose

A metastatic case of canine transmissible venereal sarcoma

Das, A. K., Das, U., Das, D. K., Sengupta, J., Bose, P. K. and Das, B. B.

*Department of Surgery & Radiology,
Bidhan Chandra Krishi Viswa Vidyalaya,
Nadia, (West Bengal).*

A 7 yr old mongrel bitch was presented with the complication of venereal granuloma with one multilobulated and pedunculated growth on the right mid costal region and another growth on the right flank. The granulomatous growth on the vulvar region was noticed first. The tumours of the right mid costal and flank regions were operated first under local analgesia and processed for histopathological studies. One month after, the venereal granuloma was operated by episiotomy under epidural analgesia. The histopathological examination of the growths including venereal granuloma showed the picture of *Steno-* soft part sarcoma with wide spread metastasis.

Notes:—

Dr. Dipak Kumar De

Hydrocephalus in an Alsatian pup : A case study

Dipak Kumar De

*Department of Surgery and Radiology,
Bidhan Chandra Krishi Viswa Vidyalyaya,
Nadia, West Bengal.*

A litter of 6 weeks Alsatian pup was brought to Calcutta canine clinic for treatment, one of which showed the following complaints : (i) swollen head, lowered in position, (ii) vacant expression with half-closed eyes, (iii) circling movement, (iv) staggering in gait, (v) failure of teat suckling and (vi) loss of weigh and frequent convulsion.

Clinical examinations including palpation and percussion revealed enlargement of the neurocranium and distinct fluid thrill in the frontotemporal region. The case was clinically diagnosed as hydrocephalus indicating increased intracranial pressure due to accumulation of the cerebrospinal fluid in the epidural and subdural space. Later on it was confirmed by the skiagram and the cerebrospinal fluid was analysed biochemically for the presence of any unusual protein component. Through X-ray examination (A. P. & Lateral) of the case, precise cause of hydrocephalus can not be identified as there was no radio-opaque views of lesion or growth. Biochemical analysis of cerebrospinal fluid include estimation of total protein content, ml of fluid, presence of free amino acids, carbohydrates and lipids. Presence of different protein bands was detected by polyacrylamide gel electrophoresis and the results indicate that it may be considered as congenital which may occur as a result of conditioning by an inherited factor.

Treatment had been done mostly symtomatically and on palliative measure, however, there was good response after physiotherapy. The relative efficacy, success and prognostic utility of the treatment will be discussed.

Notes: --

Dr. J. S. Mattu

Evaluation of prophylactic use of chloramphenicol succinate in preventing postoperative wound infection following thoracotomy in dogs

Mattu, J. S., Sharma, S. N., Oberoi, M. S. and Singh, S. S.

*Department of Surgery & Radiology,
Punjab Agricultural University,
Ludhiana.*

Thoracotomy was done on two groups of six dogs each. While no antibiotic was used in first group, chloramphenicol succinate, selected on the basis of culture and sensitivity pattern of this group, was given as a single preoperative intramuscular injection and local spray before wound closure in the second group. No gross infection was observed in five dogs of each group, but bacteria could be isolated from suture samples of almost all the dogs. One wound infection, developed in the dogs of each group. No observable difference was observed in the infection rates of two groups of study.

Notes:—

Dr. S. M. Mohiuddin

Studies on biochemical and histopathological changes in surgical wounds treated with Himax and Teeburb in dogs

Mohiuddin, S. M. and Vikram Reddy, M.

*Department of Pathology, College of
Veterinary Sciences, Hyderabad. (A. P.)*

Fifteen dogs in the age groups of 6-8 months were divided into three groups. In all these dogs a skin depth rectangular wound of the size 3-6 cm was surgically induced on either side in the lumbar region. Animals in group-I (control) were treated with normal saline dressing while the animals in group-II were treated with Himax ointment alone and group-III were treated with Himax locally and Teeburb capsule was given orally for 26 days.

Blood was analysed for PCV, Hb, TEC, TLC and differential counts; blood glucose, serum protein and serum alkaline phosphatase activity was estimated periodically. Granulation tissue from the left side of the surgical wound was collected in all the three groups for HP. On 26th day all the dogs were sacrificed and liver pieces were collected in 10% formalin for HP. The results will be presented and discussed.

Notes :—

Dr A. K. Bhargava

Neem oil (Azadirachta indica) - An agent for promoting healing of skin wounds

Bhargava, A. K., Jawahar Lal, Sharma, A. K., and Kumar, P. N.

Division of Experimental Medicine and Surgery; Pharmacology and Toxicology and Bacteriology, Indian Veterinary Research Institute, Izatnagar.

Present investigations were carried out to assess scientifically the wound healing activity of neem oil (oil from dried neem seed) in experimentally created wounds in calves. Dressing by neem oil was done as local application once daily for upto 21 days. The healing of wound was evaluated in terms of closing. Furacin was used as positive control and normal saline as negative. Bacterial load of exposed wound was assessed using sterile technique by collection of impression swab and culturing in direct broth.

Efficacy of other indigenous drugs (*Cedrus deodara* & *Shorea robusta*) were also compared with neem oil. It was observed that neem oil helps in providing suitable media for healing of wound with the formation of minimal scar and granulations. The results were not as effective as of Furacin but were acceptable as antiseptic, promotor of healing by epithelization, fly repellent and thus provided satisfactory healing of wound by second intention. Histopathological evaluation of biopsy material confirmed the clinical observations.

Application of pure neem oil failed to stick on fresh oozing wound for longer period; therefore, in spontaneously occurring and post-operative wounds a combination of oil, vaseline, and powder of bark was used with satisfactory results. Further trials are in progress.

Lead Paper

Dr. O. Rama Krishna

Recent trends in large animal surgery

Prof. Rama Krishna, O., M. V. Sc., Ph. D., FRVAC (Denmark)

*Department of Surgery and Radiology,
College of Veterinary Sciences,
A. P. Agricultural University,
Tirupati, (A. P.)*

Notes:—

Dr. S. M. Mbiuki

Healing of intestinal anastomoses in cattle, an evaluation of end to end approximating technique

Mbiuki, S. M., Nyaga, P. N. and Mugeru, G. M.

*Faculty of Veterinary Medicine,
University of Nairobi, Kabete-Kenya.*

One hundred forty four jejunal anastomoses were performed in 24 male cattle including 48 each of simple interrupted, Gambee and crushing techniques. Studies were carried out at 4, 14, 28 and 56 days of healing by evaluating from sections re-epithelialization, degree of inflammatory reaction and cellular reaction.

Re-epithelialization and/or granulation tissue were present by the 4th day in majority of the anastomoses. The inflammatory reaction was more intense at 14 days than at 4 days except for simple interrupted anastomoses. By the 28th day, only one anastomosis performed using simple interrupted technique showed no re-epithelialization. Cellular reaction was not different between the techniques and the mesoblast origin cell was the predominant cell at all stages.

None of the techniques affected the healing process adversely and in fact all the three techniques resulted in primary healing. It was concluded that with proper application any one of the three end-on approximating techniques is suitable for intestinal anastomosis in cattle.

Notes :—

Dr. Prem Singh

Surgical management of intestinal obstruction in three bullocks

Prem Singh, Sharma, D. K., Chandna, I. S. and Sukhbir Singh

*Deptt. of Vety. Clinics,
Haryana Agricultural University, Hisar.*

Surgical management of intestinal obstruction in three bullocks has been described. The intestinal obstruction was due to volvulus, intussusception and necrosis of a portion of intestine. The obstructed mass was present near the ileo-caecal junction in first two cases, whereas in middle portion of intestine in third case. The strangulated portion of the intestine was resected out and end to end anastomosis was performed. The animals recovered completely except one case which died on sixth day after surgery where necrosis of intestine was the cause of obstruction. Excessive fluid therapy, neostigmine and calcium preparations were proved to be effective in restoration of peristaltic movement of intestine.

Notes:—

Dr. S. K. Sharma

**Intestinal obstruction and abomasal displacement alongwith
reticular hernia in a buffalo**

Ravi Tejal, Sharma, S. K. and Mohinder Singh

*Department of Surgery and Radiology,
Haryana Agricultural University, Hisar.*

An unusual case of intestinal obstruction and right abomasal displacement alongwith reticular hernia in a buffalo is discussed. In spite of medicinal and surgical intervention, the animal could not be saved because of severe adhesions throughout the abdominal cavity.

Notes :—

Dr. V. P. Chandrapuria

Ileo-caecal shunt in equine (*Equus asinus*) for the management of caecal affections – an experimental study

Chandrapuria, V. P. and Bhargava, A. K.

*Division of Experimental Medicine and Surgery,
Indian Veterinary Research Institute, Izatnagar.*

Twelve healthy male donkeys of four to six years were utilized for this study. In first group of eight animals ileo-caecal shunt was prepared by midventral celiotomy. The terminal ileum was anastomosed between the dorsal and medial bands of the caecal apex and thus a partial bypass of the ileo-caecal junction was created without resection of the ileum. The second group of four animals was kept as control where only exploratory laparotomy was performed. The animals were evaluated on the basis of clinical, hematological, biochemical and nutritional parameters for a period of thirty postoperative days.

The result analysed so far indicates that the preparation of ileo-caecal shunt is a safe technique and can be used in management of certain types of caecal disorders in equines.

Notes :—

Dr. A. P. Bhokre

Studies on certain electrolyte changes in experimentally induced peritonitis in buffalo calves

Bhokre, A. P. and Deshpande, K. S.

*Department of Surgery, College of
Veterinary & Animal Sciences,
M. A. U., Parbhani.*

Studies on electrolyte pattern viz. serum Na^+ , K^+ and Cl^- levels were undertaken in experimental peritonitis in buffalo calves. Peritonitis was produced experimentally by four methods i.e. injection of rumen liquor i. p. 1.5 ml/kg (Group II), i. p. inoculation of pathogenic broth culture of *E. coli* (Serotype O1) @ 2×10^9 per animal (Group III), strangulation obstruction of bowel (Group IV) and uoperitoneum (Group V). The serum Na^+ levels were either significantly increased or decreased in group-II and IV, slightly elevated in group-V and showed no appreciable changes in group-III. The serum K^+ levels showed inconsistent changes in group-II and III, significant hypokalemia in group-V, whereas, significant hyperchloraemia was observed in all groups. The electrolyte balance was not restored even after treatment with electrolyte solution i. p. and i. v. in all groups.

Serum proteins alterations in buffalo calves suffering from acute peritonitis

Bhokre, A. P., Deshpande, K. S. and Sawant, M. K.

Studies on changes in serum total proteins, albumin, globulin and A/G ratio were carried out in experimental acute peritonitis in buffalo calves. Peritonitis was produced as described above. Hypoproteinaemia was observed in group-II and IV whereas no significant changes were noticed in group-III and V. The serum albumin levels were significantly increased in group-II and IV with significant decrease in serum globulin levels in above groups. The A/G ratio was also higher in group-II and IV. Group-III and V did not show significant changes in albumin, globulin, A/G ratio. After treatment the levels were almost stabilised by end period of observation.

Notes : --

Body fluid metabolism in bovine diaphragmatic hernia

Mehta, I. J., Krishnamurthy, D., and Peshin, P. K.

*Department of Surgery and Radiology,
Haryana Agricultural University, Hisar.*

Twelve she-buffaloes with diaphragmatic hernia were used to study haematological, electrolyte and body fluid alterations associated with the malady and two stage surgery. The results were compared with normal values recorded in six adult she-buffaloes. The efficacy of intravenous fluid Ringer's lactate was also evaluated. Six animals (non-survival group) died mainly due to abnormal alterations in body fluid volumes in addition to low haemoglobin values. In general, patients had low haemoglobin levels and there was a further fall after surgery. The magnitude of fall was 45% in non-survivors whereas in survivors it was 31.45% as compared to normal values. The patients which could not survive two stage surgical trauma were about four times more dehydrated than the patients which tolerated the surgical stress. The loss in total body water following ruminal evacuation was 31.42 and 20.35% in non-survivors and survivors respectively as compared to normal. All buffaloes with DH had lower intra-cellular fluid volume. The deficits were more in non-survivors as compared to survivors. The extra-cellular fluid was 12.24% higher in survivors contrary to 20.18% lesser in non-survivors than normal values. Plasma volume before surgery showed a mild decrease in both the groups but interstitial fluid was increased by 15.21% in survivors and decreased by 11.41% in non-survivors. The magnitude of fall in interstitial fluid following ruminal evacuation was very high (48.08%) in non-survivors whereas it was less (18.69%) in survivors as compared to normal values.

Notes :—

Successful repair of diaphragmatic hernia under local analgesia

Marudwar, S. S., Thakur, S. B., Dhakate, M. S., Narkhede, M. D. & Kulkarni, P. E.

*Nagpur Veterinary College,
Nagpur.*

Laparotomy for correcting diaphragmatic hernia in 3 buffaloes and one cow was carried out through abdominal approach. The surgical intervention was undertaken under tranquilization and local infiltration analgesia at the site of operation. The respirator was not used. Three buffaloes made uneventful recovery and achieved normal physiological status. One cow died 15 days after operation. The possibility of operation in absence of positive pressure apparatus and general anaesthesia with regard to success of surgery is discussed.

Notes :—

Dr. M. S. Dhakate

Single operation diaphragmatic herniorrhaphy

Dhakate, M. S., Thakur, S. B., Marudwar, S. S., Narkhede, M. D. and Kulkarni, P. E.

*Nagpur Veterinary College,
Nagpur.*

Laparo-rumenotomy and repair of diaphragmatic hernia was undertaken under tranquilization and local analgesia through a single post-xiphoid incision in a buffalo.

Notes :—

Dr. M. N. Nassimi

Foreign bodies in forestomach of cattle

Nassimi, M. N.

*Department of clinical study,
Faculty of Veterinary Science,
Kabul University, Afganistan.*

One hundred and thirty three cattle were brought to the animal clinic for treatment. Out of 8 which suffered from serious traumatic pericarditis, 3 were treated and 5 were slaughtered. After clinical examination and diagnosis by magnet detector, 125 cattle (95 females and 27 males) were operated. About 85% foreign bodies were free, 10% were attached to the reticular wall and the remaining 5% had penetrated through the reticular wall. Three animals had diaphragmatic hernia. Foreign bodies such as nails, needles, wires, bones, glass particles, sharp irons, rubber, leather etc., were obtained from the forestomach of the animals. Routine post-operative care was taken.

Notes :—

Dr. Sukhpal Singh

Recto-omental fistula in a cow

Sukhpal Singh and Mirakhur, K. K.

*Department of Surgery & Radiology,
Punjab Agricultural University,
Ludhiana.*

A 7 months pregnant cow was brought to the PAU veterinary clinic with the history of no defaecation for last twelve days. Per rectal examination revealed a tear in the rectum just anterior to the pelvic brim which was communicating in a hollow cavity filled with loose dung and faecal balls. The expanse of the cavity was so deep that the whole arm insertion also could not palpate its anterior most part. The sequence of the events and outcome shall be discussed.

Successful surgical correction of a massive rectal tear associated with intestinal obstruction

Mirakhur, K. K. and Sukhpal Singh

A bullock was presented to the PAU veterinary clinic with the history of 5 day old intestinal obstruction. Per rectal examination revealed a rectal tear of about one feet length on the right ventro-lateral wall and a hard mass of intestines located anterior to pelvic brim. The rectal tear was sutured and the obstruction caused due to faecoliths at caeco-colic junction was removed through an incision on right paralumbar fossa. This was followed by antibiotic, corticosteroids and fluid therapy. The animal was discharged as cured on 9th post operative day with uneventful recovery.

Notes :—

Dr. S.N. Sharma

Clinical symptoms and surgical treatment of extra-reticular fibrous nodule in a buffalo

Sobti, V.K., Sukhpal Singh, Sharma, S.N. and Davood Sharifi

*Department of Surgery and Radiology,
Punjab Agricultural University, Ludhiana.*

A buffalo of about 10 years and weighing about 500 kg had the symptoms of anorexia and tympany for the last 15 days. Sudden drop in the milk yield was also noticed. Based upon history and symptoms, the diagnosis was made of foreign body syndrome or diaphragmatic hernia. Following rumenotomy, one sharp penetrating foreign body was removed. Palpation of the reticular surface revealed an extra-reticular hard mass having a hard tubular tract which was communicating with the reticulum. There was no diaphragmatic hernia.

The tympanitic and off-feed status of the animal persisted even one week after the rumenotomy. Hence, it was decided to undertake surgical excision of the fibrous mass.

Under halothane anaesthesia the reticulum was approached through a post-xiphoid incision. The hard fibrous mass (about 8 cm in diameter) along with a part of the reticular wall was resected. The animal showed uneventful recovery later on.

Notes:—

Dr. D. S. Chouhan

Presence of hair ball with irreducible umbilical hernia in a calf

Chouhan, D.S., Gahlot, T.K. and Choudhary, R.J.

*College of Veterinary and
Animal Sciences, Bikaner (Raj.)*

A female calf of two months age was presented with a history of severe abdominal enlargement and mild tympany. Clinical examination revealed the rectal temperature to be 103° F and irreducible umbilical hernia. Abdominal palpation revealed abnormal quantities of fluid in the rumen. Foul smelling and milky fluid was syphoned out by stomach tube. Animal was operated upon to reduce the hernia. Hernial contents were the congested abomasum and omentum. Abomasum was partly occluded by pasty ingesta. Palpation of rumen through enlarged hernial ring revealed presence of a tennis ball sized hair ball. It was removed by rumenotomy alongwith excessive ruminal fluid. Wounds were closed conventionally. Animal had uneventful recovery. Abdominal enlargement due to excessive accumulation of milk and water in rumen could be explained on the basis that cardia of rumen was occluded by hair ball and pyloric end was occluded by herniated abomasum which in combination becomes rare clinical entity.

Notes :—

Dr. S. S. Misra

Avascular ablation-A probable method of inducing regression of horn cancer in bullocks

Misra, S. S.

*Department of Surgery and Radiology,
C. S. A. Univ. of Agri. & Tech. Mathura*

In 4 bullocks suffering from II/III grade of horn cancer in the +10 age group avascular ischaemia and consequent atrophy was attempted by ligation of the maxillary artery. Radical surgery was, however, concurrently done to exenterate the gross cancerous tissue in all the animals. Regression of the cancerous growth was found to be conspicuous in three of them, the 4th animal died most probably due to excessive weakness. The onset of recurrence was also not grossly evident. It is felt that the technique could give a new concept in the surgical management of squamous cell carcinoma of the horn.

Management of corneal opacity, ulcers and trauma by subconjunctival injection of 'Placentrex'

Misra, S. S.

Subconjunctival administration of corticosteroids, ACTH, have been used with promising results. The author used the enzyme-hyaluronidase with predictable results. Of late it has been observed after clinical evaluation in 9 dogs, 3 horses, 4 bullocks and 3 buffaloes that subconjunctival injection (0.25 ml) of the aqueous extract of healthy human placenta containing at least 1 KAU of alkaline phosphatase per two ml (Placentrex-Albert-David), to be better effective and predictable in cases of corneal trauma, ulcers and varying grades of opacity of cornea in these animals. It is however, mentioned here that this is based on the clinical evaluation and needs further experimental study in induced models.

Notes:—

Dr. V. S. Panchbhai

Ulcerative keratitis in bovines

Panchbhai, V. S., Kulkarni, P. E., Karpe, A. G. and Pargaonkar, D. R.

*College of Veterinary & Animal Sciences,
Marathwada Agricultural University,
Parbhani.*

Clinical cases of ulcerative keratitis were treated by employing conservative treatment in domesticated animals. Cauterization and denudation with 1% solution of silver nitrate was more effective than weak iodine solution. Silver nitrate treated animals showed healing of ulcer and disappearance of opacity in 14 days and complete transparency was achieved in 30 days while iodine treated animals required 20 day for healing of ulcer and 35 days were required for complete recovery. Membranoplasty, common surgical intervention was greatly needed for healing of ulcer under the cover of membrana nictitans. Cultural examination of corneal swab in four cases revealed the presence of pseudomonas, streptococcus, staphylococcus, neisserie and gram negative bacilli.

Notes:—

Dr. T. K. Gahlot

Surgical drainage of middle ear abscess in a cow

Choudhary, R. J., Gahlot, T. K. and Chouhan, D. S.

*College of Veterinary and Animal
Sciences, Bikaner.*

A cross-bred Jersey cow was presented with a history of suppurative otitis media. Ear canal was flushed with 5% solution of hydrogen peroxide, and on bacterial sensitivity basis chloramphenicol ear drops were instilled. With a one week treatment the infection and discharge subsided but recurred after one month. This time sensitivity was with gentamycin. Appropriate treatment responded but condition recurred after one month. A surgical exploration of ear canal was carried out under local anaesthesia by dissecting the vertical ear canal. As dissection reached middle ear, an egg sized accumulation of caseated pus material was observed. The dry and inspissated pus was removed. Vertical canal was resected upto middle ear abscess and horizontal cartilage was sutured with skin. Canal was flushed with Betadine solution and Betadine ointment was infused in ear canal. Healing took four weeks.

Notes :—

Dr. S. M. Usturge

Onchocerca tumour in a bullock and its treatment

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

*Department of Surgery,
College of Veterinary & Animal Sciences,
MAU, Parbhani.*

A non-descript bullock of six years was presented to veterinary polyclinic, (Reg. No. 4235) with a history of large swelling at neck region since 2.5 years. The animal was having difficulty in respiration and swallowing with loss of health. X-ray examination revealed a hard tissue mass pressing upon trachea and oesophagus.

Surgical removal of the tumour was carried out under triflupromazine sedation and local infiltration analgesia. The 15 × 12.5 cm tumour weighed 850 gm. The histological examination of the tumour revealed onchocerca species parasite embedded in it. The animal made uneventful recovery.

Notes :—

Dr. S. S. Singh

An unusual case of epistaxis in a buffalo

Rama Kumar, V., Singh, S.S., Prasad, B. and Sharma, S.N.

*Department of Surgery & Radiology,
Punjab Agricultural University,
Ludhiana.*

A case of epistaxis in a buffalo is presented which did not respond to the routine treatment of coagulants, calcium therapy, adrenaline flushing etc. Blood smear examination revealed gram negative organisms in the cytoplasm of monocytes. The animal was treated successfully with trimethoprim and sulfadiazine combination. Examination of the blood smear and hemoculture should be considered to adopt specific therapy in such cases of epistaxis.

Notes :—

Dr. J.S. Mattu

Surgical repair of perineal laceration in a mare

Singh, S.S., Mattu, J.S. and Sharma, S.N.

*Department of Surgery & Radiology,
Punjab Agricultural University,
Ludhiana.*

A mare with third degree perineal laceration was operated under general anaesthesia. Underlying lateral vaginal wall was separated from skin and sutured by interrupted horizontal mattress sutures. The layer of sutures was further reinforced by a layer of simple continuous sutures and skin sutured by eversion sutures. Rectal wall was not sutured. Anal sphincter and skin at the anal opening were left unsutured. Case progressed well but on 10th post-operative day the mare was covered by a stallion resulting in rectovaginal fistula. The fistula was subsequently repaired in routine manner. The case recovered fully and was discharged. One step operation for perineal laceration is possible. The anal sphincter and skin at the anal opening should be left unsutured to avoid straining and post operative complications.

Notes :—

Dr. I.V. Mogha

Success and complication of ova/embryo collection and transfer

Mogha, I.V.

*Division of Experimental Medicine & Surgery,
Indian Veterinary Research Institute,
Izatnagar.*

Twelve adult Holstein Friesian heifers were divided equally in two groups. Superovulation and synchronization of oestrus were done with HCG and PMSG used in different concentration in all the animals. Fertilized eggs were collected surgically by double flushing technique from both the oviducts and uterine horns using TCM 199 solution. Fourteen fertilized eggs were collected and transferred in six synchronized recipients both by surgical and non-surgical methods using 3 animals in each group. During collection both the ovaries were examined clinically for their physiological status and egg shedding capacity. Antibiotics were injected intramuscularly to control the infection during and post collection and also post transplantation. Out of fourteen embryos transferred in six cow heifers only two cow heifers established pregnancy where as other four returned to normal oestrus. On comparative study, surgical collection and transfer of eggs/embryos is easy and more economical than non-surgical approach.

Notes :—

Dr. A. K. Saxena

Caesarean operation in large animals at farmers door

Saxena, A.K.

*Department of Animal Husbandry,
Government of Haryana.*

Notes :-

Dr. A.K. Ray

A case of a deviated fallopian tube due to ovarian adhesion in a cow treated by laparotomy

Ray, A.K., Bose, V.S.C., Nayak, S., Mitra, A.K. and Mohanty, B. N.

*Department of Surgery, Orissa College
of Veterinary Science & Animal Husbandry,
Bhubaneswar.*

A repeater heifer was examined per rectum and an adhesion of left ovary was felt obliterating the ovaro-tubal placement. The right ovary was unaffected but was rudimentary and nonfunctional. Though the cow was coming to heat regularly and was being inseminated but was not conceiving since two years. It was suggested that due to the adhesion of the left ovary the fallopian tube was displaced by the traction of the fibrous band.

Laparotomy was performed and the fibrous band was severed to relieve and align the deviated fallopian tube. After 4 months the cow had conceived.

Notes :—

Dr. J.S. Gahlawat

Traumatic avulsion of prescrotal penis in a buffalo calf

Gahlawat, J.S., Goel, N.D. and Jain, S.C.

*Civil Veterinary Hospital,
Matloda, (Karnal).*

Surgical correction of complete avulsion of prescrotal penis due to trauma inflicted by another adult buffalo is presented. Surgical correction was undertaken about twelve hours after the trauma. The calf was sedated with triflupromazine (50 mg) followed by high epidural analgesia (2% lignocaine). Right orchietomy was performed to facilitate the repositioning of the penis into the sheath. A polyethylene tubing slightly larger than the diameter of the penis was used to fix the otherwise slipping penis. Urination through the sheath was restored. The tube was removed after two weeks and the wounds healed uneventfully.

Notes :—

Dr. Raj Kishor Singh

Metabolic effects of surgical stress in buffaloes

Raj Kishor Singh and Amresh Kumar

*Deptt. of Surgery & Radiology,
G. B. Pant Univ. of Agril. & Tech.,
Pantnagar, (Nainital).*

Surgical stress in the form of surgical operations viz. rumenotomy alone or dehorning and rumenotomy caused a significant increase in blood urea nitrogen, creatinine, serum cholesterol, glucose and cortisol, levels and significant decrease in protein concentration from 24 hours to 5 days ($P \leq 0.05$). The changes in serum electrolytes included a slight increase in potassium and decrease in sodium and chloride levels. The magnitude of changes were greater in animals who had undergone rumenotomy and dehorning. The post-operative therapy comprising of rehydrat fluid, antibiotics, analgesic and cortisol in animals undergoing surgery significantly reduced the extent of these metabolic changes and brought about quick recovery in these animals.

Notes :—

Lead Paper

Dr. S. C. Pathak

Wild and Zoo Animal Surgery

Pathak, S. C. *M. V. Sc., Ph. D.*

*Deptt. of Surgery & Radiology,
College of Veterinary Sciences,
Assam Agricultural University, Khanapara.*

Notes :—

Dr. Wiswanathan

Enucleation of a cyst from the hind limb of an elephant

Wiswanathan, R.

*Assistant Rinderpest Officer,
Pyalon, Kollengock, Palghat, Kerala.*

A case report of an animal belonging to Sri Thiru Kanchan Kurissi Temple, Palghat has been described. The history, and surgical method for removal of a cyst from the lower third of right hind limb, near the fetlock will be discussed.

Notes :—

Soft palate abscess in camels

Gahlot, T. K.

*College of Veterinary and Animal Science,
Bikaner, Rajasthan.*

Soft palate of camel is inverted out and ballooned while roaring particularly in breeding season. At this time trauma to the ballooned structure can lead to abscessization and consequent dysphagia and dyspnoea. Surgical resection of this organ becomes essential. A report of twenty clinical cases is presented here with surgical treatment and postoperative management.

Surgical disorders of head and neck of camels

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

Camels suffer from a variety of congenital and acquired ailments of head and neck. These ailments include fractures of mandible, maxilla and cervical vertebrae, buccal and salivary fistula, stomatitis, elongated oral papillae, actinobacillosis and mycosis type lesions, parotiditis, necrosis of turbinates, lacerated nostrils, maggot wound of nostrils, paralysis of face and tongue, sebaceous and salivary cyst, dentigerous cyst, tooth anomaly, otitis media, abscess at supra-orbital fossa, eye injuries, eye carcinoma, conjunctivitis, lacerated eye lids etc. Attempted treatments are discussed.

Ophthalmic disorders of camels

Gahlot, T. K., Chouhan, D. S. and Choudhary, R. J.

Camels suffer from a variety of eye disorders due to congenital, acquired or nutritional etiological origin. These include xerophthalmia, corneal ulcer, corneal opacity, conjunctivitis, panophthalmia, carcinoma of eye, abscess at supraorbital fossa, conjunctival abscess, rupture of eye due to perforating wounds etc. Conventional treatments with ophthalmic ointments, surgical drainage, suturing and enucleation of eyeball were tried successfully and are reported.

(PTO)

Surgical disorders of thoracic and abdominal region in camels

Exlot, T. K., Chouhan, D. S., Choudhary, R. J. and Dudi, P. R.

Camels suffer from a variety of ailments related to thoracic and abdominal regions. These include saddle galls, wounds, sinuses, abscesses, hematomas, fractured lumbar transverse process, evisceration, abdominal hernias and urine necrosis of abdominal wall. Displacement of chest pad, hypertrophy, abscess, sinus and maggot wound of chest pad, burn of abdominal skin etc., Attempted treatments are discussed.

Surgical disorders of forelimb in camel

Exlot, T. K., Chouhan, D. S., Choudhary, R. J. and Dudi, P. R.

Camels often suffer from a variety of ailments leading to lameness in the forelimb. These ailments include elongated nails, avulsion of toe nail, fracture and osteomyelitis of first, second and third phalanx, sprain of fetlock, puncture foot, necrosis of third phalanx, burn, fistulous tract anterior to scapula, fracture of scapula, humerus, radius-ulna, metacarpal, contracted knee, laceration of axilla & cannon region, subluxation and strain of shoulder, lymphangitis, knocked elbow, fibroma and abscess formation etc. Surgical treatments derived were tried successfully on many of these affections. Long bone fractures repair proved futile in many cases.

Notes :—

and while the hock kept flexed and dropped. During progression, when the weight was borne by the limb, the calcaneus further lowered to just a few inches above the ground with an excessive angle at the hock. Although camel died subsequently, the adopted line of treatment is discussed.

Caesareotomy in the camel : indications and complications

Author: N. B. Chouhan, D. S., Choudhary, R. J. and Chowdhary B. R.

Caesarean sections were performed in the five camels (*Camelus dromedarius*). The indications are described. The complications encountered during and after operations are discussed and compared with other species.

Notes:—

Ganglion in a camel

Purohit, N. R., Chouhan, D. S., and Choudhary, R. J.

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A case of ganglion or synovial hernia near the pastern region of the forelimb of a camel is discussed. The ganglion was approximately 8 months old, about egg size, soft and clearly defined. Apparently there was no lameness but area was tender. Paracentesis revealed thick viscous fluid. Under volar block the diseased tissue was completely excised. The wound edges were sutured and pressure bandage was applied for two weeks. The healing was uneventful with no recurrence.

Thoroughpin in camels

Purohit, N. R., Chouhan, D. S. and Choudhary, R. J.

Unilateral and bilateral thoroughpins were recorded in three camels. Thoroughpin swellings varied from a small swelling to a large swelling involving most of the tarsal sheath. The animals were moving with a stiff gait and exhibiting pain during sitting down and getting up.

After withdrawing the fluid aseptically from the swellings, corticosteroid along with the antibiotic and local anaesthetic were injected into the cavity. The treatment was repeated five times at the interval of 3-4 days. Only two camels responded. Therefore in the third case, after draining the fluid, Glycerine and Lugol's solution in the ratio of 3:1 was injected after 10 days. Small swellings still persisted.

Gastrocnemius muscle rupture in a camel

Purohit, N. R., Chouhan, D. S. and Dudi, P. R.

Unilateral rupture of the gastrocnemius muscle was recorded in camel. There was a large, firm and painful swelling on the posterior aspect of the right leg region. The animal was unable to maintain normal support at the right hock. In the standing position, the right stifle and hip were fully exten-

(PTO)

Dr. D. M. Tatkod

Dystocia in a camel and its surgical treatment

Tatkod, D. M., Sharma, V. K., Patel, P. R. and Dugwekar, Y. G.

*Department of Surgery and Gynaecology,
Gujarat Agricultural University,
Sardar Krushinagar.*

Dystocia in a 6 year old camel due to narrow pelvic cavity formed consequent to a pelvic fracture more than a year ago, was relieved by caesarean section. A 14 inch long incision was given parallel to the right milk vein after sedation (triflupromazine 200 mg) and local infiltration analgesia. Uterus was incised and a dead foetus was removed alongwith placental membranes and foetal fluids. The technique, per and post operative management is discussed.

Notes :—

Dr. P. K. Joshi

Screening of urine samples of bullocks for inhibitors of crystallization and study of efficacy of Cystone tablets in the prevention of urinary calculi

Dr. P. K. Patil, Deepak, B., Sukumaran, K., Parsania, R. R. and Patel, M. R.

*Gujarat Veterinary College,
Anand.*

The present field trial was conducted in the animals from villages where incidence of urolithiasis is high. Urine samples collected from 100 bullocks were subjected to test for presence or absence of inhibitors of crystallization of calcium oxalate. Out of these, crystallization on glass fibre was noticed in 17 bullocks within three hours which indicated that these animals were prone to stone formation. A significant increase in calcium levels was evident in the urine samples of stone-formers. Magnesium and potassium did not show any significant variation.

These potential stone-former were given 20 tablets of Cystone orally, daily for 15 days.

After treatment with Cystone tablets, it was found that all cases were negative during screening at 24 hours after completion of treatment.

It was concluded that continued treatment with Cystone may help in the prevention of urolithiasis.

Notes :—

Dr. S. B. Thakur

Dorsal retroperitoneal approach to kidneys in bovines

Thakur, S. B., Marudwar, S. S., Dhakate, M. S., Narkhede, M. D., Kulkarni, P. E.

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Nagpur.*

Dorsal retroperitoneal approach to either of the kidney was found more convenient as compared to other approaches. By resecting the transverse process of first lumbar vertebra the kidney could be approached directly, and exteriorized easily without giving traction.

Notes :—

Dr. M. S. Dewan Muthu Md.

Repair of rupture of bladder and persistent urachus in a heifer calf

Dewan Muthu Mohamed, M. S., Sureshkumar, R., Godfrey David and
Sasubramanian, N. N.

*Madras Veterinary College,
Madras.*

A cross bred heifer calf of 4 day, was brought with a distended abdomen and history of not passing urine. Tapping was performed to remove urine. Conray 60 was used for cystography. Rupture of bladder was diagnosed. Laparotomy was performed on the linea alba in front of the mammary gland, and a catheter was introduced through bladder and fixed in the vulva. The animal was passing urine through the catheter. After a week cystography was performed again. A streak suggestive of persistent urachus was noticed which was closed by suturing after laparotomy. An abscess at the umbilical region was treated with tincture iodine daily. Animal was passing urine through the normal passage after treatment.

Notes :—

Dr. D.K. Sharma

Clinical management of retention of urine in bullocks

Sharma, D. K., Behl, S. M., Prem Singh and Chandna, I. S.

*Deptt. of Veterinary Clinics,
Haryana Agricultural University, Hisar.*

A survey of 180 cases of retention of urine in bullocks has been conducted. It was observed that prominent and most usual cause of retention of urine in bullocks was obstructive urolithiasis. Apart from urolithiasis retention of urine was observed due to urethritis, atony of bladder, rupture of urethra and accumulation of urine in prepuce. In most of the cases post scrotal urethrotomy at the level of sigmoid flexor could help to remove the obstruction and catheterise the urethra. Bladder repair was attempted from left laparotomy in flank region. Post operative complications observed were atony of bladder, subsequent blockage of catheter, urethral fistula and uraemia. The operative survival rate was 60% depending upon the tone of bladder and status of uraemia.

Notes :—

Dr. I. V. Mogha

Cysto-colonic urinary diversion in sheep: an experimental study

Mogha, I. V., Singh, G. R., Maiti, S. K. and Paliwal, O. P.

*Division of Experimental Medicine &
Surgery, I.V.R.I., Izatnagar.*

In the present study cysto-colonic anastomosis was performed, as an alternative procedure to urinary bladder substitution, in eight clinically healthy sheep of either sex. The urinary bladder was excised from the neck and trigonum of urinary bladder having ureter openings was then anastomosed with the distal part of colon. The animals were evaluated on the basis of clinical, biochemical and histopathological observations.

Clinically, the animals appeared normal except that animals passed liquid faeces. The mean preoperative values for BUN and creatinine were 35.0 and 0.47 mg % respectively. A gradual increase in these values were recorded postoperatively reaching to the maximum at day 12. At this stage mean values for BUN and creatinine were 49.16 and 1.0 mg% respectively. Thereafter a gradual decline in BUN and creatinine values were recorded but they never reached to the normal during the period of observation. The histopathological examination showed area of necrosis, haemorrhage and infiltration of inflammatory cells at the early stages of observation. Thereafter these changes gradually reduced in intensity and perfect union between graft urinary bladder and distal colon with negligible inflammatory changes were recorded.

Notes:—

Preliminary observations on the urinary diversion by trigonal-colonic and trigonal-proctal anastomosis in goats

Maiti, S.K.

Division of Experimental Medicine and Surgery, Indian Veterinary Research Institute, Izatnagar, U P.

In group-I (5 goats) trigonovesicae alongwith intact ureters was resected and anastomosed with the distal segment of the colon. In group-II (5 goats) trigonovesicae was anastomosed with rectum. The animals were evaluated and compared on the basis of clinical, duration of survival and gross observation of the anastomotic site, kidneys and ureters at different intervals.

Clinically, all the animals behaved more or less in same manner. They passed semi-liquid faeces, however in animals of group-I the faeces were completely mixed with urine whereas in group-II the solid faecal pellets appeared alongwith urine. The animals of group-II survived comparatively longer then those of group-I. All the animals showed typical signs of uraemia before their death. The gross observation showed the complications like adhesions of the anastomotic site with the adjacent organs, stenosis, torsion, and leakage in two animals. The ureters appeared invariably dilated and kidneys showed patcheal haemorrhage on cortical area.

The animals were also subjected for the estimation of acid-base parameters, biochemical, pyelographic and electrocardiographic examination. The findings of these parameters are yet to be concluded.

Notes :—

Dr. S. N. Gogoi

Surgical approach for gid in goat

Barua, J. C., Deka, K. N., Lohan, D. K., Gogoi, S. N. and Pathak, S. C.

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Three craniotomy techniques viz. 'V' shaped skin flap with circular parietal craniectomy without transplantation, semicircular skin flap with circular parietal craniectomy without transplantation and modified 'H' shaped skin flap with parietal craniectomy and autotransplantation were attempted to evolve a suitable surgical approach for gid in goat. The modified 'H' shaped skin flap with parietal craniectomy technique appeared to be more efficient than the other two techniques.

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