

FIFTH SYMPOSIUM

indian society for veterinary surgery



SOUVENIR

College of Veterinary Science, Tirupati

A. P. AGRICULTURAL UNIVERSITY

Smith
23/2/82.

27 - 29th November 1981

FIFTH SYMPOSIUM

Indian Society for Veterinary Surgery



souvenir

COLLEGE OF VETERINARY SCIENCE
TIRUPATI
A. P. AGRICULTURAL UNIVERSITY

27 - 29th November 1981



INDIAN SOCIETY FOR VETERINARY SURGERY

Executive Council 1980 - 81

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Messages

GOVERNOR
ANDHRA PRADESH

RAJ BHAVAN
HYDERABAD-500041
3rd October, 1981

I am happy to learn that the Fifth Symposium of the Indian Society for Veterinary Surgery is going to be held at Tirupathi from 27th to 29th November, 1981.

Keeping in view the requirements for the development of Animal Husbandry, the subject of Veterinary Surgery has a great relevance to the Indian economy and other allied fields. The meeting of Surgeons and experts in this branch, I am sure, will not only pave the way for solving many issues but also in keeping them abreast of the latest developments in science.

I wish the Symposium every success.

(Sd.) K.C. ABRAHAM

MINISTER OF STATE FOR AGRICULTURE &

NEW DELHI-110001

RURAL RECONSTRUCTION

10th November, 1981

GOVERNMENT OF INDIA

NEW DELHI

I am pleased to learn that the Indian Society for Veterinary Surgery is holding its Fifth Symposium shortly at Tirupati. Our veterinarians have assimilated the advanced techniques in veterinary surgery and have been putting them into practice through various surgical exercises. These techniques not only save the life of the animal from surgical disorders but also enable to revitalise the production potential and draught power of livestock. I wish that our veterinary surgeons should adopt the emerging techniques like embryo transfer for the benefit of the livestock economy as a whole. It should thus be our constant endeavour to enhance our knowledge and expertise in these fields. Conferences of the present nature would, I am confident, further enthuse our scientists to cover fresh pastures so as to enrich veterinary surgery in no uncertain a manner. Therefore, I fervently hope that this venture would be endowed with divine blessings of Lord Venkateswara for its complete success.

(Sd.) R.V. SWAMINATHAN

MADRAS RACES 1981-82

FIXTURES

Sunday	..	1st November	1981	
Sunday	..	8th November	1981	
Saturday	..	15th November	1981	
Saturday	..	21st November	1981	
Sunday	..	29th November	1981	
Sunday	..	6th December	1981	(1000 Guineas)
Friday	..	11th December	1981	
Sunday	..	20th December	1981	(2000 Guineas)
Friday	..	25th December	1981	
Sunday	..	27th December	1981	
Friday	..	1st January	1982	(Oaks)
Saturday	..	2nd January	1982	
Thursday	..	7th January	1982	
Thursday	..	14th January	1982	(Derby)
Friday	..	15th January	1982	
Saturday	..	23rd January	1982	
Tuesday	..	26th January	1982	
Sunday	..	31st January	1982	
Sunday	..	7th February	1982	(St. Leger)
Friday	..	12th February	1982	
Sunday	..	21st February	1982	
Sunday	..	28th February	1982	
Thursday	..	4th March	1982	
Saturday	..	13th March	1982	
Sunday	..	14th March	1982	
Friday	..	19th March	1982	
Sunday	..	21st March	1982	
Saturday	..	27th March	1982	
Sunday	..	28th March	1982	
Wednesday	..	31st March	1982	

MADRAS AUCTION SALE

11th, 12th & 13th January, 1982.

MEMBER
PLANNING COMMISSION

YOJANA BHAVAN

NEW DELHI-110001

22nd September, 1981

I thank you very much for your kind letter dated 18th September, 1981. I am very happy to learn that you are holding the Fifth Symposium of the Indian Society for Veterinary Surgery at Tirupati from 27th to 29th November, 1981. I wish the Symposium much success.

With kind regards,

Yours sincerely,

(Sd.) M.S. SWAMINATHAN

AND

NEW DELHI-110001

SECRETARY TO THE GOVERNMENT OF INDIA

6th October, 1981

Thank you for your letter of 18th September, 1981. I am glad to learn that the Indian Society of Veterinary Surgery is holding the Fifth Symposium at the College of Veterinary Science, Tirupati from November 27 to 29, 1981. I am also pleased to know that the veterinary surgeons from Veterinary Colleges and State Departments of Animal Husbandry in India and abroad will be participating in the Conference. I wish to convey my sincerest good wishes for a very successful symposium. This would be a good occasion to review present status of research in veterinary surgery in the country as well as to identify research gaps in this area. We in the Council would look forward very keenly to the recommendations of the Symposium.

With kind regards,

Yours sincerely,

(Sd.) O.P. GAUTAM

SECRETARY-TREASURER
WORLD VETERINARY ASSOCIATION

SECRETARIAT
6 RUE AMAT
1202 GENEVA, SWITZERLAND
5th November, 1981

I have pleasure in sending you the best wishes of the WVA for the success of the 5th Symposium of the Indian Society for Veterinary Surgery to be held at the College of Veterinary Science at Tirupathi (A.P.) from 27th to 29th November 1981.

With best regards,

Yours sincerely,

(Sd.) DR. M. LEUENBERGER

* * *

DEAN
FACULTY OF VETERINARY SCIENCE
ANDHRA PRADESH AGRICULTURAL UNIVERSITY

RAJENDRANAGAR
HYDERABAD-500030
11th November, 1981

I am glad to note that the Indian Society of Veterinary Surgery is organising its conference from 27th to 29th November, 1981 at College of Veterinary Science (A.P.A.U.) Tirupati. The prosperity of rural India and the stability to Agricultural economy of our country depends to a great extent on the development of Animal Husbandry and allied activities for supplementing the resources from Agriculture. In this context, it is hoped that the deliberations to be made in the conference of Scientists in the field of Veterinary Surgery will be not only fruitful but useful. I wish the symposium a success.

(Sd.) DR. C.V. REDDY

4th October, 1981

I am very glad to know that the Fifth Symposium of the Indian Society for Veterinary Surgeons is going to be held at the College of Veterinary Science, Tirupathi in November, 1981.

There is need for quick progress in Veterinary Medicine and Surgery along with improvement in Animal Production. The promotion of all sciences are essential to render prompt and rational Veterinary Aid to the domestic livestock. The advancement in this technology has to be trickled down fast to the field Veterinarian to adopt it to save the valuable livestock.

Improved equipment and tools of the suitable type are to be produced and provided to help the veterinary surgeons to exhibit their skills. The country may need some bio-engineers to assist in production of suitable equipment in this field of speciality.

I am of the opinion that Veterinary Surgery could improve much more faster if the skills from other areas of specialisation are also pooled and exploited. I will be happy if some thought is provoked in this conference of expert Veterinary Surgeons.

I wish that many Veterinary Surgeons will participate in this conference and make it a grand success.

(Sd.) V. NARAYANA RAO

FOREWORD

I deem it a great privilege to write this foreword to facilitate tracing the history, outlining the objectives and the work done so far by the Indian Society for Veterinary Surgery for the benefit of the expanding membership of the Society.

The idea to form the Society was mooted at the first symposium "On recent research trends in large animal surgery" held at Haryana Agricultural University, Hissar. A committee was nominated, headed by Dr. R.P.S. Tyagi to draft the constitution of the society.

The Indian Society for Veterinary Surgery was launched at the Second Symposium held at the College of Veterinary Science, G.B. Pant Agricultural University, Pantnagar. The constitution and the Bylaws proposed by Dr. R.P.S. Tyagi were adopted.

The main objectives of the society are to provide a forum for Veterinary Surgeons to promote research in fields of Surgery, to organise conference and symposia, and to publish a journal for the dissemination of recent advances in Surgery. Further the Society intends to participate in the development of the curricula for the under-graduate and Post-graduate students.

With the implementation of Livestock Improvement schemes to augment the milk production, the prices of the cattle have tremendously escalated calling for advance surgical interventions. Thus, a need has arisen for inclusion of advanced surgical interventions into the under-graduate curriculum.

In furtherance of the above objectives the Indian Society for Veterinary Surgery has developed the curriculum for effective surgical programme for contributing to the increased animal productivity. A report on "The necessity of minimum uniform infrastructure for department of Veterinary Surgery and Radiology" was also prepared by a committee nominated for that purpose. Efforts should be made to pursue the implementation of the recommendations containing in the above two reports through the Indian Council of Agricultural Research, New Delhi.

The Society should in near future envisage the publication of a Text Book in the field of Surgery, Radiology, and Anaesthesiology, relevant to the Indian Livestock. Effective teaching in the field of Veterinary Surgery is not possible due to lack of audio-visual aids. It is not possible for the individual teaching institutions to prepare such teaching aids, hence the

members of the society may pool the audio-visual aids available with them for duplication to facilitate being purchased by the teaching institutions. Similarly preparation and publication of practical guides for operative surgery, anaesthesiology and Radiology is the need of the day.

A short coming that could be prescribed in the major Veterinary Institutions catering to the needs of Livestock owners is the lack of facilities for performing abdominal surgery both in large and small animals. The Society should impress on the Directors of the Departments of Animal Husbandry to provide suitable facilities to enable performing advanced surgery. Proper designs for construction of suitable surgical blocks at important Veterinary Hospitals are to be evolved and the obsolete instruments replaced with modern instruments. The obsolete instruments may be collected by the society to initiate starting of a museum.

Presently the operation tables for large animal surgery and the anaesthetic apparatus need to be modified and standardised. The projects may be undertaken in collaboration with Industrial units like Indian Oxygen Co., Ltd. Due to import restriction, the standard Veterinary Surgical instruments are no longer easily procurable. Efforts are to be made to develop the necessary design and manufacturing technology for special Veterinary Surgical Instruments in collaboration with leading manufacturers of Surgical Instruments.

It is gratifying to note, that valuable scientific papers were presented at the symposia held at Hissar, Pantnagar, Madras, and Ranchi. I ardently hope that the quality of the research papers to be presented at this symposium of the highest order, contributing to the advancement of Veterinary Surgery.

It is my duty to thank the office bearers of the present and past who have strived hard to perpetuate the activities of the Society. I will be failing in my duty if I do not acknowledge the financial help received from the advertisers which made possible the printing of the *Souvenir*. I also extend my thanks to the Executive Officer of T.T.D. and the Manager and Workers of T.T.D. Press who made it possible to bring out the *Souvenir* in a short time. My thanks are due to the authorities of A.P. Agricultural University who have consented the symposium of Indian Society for Veterinary Surgery.

This conference is historic in the respect that is being held at a very important religious place in India. Before I conclude, I pray the Almighty to shower His benevolence for the progress of this Society.

(Sd.) P.E. KULKARNI

President, Indian Society for Veterinary Surgery.

Small Animal Surgery

COMPARATIVE EVALUATION OF TECHNIQUES OF TRACHEAL ANASTOMOSIS IN DOGS.

A.C. VARSHNEY and AMRESH KUMAR,
*College of Veterinary Sciences,
G.B. Pant University of Agri. Tech.
Pantnagar (Nainital) U.P.*

Tracheal anastomosis was performed in 12 dogs using invagination technique (4), resection of half of tracheal cartilage leaving the mucosa and uniting by simple interrupted sutures (4), and resection at the interannular ligament and uniting by simple interrupted sutures (4). Two tracheal rings were removed in all the cases and the anastomosis was performed using chromic catgut size 2. In invagination technique caudal end of the trachea was telescoped into the cranial end and horizontal mattress sutures were applied through the overlapped cartilage. Tracheal healing was assessed macroscopically, radiographically

and by histological evaluation on 15 th day and one month after operation. Healing occurred satisfactorily in all the cases although a significant narrowing of tracheal orifice was observed in invagination technique of anastomosis. Resection of tracheal cartilage and leaving the tracheal mucosa proved to be a better technique in terms of tracheal apposition and healing. The placement of retention sutures on 2nd cartilage from the resected end on either side of resection facilitated apposition of resected ends and also reduced tension on suture line at the time of suturing.

ILEAL PEDICLE GRAFTING OVER URINARY BLADDER (AN EXPERIMENTAL STUDY)

B. R. LEKURWALE, M.D. NARKHEDE and K.G. AVACHAT
*Veterinary Polyclinic,
NASIK, MAHARASHTRA.*

An experimental study on use of ileal pedicle graft for reconstruction of capacity of urinary bladder was under taken on 16 dogs ranging 8 months to 15 months of age. The animals were divided into two groups of 8 dogs each. In group A, ileal pedicle graft was used with intact mucosa and in group B without

mucosa. All required physiological parameters were studied preoperatively and postoperatively.

It was observed clinically and radiographically that use of ileal pedicle graft for the reconstruction of the capacity of urinary bladder can be tried successfully.

AN UNUSUAL CASE OF CYSTIC CALCULI IN A BITCH

N.N. BALASUBRAMANIAN, GODFREY DAVID
ARCHIBALD DAVID, AND S. THILAGAR

Madras Veterinary College, Tamil Nadu.

A six year old Lhasa-Apso bitch was admitted with a history of occasional haematuria and incontinence and debility of six months duration. Palpation revealed hard mass in front of Pelvis which was confirmed by skiagrams as a case of multiple cystic calculi. Fluid and Electrolyte therapy was given for

few days. Cystotomy was performed through a prepubic mid-line incision under epidural anaesthesia and thiopentone narcosis. Nine stones weighing about 66.5gms. were removed and the wound was closed by the standard technique. The dog made an unevenful recovery.

RUPTURE OF TRACHEA IN A DOG-A CASE REPORT

N. N. BALASUBRAMANIAN,
ARCHIBALD DAVID & GODFREY DAVID

A seven year old non-descript male dog with severe subcutaneous emphysema of three day duration was admitted in the college Clinic. The case was diagnosed as rupture of trachea

from the history and later was confirmed by skiagram. The dog recovered uneventfully after successful tracheorrhaphy under general anaesthesia.

SPERMATIC CORD TORSION IN AN INGUINAL CRYPTORCHID DOG

N. N. BALASUBRAMANIAN,
ARCHIBALD DAVID & M. G. RICHARD.

An eight year old Pommeranian dog with a painful swelling on the left inguinal region was admitted. On examination the left inguinal cryptorchid testis was very much enlarged

and painful. The spermatic cord had undergone nearly 360° torsion near the ring. Orchiectomy was performed under general anaesthesia.

AN IMPROVED TECHNIQUE FOR THE MANAGEMENT OF AVULSION OF THE EYEBALL IN CANINES

C. L. SRINIVAS, S. S. MISRA and S. J. ANGELO

*Department of Surgery and Radiology,
College of Veterinary Science and Animal Husbandry, Mathura U.P.*

Avulsion of the eye ball is a commonly encountered traumatic injury in almost all breeds of dogs. In Pomeranians and Apsos, however, the complaint is frequently reported. Reposition of the avulsed eye ball along with the adnexa into the orbit is the only remedial measure. Retention of the repositioned eye ball has, however, been occasionally problematic leading to recurrence and subsequently necessitating exenteration.

In an improvised technique, periorbital-ocular-transfixation at two places viz. 11-1'o' clock position dorsally and 5-7 o' clock position ventrally, using 1/0 or 2/0 chromic catgut has been found to be committal. Medio-lateral canthotomy is done as usual under general anaesthesia. Adequate meticulous cleaning and disinfection of the avulsed eye ball, its adnexa

and the orbital cavity are mandatory so also hydration of the structures prior to reposition. A transfixed 'U' suture is all that necessary, involving the ocular adnexa and periorbital using a fine curved atraumatic needle mounted a mosquito haemostat. Canthorrhaphy is subsequently done followed by application of a retention stay stitch opposing the two lids using silk suturing material. A protective eye bandage is applied and application of antibiotic ointments externally and antibiotics parenterally is continued for 5-7 days. The palpebral stay stitch is removed on the 3rd or 4th day and ocular eye ointments are indicated twice daily for 7 days. Canthotomy sutures are removed appropriately. A cent percent uneventful healing was observed in five such cases.

EFFECT OF FEMORAL ARTERIAL OCCULSION ON NEUROMUSCULAR FUNCTION OF THE DOGS

P.K. SAMANTA, J. KOLAY, S. BHATTACHARYA AND B. KOLAY

*Electrophysiology Unit, Dept. of Physiology,
University of Calcutta, West Bengal.*

In twelve sexually matured mongrel dogs of both sexes the twitch response of the hind limb to the stimulation of the peroneal nerve were monitored quantitatively before and after femoral arterial occlusion. The experiments were designed for electrophysiologic studies to examine the motor function of

the hind limb of the dog before and after such occlusion for a period of about two weeks. The results of the present study indicates that ligation of the femoral artery produces insignificant alteration in neuromuscular functional status.

Anaesthesiology

NON-BARBITURATE ANAESTHESIA IN LABORATORY ANIMALS

RAKESH KUMAR AND AMRESH KUMAR

*Dept. of Surgery and Radiology,
College of Veterinary Sciences,
Pantnagar (Nainital) U.P.*

Ketamine hydrochloride, a non-barbiturate anaesthesia was administered intramuscularly @ 50 mg/kg body wt. with and without pre-administration of xylazine @ 5 mg/kg body wt. in 12 rabbits. In 24 rats ketamine was given @ 44 mg/kg body wt. with and without preadministration of chlorpromazine hydrochloride (2 mg/kg) triflupromazine hydrochloride (2 mg/kg) and xylazine (@ 5 mg/kg). Xylazine premedication in rabbits and in rats significantly increased the duration and extent of anaesthesia and muscular relaxation. Palpebral, corneal and pedal reflexes were maintained in rats given ketamine alone. These reflexes diminished slightly in chlorpromazine and triflupromazine preadministered groups of rats. However, a moderate depression

was noted in xylazine premedicated rats. Ketamine alone produced a slight increase in heart rate, decrease in respiration and rectal temperature. A catalepsy was observed in rats given ketamine alone. Heart rate, respiration rate, and rectal temperature slightly decreased in all the groups of animals but were within the physiological limits. Mean arterial blood pressure and E.K.G. were not significantly altered after xylazine and ketamine administration in rabbits. Splenectomy in rats and exteriorisation of intestine in rabbits for experimental studies were successfully performed under these anaesthetic combinations. Recovery was uneventful in all the animals and no complication was observed.

PROPANIDID (EPONTOL) ANAESTHESIA IN DOGS WITH DIFFERENT PREMEDICANTS AND ITS EFFECT ON CERTAIN PHYSICAL, HAEMATOLOGICAL AND BIOCHEMICAL PARAMETERS

B.M. JANI, C.R. PATEL, G.A. PRABHU AND M.N. MANNARI

*Department of Surgery and Radiology,
Gujarat Veterinary College, Anand, Gujarat.*

Propanidid (Epontol) an intravenous anaesthetic of eugenol derivative was evaluated in 12 mongrel dogs with three different pre-anaesthetic combinations viz., Atropine—Diazepam; Atropine—Chlorpromazine; and Atropine—Triflupromazine. Induction of anaesthesia, reflexes, duration and recovery time were recorded. Heart rate, respiratory rate and rectal temperature were recorded before and during maximal depth of anaesthesia. In the group where diazepam was used as a

tranquilizer, anaesthesia lasted from 25 to 45 minutes compared to 11 to 15 minutes in the groups where chlorpromazine and triflupromazine were used as tranquilizers. In the group where diazepam was used, various surgical procedures like gastrotomy, cystotomy, tubectomy, castration were performed. In this group TEC, TLC, DLC, PCV, Hb%, S-AKP, S-LDH, S-GOT, S-GPT, BUN and Blood Glucose values were also studied before, during and 48 hours after anaesthesia.

EFFECT OF A COMBINATION OF CHLORAL HYDRATE AND THIOPENTAL SODIUM ON HAEMODYNAMICS, ACIDBASE AND BLOOD GASES OF BUFFALO CALVES

J.M. NIGAM, JIT SINGH, P.K. PESHIN AND A.P. SINGH

*Department of Vety. Surgery and Radiology, College of Veterinary Sciences,
Haryana Agricultural University, Hissar (Haryana).*

Comprehensive studies on the effect of intravenous anaesthetic agents in buffaloes are limited and marked species variations in response to the effect of CNS depressant drugs in this species have been reported. A previously reported combination of chloral hydrate and thiopental sodium was observed to have many side effects. This study was, therefore, conducted to try another combination of these drugs to offset the side effects observed previously.

Administration of chloral-hydrate at the dose rate of 50 mg/kg was followed by "to effect" thiopental sodium, at an interval of 10 minutes in six buffalo calves. The mean

dose of thiopental sodium in these buffalo calves was 1 gm/185 kg. This combination produced tachycardia, hypotension and a fall in central venous pressure but all these changes were statistically non-significant. The EEG studies demonstrated that the duration of anaesthesia was of 30-45 minutes. There was slight respiratory acidosis with tendency towards metabolic alkalosis. Arterial hypoxemia was significant only at 5 minutes interval due to fall in pO_2 and desaturation of haemoglobin. There was a decrease in the oxygen utilization by the tissues but the values remained within normal range. The observations demonstrated that this combination was safe for buffaloes and can be used routinely.

EXPERIMENTAL STUDIES ON THE EFFECT OF GALLAMINE IN BOVINE.

J. SAIKIA, P.K. PESHIN AND J.M. NIGAM

*Department of Vety. Surgery and Radiology
College of Vety. Sciences,
H.A.U., Hissar, Haryana.*

Experiments were conducted in buffalo calves of 1-1½ years of age. Dose rate of 0.2 mg, 0.5 mg, 0.75 mg and 1 mg per Kg. body weight were injected intravenously in the different groups.

On the basis of clinical observations on the quality of muscle relaxation dose rate of 0.75 mg/Kg was found suitable. This dose rate does not relax respiratory muscles.

Acid base studies does not show much alteration except there is hypercapnea at

10 minutes interval which is of purely respiratory origin. Heart rate and blood pressure initially rose and then gradually fell. Central venous pressure showed significant decrease at 45 minutes interval. There was no significant changes in electrocardiogram except in few animals which showed occasional A.V. nodal conduction abnormality. Electroencephalographic patterns were unchanged except increase in voltage. There were no significant changes in acid base status of the cerebrospinal fluid.

EVALUATION OF GLYCERYL GUAIACOLATE IN COMBINATION WITH THIOPENTAL SODIUM AS GENERAL ANAESTHESIA IN BUFFALOES

K. B. P. AGRAWAL, B. PRASAD

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

A combination of 5% Glyceryl Guaiacolate in 5% dextrose with 0.2% thiopental sodium was evaluated as general anaesthesia in 10 buffalo calves.

There was a significant fall in rectal temperature, MAP & CVP and an increase in heart rate. These changes were maximum after induction stage. There was no change in ECG patterns except effect of tachycardia. Respiratory rate increased with a significant decrease in tidal volume upto 30 minutes only. But there was no change in MRV. The variations in arterial pH, P_{CO_2} , arterial bicarbonate, HCO_3^- ; H_2CO_3 and base excess were statistically

non-significant. Arterial hypoxaemia, reduction in arterial oxygen saturation, CaO_2 were significant after induction only. CaO_2-CvO_2 manifested variable pattern at different time intervals but it was lower than base values and was statistically significant only upto 15 mts. O.E.R. manifested significant decrease upto 15 minutes with a subsequent increase after 60 minutes. The rise in blood glucose upto one hour and hypokalemia upto 15 minutes were significant. Sodium and chloride levels did not vary considerably. Histomorphological observations revealed slight degenerative changes in liver and kidney.

PROPANIDID AND KETAMINE ANAESTHESIA IN DOGS.

P.K. PESHIN, KULDIP SINGH, D.K. MURTHY, AND J.M. NIGAM

*Department of Surgery and Radiology, College of Veterinary Sciences,
H.A.U., Hissar, Haryana.*

Eighteen Eagle dogs were used for the study. Dogs were premedicated with atropine (0.04 mg/kg. B.W. S/c) and triflupromazine (0.5 mg/kg B.W. I/m). Anaesthesia was induced with propanidid (50 mg/kg. B.W. I/v) and fifteen minutes later ketamine (5 mg/kg B.W.) was given intramuscularly. Sedative studies in 10 dogs revealed that propanidid anaesthesia is qualitatively prolonged by ketamine. Head rightening reflex is returned within 51.33 minutes, dogs stand with ataxia by 71.25

minutes and complete recovery is observed 91.00 minutes after. Electroencephalography reveals high voltage low frequency complex during period of anaesthesia. Ketamine to some extent antagonises the hypotensive effect of propanidid. Ketamine does not significantly alter acid base balance, blood gases but an over all increase in oxygen saturation is observed. Detailed electrocardiography, acid base balance, oxygen transport at tissue level is described.

EFFICACY OF BUPIVACAINE AS SPINAL ANAESTHETIC IN DOGS.

S. S. GILL, S.K. PANDEY AND V.P. CHANDRAPURIA
College of Veterinary Science and Animal Husbandry, Jabalpur.

The experiment was carried out in ten healthy mongrel Dogs weighing between 5 to 10 Kg. body weight. Bupivacaine (0.5%) was injected in 5 different doses *i.e.*, 0.5 mg/kg (group I), 1 mg/kg (group II), 1.5 mg/kg (group III) 2.0 mg/kg (group IV) and 2.5 mg/kg body weight (group V) in the same animal with an interval of 5 days.

The desensitization in group I was limited to tail, perinium and sacral region. In group II the area of desensitization was extended to tail, perinium, sacral region and the inner thigh. The animals of group II were unable to stand on their legs although paedal reflexes occasionally persisted. The tail and anal reflexes returned by 30 minutes in group I while desensitization in group II persisted upto 60 minutes in tail and 57 minutes in

anus. In group III, IV and V the area of desensitization extended to thigh, lumbar and abdomen along with complete loss of paedal reflexes. In group III, IV and V the paedal reflexes were lost within 8 minutes, 7 minutes and 5 minutes, respectively. The average duration of anaesthesia was of 43 minutes in group III while in group IV and V it was for 69 minutes and 87 minutes, respectively. The animals were able to support on their legs in 101 minutes in group III, 221 minutes in group IV and 227 minutes in group V. The animals started walking comfortably within 189 minutes, 305 minutes and 312 minutes in group III, IV and V, respectively. The clinical studies indicated that in no case the dose of bupivacaine exceeds more than 5 ml (0.5%) even in the animal weighing upto 25 kg body weight.

EFFECT OF XYLAZINE (ROMPUN) ON ACID-BASE AND BLOOD GASES OF INTESTINES, KIDNEY AND BRAIN IN CALVES.

P.K. PESHIN, A.P. SINGH, JIT SINGH AND J.M. NIGAM

*Department of Veterinary Surgery and Radiology,
College of Veterinary Sciences, Haryana Agricultural University, Hissar-125004 (Haryana).*

Studies concerning the effect of anaesthetic agents on different organs in large animals are scarce. Such studies while delineating the effect of a drug on different organs will also show the extent to which an anaesthetic agent will effect the results of various other experiments conducted under the same agent.

Acid-base and blood gases of intestines, kidney and brain were studied before and 30 and 60 minutes after I/V administration of xylazine (0.22 mg) in six cow-calves. The values were compared with the results of the whole body as represented by the blood samples

from the right atrium. The parameters evaluated were pH, $p\text{CO}_2$, PO_2 , oxygen saturation, HCO_3 and arterio-venous oxygen content difference. Marked differences were observed in the regional acid-base and blood gas values in conscious state and after xylazine administration. Xylazine significantly increased the oxygen utilization of the kidneys. The oxygen utilization by the intestines was markedly decreased and increased in 4 and 2 animals, respectively. Study showed that an anaesthetic agent can diversify the differences existing in acid-base and blood gases of the different organs vis-a-vis whole body.

SYSTEMIC EVALUATION OF INTRA VEINOUS REGIONAL ANAESTHESIA IN BUFFALO CALVES.

S.N. GOGOI, P.K. PESHIN AND J.M. NIGAM, *Department of Surgery and Radiology, Haryana Agricultural University, Hissar, Haryana.*

Experimental and clinical studies of intravenous regional anaesthesia conducted on 43 calves revealed that 2% lignocaine given at a dose rate of 4 mg/kg body weight in the superficial digital vein of the occluded hind limb produced satisfactory analgesia and complete relaxation of the limb.

Peak plasma level of lignocaine were achieved within 5 minutes of tourniquet release. The measurable amount of lignocaine released through occluded limb did not produce any nervous and cardiovascular changes, but an increase in Oxygen up-take by the blood has been observed.

The release of tourniquet also did not produce any significant cardiovascular changes,

however electro-cardiogram revealed slight cardiac deteriorating changes. No gross symptoms of lignocaine toxicity on nervous system were observed, before or after release of tourniquet, but electrocardiogram gave evidence of transient cortical suppression and irritability in 6 calves. No significant changes were observed in pH, PCO_2 and bicarbonate during tourniquet or after the release of tourniquet, precluding the danger of convulsions.

Thus it was concluded that 2% lignocaine at the rate of 4 mg/kg body weight for I V R A produced satisfactory analgesia and relaxation of the limb. Retention of tourniquet either for 30 or 60 minutes did not produce any systemic effect.

PROPANIDID AND XYLAZINE ANAESTHESIA IN DOGS.

RAKESH KUMAR, AMRESH KUMAR AND K. SHARMA
Dept. of Surgery and Radiology, College of Veterinary Sciences, Pantnagar, (Nainital) U.P.

Propanidid (30 mg/kg) was administered intravenously following xylazine (2 mg/kg i/m) premedication in 25 dogs. Atropine (0.04 mg/kg i/m) was administered as a preanaesthetic 20 to 25 minutes before administration of xylazine in all the animals. Propanidid caused an immediate increase in heart rate, respiration rate and mean arterial blood pressure after its administration. Respiration and heart rate decreased gradually and were maintained within physiologic range upto 60 minutes of its administration. E.C.G. was not significantly effected after propanidid administration in xylazine and atropine premedicated animals. However, central venous pressure significantly increased. The duration of anesthesia varied

from 20-35 minutes with adequate muscle relaxation. Recovery was quick and uneventful and occurred in 40 to 75 minutes after propanidid administration. A slight variation in various haemocytologic and biochemical parameters was observed. These returned to near pre-administration level in 48 hours. The drug was tolerated well and no complication occurred. In order to evaluate the effects of drugs clinically, various surgical procedures namely cystotomy, Zepp's operation, caeectomy and castration were performed under propanidid anaesthesia. Supplemental increments with propanidid 10 mg/kg. at 8 to 10 minutes intervals permitted successful completion of surgical procedure.

XYLAZINE AS PREMEDICANT IN THIOPENTONE ANAESTHESIA IN DOGS AND BUFFALOES

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Xylazine premedication @ 0.22 mg/kg B.W. in buffalo calves and @ 1.5 mg/kg B.W. in atropine premedicated dogs significantly reduced the dose of thiopentone sodium to attain surgical stage of anaesthesia. It also significantly increased the duration and extent of muscle relaxation ($P < 0.05$). The duration of anaesthesia of xylazine and thiopentone administered buffalo calves and dogs ranged from 25-50 minutes. A significant decrease in respiratory and heart rates was observed after xylazine and thiopentone sodium administration in dogs as well as buffaloes during the maximal depth of anaesthesia ($P < 0.05$). Rectal temperature slightly decreased.

A significant decrease in mean arterial blood pressure in buffalo calves ($P < 0.05$) and a slight decrease in dogs was observed after thiopentone administration. Central venous pressure increased and returned to near normal levels at the time of recovery. A slight variation in various components in ECG was observed, however no significant alteration

could be detected in dogs. A slight change in haemocytological parameters (total RBC, WBC, Hb, PCV and differential leucocyte counts) and biochemical parameters (serum electrolytes Na,⁺K,⁺Cl,⁻BUN and creatinine; and SGPT) was observed in dogs after thiopentone administration. However, their levels returned to preadministration level by 48 hours. Blood glucose level significantly increased in buffalo calves as well as in dogs. A significant increase in the concentration of thiopentone sodium was observed in xylazine premedicated animals than thiopentone sodium alone group. Its concentration could not be detected in blood at 24 hours after anaesthesia in animals given thiopentone alone. Cystotomy, ovariohysterectomy, end to end anastomosis of intestine, nephrectomy and castration were performed in dogs under xylazine and thiopentone sodium anaesthesia. Supplemental increments of 2.5 mg/kg. at every 10-15 minutes as per the requirements enhanced the duration of anaesthesia and permitted successful completion of surgery in dogs.

XYLAZINE IN ELEPHANT

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Xylazine produced excellent tranquillization, sedation and analgesia in an Indian Cow Elephant. A total dose of eight ml. of Xylazine 2% (23.32 mg/ml) administered twice produced satisfactory effect. Extensive surgical manipulation was done most efficiently under the influence of xylazine in standing position.

This elephant of erratic temperament became acquiescent to handling without any protest. Flaccidity of the trunk, dropping of eye lids, dribbling of saliva, micturition, bellowing and elbow abduction were observed. The animal walked reluctantly at 2 hrs. 17 minutes after the first injection.

HAEMODYNAMICS, ACID-BASE AND BLOOD GAS ALTERATIONS AFTER XYLAZINE ADMINISTRATION IN CALVES

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Xylazine in low doses have been demonstrated to exert a potent analgesic and sedative actions in cattle. This study was undertaken to comprehensively study the haemodynamics, acid-base and blood gas alterations after xylazine administration in calves. Intravenous administration of this agent (0.22 mg/kg) to six cross-bred calves (65-80 kg) resulted in slight initial transient hypertension, followed by sustained hypotension. The decrease in diastolic pressure was of a higher magnitude than decrease in systolic pressure. The changes in heart rate were not consistent but fall in central venous pressure was appreciable. Hypotension was correlated with central venous

pressure but no correlation was observed between heart rate, and central venous pressure and mean arterial pressure. Potentiometric hypoxemia was associated with desaturation of haemoglobin. Arterio-venous oxygen content difference and oxygen extraction ratio were increased appreciably. No significant acid-base alterations were observed. There was some evidence of peripheral sympathetic depression leading to vasodilatation and slight hypokinetic hypoxia, and ventilation to perfusion inequalities in the lungs. Rectal temperature was not affected. Individual variations in response to xylazine are discussed.

ACUPUNCTURE ANALGESIA IN DOGS FOR ABDOMINAL SURGERY

G.V. LAKSHMIPATHI

College of Veterinary Science, Tirupati (A.P.)

Acupuncture anaesthesia is being successfully used for abdominal operations at this College. So far 15 operations on experimental dogs (*viz.*, 3 Gastrotomies, 1 Splenectomy, 2 Intestinal anastomosis, 9 ovario hysterectomies) and one clinical case of ovariohysterectomy have been successfully performed under acupuncture anaesthesia. The acupoints ST 36 and SP6 were used in all the cases. The point ST 36 is located on the lateral surface of the leg near the base of tibial crest between the tibialis anticus and the bone. The point SP6 is located on the medial surface of the leg just behind the tibia above the medial malleolus.

A locally designed square wave from electronic multipurpose acupuncture unit was used. The mA and the frequency used in these trials ranged from 10 to 12 mA and 120 to 125 cycles per second, respectively. The merits and demerits of acupuncture anaesthesia in dogs are listed. The other acupuncture anaesthesia points in dogs which are under trial are illustrated and their locations are described.

An electronic acupuncture search probe has been designed and fabricated locally. A new multipurpose electronic acupuncture unit which works on both A.C. and D.C. has been designed and fabricated.

OXYGEN ENVIRONMENT AND ACIDBASE STATUS OF THE JUGULAR, PORTAL AND RENAL VEINS AND BRAIN SINUS OF BOVINES IN THE CONSCIOUS AND SEDATED STATES

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The oxygen environment and acid-base status of blood in the jugular, portal and renal veins and the brain sinus were studied in six calves and six buffalo calves (*Bubalus bubalis*) in the conscious state (brain sinus samples in 2 of the buffalo calves only) and following sedation with chloral hydrate. Parameters investigated were; venous oxygen tension, venous oxygen saturation, arteriovenous oxygen difference, oxygen delivery/oxygen consumption ratio, pH, P_{CO_2} , actual bicarbonate and base excess. One objective was to set the validity of some indices of oxygenation of different organs in the conscious state and after the mild stress imposed by deep sedation.

Large differences were observed in the oxygen environment and acid-base status of

different organs in both conscious and sedated animals. The values of various parameters of jugular blood did not represent the alterations occurring in the various organs. In both, calves and buffalo calves, the oxygen utilization of the brain and intestines was comparable. The results suggest that in a stress situation the oxygen demand of the tissues could be met by adjustments at the microcirculatory level. The venous oxygen saturation, rather than the venous oxygen tension, was observed to reflect more appropriately the "tissue oxygen environment." Large species variations were also observed in various measurements in the conscious and sedated states.

VISCERAL PROCAINE BLOCKADE IN DOGS

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Dept. of Surgery & Radiology, College of Veterinary Sciences, Pantnagar, Nainital (U.P.)

Visceral procaine blockade was achieved by intraperitoneal administration of 0.25% and 0.5% procaine hydrochloride with and without chlorpromazine hydrochloride (@ 3 mg/kg i/m) and xylazine (@3 mg/kg body wt i/m) premedication in 60 dogs. Heart rate slightly decreased after procaine administration which was more pronounced in xylazine and chlorpromazine premedicated dogs ($P < 0.05$). Respiratory rate was not altered in Procaine administered animals, whereas premedication with Xylazine caused a significant decrease in respiratory rate. A mild increase in blood pressure was observed after 0.25% procaine administration whereas xylazine premedication produced a significant decrease in blood pressure at 10 and 20 minutes ($P < 0.05$). No significant electrocardiographic alterations were observed after procaine hydrochloride administration.

Procaine administration resulted in a slight increase in total number of erythrocytes whereas xylazine or chlorpromazine premedication showed a slight decrease. Total leuco-

cytes decreased whereas PCV corresponded with increase or decrease in total number of R.B.C. Haemoglobin percentage and erythrocyte sedimentation rate did not show any appreciable change after procaine administration. Increased Blood glucose, a slight decrease in serum proteins, slightly increased, BUN and creatinine was recorded at half an hour after administration. No significant variation was observed in serum electrolytes. These haemocytological and biochemical parameters remained within physiological limits and returned to preadministration level by 48-72 hours. The procaine levels in plasma could be detected at 5 minutes after intraperitoneal administration of procaine and reached maximum value by 20 to 30 minutes. There after, it gradually declined and came to undetectable levels by 2 hours. The duration and extent of anaesthesia was adjudged by the animal's response to visceral pain. Various abdominal surgical operations like gastrotomy, splenectomy, Ovariohysterectomy, cystotomy, enterotomy and caecectomy were successfully performed under visceral procaine blockade.

EXPERIMENTAL BRONCHOGRAPHY IN SHEEP

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Department of Veterinary Surgery & Radiology
College of Veterinary Sciences, Haryana Agricultural University, Hisar, Haryana

Radiology

Experimental bronchography was conducted in sheep, weighing 20-25 kg body weight. Contrast materials, viz. Dionosiol micro and conray 420 were used with the aid of a fluoroscope under light plane of thiopentone anaesthesia. After spraying 2-3 ml lignocaine into the trachea, the contrast material 100 ml/kg was administered into the trachea. Anterior and ventrodorsal exposures were made immediately after administration of contrast

media. The bronchograms of left and right lungs could be demonstrated in lateral radiographs. Ventrodorsal radiographs were not very illustrative especially in the lower neck and apical lung bronchi. There was complete filling of the contrast media in all the 3 materials. Conray 420 was found to disappear from the lungs at a rate of 15-20 minutes.

RADIOGRAPHIC INTERPRETATION OF CERTAIN SKULL LESIONS IN LARGE ANIMAL

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

Published reports are available on the radiographic features of bovine skull. Though the radiographic features of lesions of neurocranium is completely different from that of the face. The face offers sufficient subject contrast for diagnosis. In this series, 25 clinical cases consisting of 12 she-buffaloes, 3 bullocks,

3 calves, one cow and one mule were analyzed for diseases which were either congenital, traumatic or infectious in nature like ophthalmitis, osteomas, actinomycosis, schistosomiasis, soft tissue growth etc. The radiographic features of these lesions are described and discussed.

CLINICAL AND RADIOLOGICAL FEATURES OF RETICULAR ABSCESS IN BUFFALOES

KUMAR V., B. PRASAD, V.K. SOBTI, A.K. KHANNA, K.K. MIRAKHUR,
S. N. SHARMA AND R.N. KOHLI

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

Reticular abscessation in buffaloes was observed with simulating clinical features. Symptoms included intermittent protracted rumination, aggravated ruminal motility and neutrophilia. Radiographs in such cases indicated isolated and well delineated

areas of varying sizes and extent. Long standing abscesses with more inspissating pus were often not clearly discernible. Symptoms in these animals were less pronounced. All these animals recovered uneventfully after surgical drainage following rumenotomy.

EXPERIMENTAL BRONCHOGRAPHY IN SHEEP

K.M.N. NAYAR, V. VENKATARAVANAPPA, I.S. CHANDNA AND A.P. SINGH

*Department of Vety., Surgery & Radiology,
College of Veterinary Sciences, Haryana Agricultural University, Hissar, Haryana.*

Experimental bronchography was conducted on 9 sheep, weighing 20-25 kg body weight. Three contrast materials, viz. Dionosiol micro-paque and conray 420 were used with the animals under light plane of thiopentone anaesthesia. After spraying 2-3 ml lignocaine into the trachea, the contrast material @1-1.5 ml/kg was administered into the trachea. Lateral and ventrodorsal exposures were made immediately after administration of contrast

media. The bronchial architecture of left and right lungs could be demonstrated in lateral radiographs. Ventrodorsal radiographs were not very illustrative especially of bronchial roots and apical lobe bronchi. Quick alveolar filling of the contrast media was noticed with all the 3 materials. Conray 420 was seen to disappear from the lungs as quickly as 1-3 minutes.

RADIOGRAPHIC INTERPRETATION OF CERTAIN SKULL LESIONS IN LARGE ANIMAL

RAMA KUMAR V., V.K. SOBTI, B. PRASAD, JIT SINGH, S.N. SHARMA AND R.N.KOHLI

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

Limited reports are available on the radiographic features of bovine skull. Though, diagnosis of lesions of neurocranium is complicated by certain anatomical features of bovine skull, the face offers sufficient subject contrast for diagnosis. In this series, 25 clinical cases comprising of 12 she-buffaloes, 8 bullocks,

3 calves, one cow and one mule were analyzed for diseases which were either congenital traumatic or infectious in nature like polyps, osteomas, actinomycosis, schistosomiasis, soft tissue growth etc. The radiographic features of these lesions are described and discussed.

CLINICAL AND RADIOLOGICAL FEATURES OF RETICULAR ABSCESS IN BUFFALOES

RAMA KUMAR V., B. PRASAD, V.K. SOBTI, A.K. KHANNA, K.K. MIRAKHUR,
S. N. SHARMA AND R.N. KOHLI

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

Reticular abscessation in buffaloes was observed with simulating clinical features. Symptoms included intermittent protracted tympany, aggravated ruminal motility and relative neutrophilia. Radiographs in such cases indicated isolated and well delineated

areas of varying sizes and extent. Long standing abscesses with more inspissating pus were often not clearly discernible. Symptoms in these animals were less pronounced. All these animals recovered uneventfully on surgical drainage following rumenotomy.

VETERINARY RADIOLOGICAL FACILITIES IN INDIA

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Survey of 23 Veterinary institutions through a questionnaires revealed that the large animal radiography was done only at 4 places. The facilities do exist for small animal radiography. In most of the places no separate staff was provided for radiological work. The department of surgery was handling the radiological work. No separate degree is awarded in Veterinary Radiology in India, and in some of the insti-

tutions very little credit is given to teaching of radiology to under graduate and post-graduate studies. The course is a part of anaesthesiology in under-graduate in some of the institutions. Radiation protection methods are not properly observed and the equipment and accessories are inadequate in most of the places.

CONTRAST RADIOGRAPHIC STUDY OF THE GASTROINTESTINAL TRACT IN THE SHEEP

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Radiographic anatomy of the gastrointestinal tract of the sheep was studied by oral administration of barium sulfate suspension in six adult animals weighing between 20 and 25 kg. A dose of 25 to 30 ml/kg of 70% (W/V) aqueous suspension of barium sulfate was found adequate to demonstrate all the structure of gastrointestinal tract. Radiographs (right lateral and ventrodorsal views) were taken

at different intervals from 0 to 60 hrs demonstrated clearly the rumen, reticulum, omasum, abomasum, duodenum, small intestine, colon, caecum and rectum depending upon the radiographic views and time intervals. The characteristic mucosal patterns of reticulum, omasum and abomasum were visualized within 4 to 6 hrs. of barium administration.

A COMPARATIVE RADIOLOGICAL EVALUATION OF HETEROGENOUS BONE PLATES OF BOVINE AND EQUINE ORIGIN IN SHEEP—AN EXPERIMENTAL STUDY

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

The homogenous bone has been used successfully in different species of animals as bone plates for internal fixation of fractures. We have also used heterogenous bone of bovine origin in sheep with satisfactory results. This study is a further step to evaluate the response of sheep bone to bone plates prepared from bovine and equine metatarsal and metacarpal bones.

Twelve sheep divided equally into two groups were used in this study. A transverse mid-shift fracture of femur was created in all the animals using gigly saw. In first group of six animals the fracture was immobilized with bone plates prepared from metarsal and metacarpal bones of cow; whereas in second group the bone plates prepared from same bones of horse were used for fracture immobilization. In both the groups the plates were fixed with stainless steel screws. The procedure for the preparation of bone plates in both the groups remained the same. The metacarpal or metatarsal bones were collected from the cadaver. All the soft tissues were removed. The bones were then cut into two halves longitudinally and dried in oven at 50-60°C. for 24 hours. The plates of appropriate size were

prepared using electric grinder. The plates were sterilized by autoclaving before their use.

All the animals were kept under observation for 6 months. Clinically, the period of lameness was longer in animals of group 2 where the bone plate from equine origin were used. Locally, a hard palpable swelling was present in the animals of this group at the fracture site. The animals of group 1 behaved normally and did not show any abnormal reaction at the site.

Radiologically, the animals of group 1 showed rigid fixation at different stages of observations as marked by small well organized callus at the fracture site. No periosteal reaction along the length of bone plate was observed in this group. In group 2 the fracture healing was marked by a large callus and extensive periosteal reaction along the surface in contact with equine bone plates. The fracture line was visible even upto 45th day post-operatively. The resorption of host bone under the bone plate was also observed in group 2. No such reaction was observed in animals of group 1. Resorption of bone plates was observed earlier in group 1 than in group 2.

CONTRAST RADIOGRAPHIC STUDIES OF URINARY TRACT IN LAMB

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The contrast radiography of urinary system was conducted in 25 lambs using ascending urethrography, and pyelography with and without compression, and double contrast radiography by using conray 420 and urographin as contrast agents. The ascending urethrography visualised the course of urethra and urinary bladder. Pneumoperitoneum demonstrated the location of left and right kidney. The other organs visualised were liver, intestinal loops, colon, and abdominal aorta. The opacification of kidney paren-

chyma, calysis and renal pelvis and full course of ureters were better obtained with compression technique. The pyelography in combination with pneumoperitoneum has an edge over other techniques. This double contrast technique outlines the kidneys, ureter and bladder against the negative contrast of air. Conray 420 has given better result than urography. The maximum opacification and filling of urinary system was obtained 5 minutes after injection of contrast medium, but excretion of contrast material continued upto 20 minutes.

STUDIES OF THE CIRCULATORY PATTERN OF TESTIS AND SCROTUM IN BOVINES AND EQUINES FOLLOWING TWO DIFFERENT METHODS OF EMASCULATION

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The angiographic studies in bull calves revealed that after Burdizzo method of emasculation, collateral circulation of testes developed on the fifteenth post operative day was more conspicuous on the thirtieth post operative day. The ligated testes did not develop any collateral circulation for the corresponding periods.

In bull calves at 72nd and 96th post ligation hours of the spermatic cords, revealed no leakage of the contrast dye through any collateral twigs at the sites of ligation.

Control angiographic studies of the testicular circulation amongst bovine and equine

species revealed well defined vascular mosaic of the testes. The scrototesticular circulation in bull calves revealed that both the external pudic from the deep femoral artery and the internal pudic from the internal iliac artery supplied the scrotum.

Study of the vascular pattern with the help of the corrosive preparation revealed vascular casts of the control testes. It proved to be ineffective in case of the ligated testes and Burdizzo testes due to irreversible degenerative vascular changes.

MEDULLOGRAPHIC STUDIES OF FRACTURE HEALING IN BOVINE

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*Department of Veterinary Surgery & Radiology,
College of Veterinary Science, Haryana Agricultural University, Hissar, Haryana.*

The experimental study was conducted on 45 male buffalo calves (one and a half to two years). These were divided into five groups of nine animals each. Fracture was created by open method with chisel and hammer, under chloral hydrate narcosis and local infiltration with lignocaine.

The fractures were reduced and treated by simple coaptation (Gr A), stainless steel plating (Gr B & C) and cortical bone plates

(Gr D & E). Stainless steel screws were used in all the plating groups. Bone grafting was also done in the plating groups. Plaster cast was applied in all the animals. Medullography was done at 3, 6 and 9 weeks in 3 animals of each group.

Medullography revealed early reconstitution of intraosseous venous channels in plating groups as compared to simple coaptation.

RADIOGRAPHIC DIAGNOSIS OF SOME PULMONARY LESIONS IN LARGE ANIMALS

RAMA KUMAR V., V.K. SOBTI, B. PRASAD,
JIT SINGH, S.N. SHARMA AND R.N. KOHLI

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

Thoracic radiograph were particularly scanned for the presence of lesions in the lung tissue in buffaloes, cows and bullocks. Majority of the cases had history of chronic affections. A few acute conditions observed were pulmo-

nary oedema, pneumonia and pulmonary haemorrhage. Chronic lesions were radiographically depicted as nodular opacities, linear and curvilinear opacities and ill defined, hazy or blacky lesions.

RADIOLOGIC AND GROSS ANATOMIC EVALUATION OF FEMORAL COLLATERAL CIRCULATION IN THE DOG

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Bidhan ch. Krishiviswa Vidyalaya, Calcutta, W.B.*

In 12 sexually mature healthy dogs, femoral collateral circulation was evaluated in radiographic and gross pathoanatomic studies. The radiographic evaluation was done in series, starting at the time of surgery before femoral arterial ligation and continuing through the 12th post operative week after the ligation.

After completion of the experiments the vascular anatomy of the femoral region was studied with a more detailed ilio-femoral-dissection. The result indicates the existance of a distinct and powerful femoral collateral circulatory channels in the thigh region of the dog which permits rapid ligation of the femoral vessel without circulatory embarrassment.

RADIOGRAPHIC ANATOMY OF GASTRO INTESTINAL TRACT IN THE GOAT

MOHINDER SINGH, I. S. CHANDNA, MAJ. Z. S. DAHIYA AND A. P. SINGH

*Department of Veterinary Surgery and Radiology,
College of Veterinary Sciences, Haryana Agricultural University, Hissar (Haryana).*

Contrast radiographic studies were made in 6 adult goats weighing between 18-27 kg. to establish the normal radiographic anatomy of gastrointestinal tract. The use of aqueous barium sulfate suspension (70% W/V) given orally in a dose rate of 22 to 32 ml demonstrated almost all the structures of gastrointestinal tract depending on the radiographic projections and time intervals. Immediately after administration of barium sulfate radiographs showed complete filling of rumen, reticulum, omasum

and abomasum without clearcut demarcation of their outlining. Within 1 to 4 hrs. of administration the barium was observed in small intestine, colon and by 8 to 12 hrs., caecum and rectum were also visualized. The intramural administration of barium was helpful even for demonstration of mucosal pattern of reticulum, omasum, abomasum and their communication with each other. The presence of contrast material in caudal part of gastrointestinal tract was found up to 48 hrs.

CRANIAL SINUS VENOGRAPHY IN BUFFALO CALVES

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*Department of Vety. Surgery and Radiology,
College of Veterinary Sciences, Haryana Agricultural University, Hissar (Haryana)*

Cranial sinus venography was done in six young male buffalo calves of 1 to 1½ years age, following cannulization of uni- or bilateral fascial views. Twenty ml of sodium iothalamate injected each side was found adequate for demonstration of almost all the venous system of cranial region depending upon the radio-

graphic projections. The venous channels demonstrated included dorsal longitudinal sinus, straight sinus, transverse sinus, dorsal and ventral petrosal sinus, occipital sinus, cavernous and intercavernous sinuses, basisphenoidal and basioccipital plexuses, diploï ophthalmic and internal maxillary veins.

RETROGRADE ANGIOGRAPHY OF THE FRONTAL SINUS IN ZEBU CATTLE

S.S. MISRA AND S.J. ANGELO

*Department of Surgery and Radiology,
College of Veterinary Science and Animal Husbandary.*

Radiography of the *processus cornus* has been found to have diagnostic and therapeutic significance in the horn cancer in bullocks. It is well known that the frontal sinuses are invariably involved to varying magnitude, when affected with squamous cell carcinoma of the horn in bullocks. Normal angiographic delineation of these sinuses (*vis-a-vis* cancerous sinuses) is certainly likely to be very important radiographic finding.

Normal contrast angiography of the frontal sinus was found to be facile with sodium acetizoate, 70% w/v injectable solution (Diaginal, May & Baker, Ltd.) administered intra-arterially into the exteriorised internal maxillary artery in 20 ml dosage. A slow administration lasting 2-3 minutes was made in the lateral recumbency. Exposure factors of 85 KVP. 30 mAs and 90 cm. FFD were found to be adequate.

Large Animal Surgery

K. K. MIRAKHUR, V. S. SOSTI, B. PRASAD, RAMA KUMAR, V. RAMA KRISHNAMURTHY,
A. K. KHANNA AND R. N. KOHLI

Ludhiana, Punjab

Nine buffaloes suffering from diaphragmatic hernia were the subjects of the present study. Haemodynamics, acid-base and blood gas measurements were taken at before anaesthesia, after anaesthesia (ketamine hydrochloride and thiopental sodium), after the onset of IPPV, opening of the hernial ring, closure of the ring after hyperinflation, lateral recumbency and disconnection of the IPPV. A significant

decrease in the MAP was observed after the IPPV which persisted till the closure of the hernial ring. Mean values of CVP did not vary significantly but lot of individual variation was observed. There was a slight respiratory acidosis at one stage. Mean values of other blood gas parameters did not show a much change, but exhibited individual variations which have been discussed.

DIAPHRAGMATIC HERNIA IN BOVINES—BIOCHEMICAL STUDIES

D. KRISHNAMURTHY, USE NIGAM, KULDEEP SINGH, D. NANDIEN
AND NARENDER SINGH

Haryana Veterinary University, Hisar, Haryana

Blood sera of nineteen clinically affected female buffaloes and 44 pieces of paraneoplastic sera were studied. Post-mortem examinations of ruminal fluid showed increased leathiness and variable alterations in pH. Differences in total volatile fatty acids, ammonia nitrogen, total protozoa and total bacteria

were not significant. The serum levels of calcium, chloride, inorganic phosphorus, magnesium, sodium and potassium were significantly different in the patients. Significant rises in blood urea nitrogen and protein bound azotemia were observed. Total proteins and their fractions remained normal. Acid-base alterations had no definite trend.

DIAPHRAGMATIC HERNIORRHAPHY IN A COW

B. PRASAD, V.K. SOSTI, K.K. MIRAKHUR, V. RAMA KUMAR, A.K. KHANNA,
S. N. SHARMA AND R. N. KOHLI

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

Diaphragmatic herniorrhaphy was undertaken in a cow by post-siphoid approach. The surgical procedure, previously employed in buffaloes, proved equally good for the cow under investigation. The cardio-vascular and

acid base status were also assessed at various stages of herniorrhaphy. The role of these parameters has been discussed and the guidelines drawn to make the approach more rational and rewarding.

HAEMODYNAMICS, ACID BASE AND BLOOD GASES DURING DIAPHRAGMATIC HERNIORRHAPHY IN BUFFALOES.

K. K. MIRAKHUR, V. K. SOBTI, B. PRASAD RAMA KUMAR V., S. N. SHARMA,
A. K. KHANNA AND R. N. KOHLI

Ludhiana, Punjab.

Nine buffaloes suffering from diaphragmatic hernia were the subjects of the present study. Haemodynamics, acid-base and blood gas measurements were taken at before anaesthesia, after anaesthesia (chloral hydrate and thiopental sodium), after the start of IPPV, opening of the hernial ring, closure of the ring after hyperinflation, lateral recumbancy and disconnection of the IPPV. A significant

decrease in the MAP was observed after the IPPV which persisted till the closure of the hernial ring. Mean values of CVP did not vary significantly but lot of individual variation was observed. There was a slight respiratory acidosis at one stage. Mean values of other blood gas parameters did not show a much change but exhibited individual variations which have been discussed.

DIAPHRAGMATIC HERNIA IN BOVINES—BIOCHEMICAL STUDIES

D. KRISHNAMURTHY, J.M. NIGAM, KULDEEP SINGH, D. NANDEEN
AND NARENDER SINGH

Haryana Agricultural University, Hissar, Haryana.

Blood sera of nineteen clinically normal female buffaloes and 44 patients of diaphragmatic hernia were studied. Preliminary comparisons of ruminal fluid showed increased frothiness and variable alterations in pH. Differences in total volatile fatty acids, ammonia nitrogen, total protozoa and total bacteria

were not significant. The serum levels of calcium, chloride, inorganic phosphorus, magnesium, sodium and potassium were significantly different in the patients. Significant rises in blood urea nitrogen and protein bound hexose were observed. Total proteins and their fractions remained normal. Acid-base alterations had no definite trend.

DIAPHRAGMATIC HERNIORRHAPHY IN A COW

B. PRASAD, V.K. SOBTI, K.K. MIRAKHUR, V., RAMA KUMAR A.K. KHANNA,
S. N. SHARMA AND R. N. KOHLI

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

Diaphragmatic herniorrhaphy was undertaken in a cow by post-xiphoid approach. The surgical procedure, previously employed in buffaloes, proved equally good for the cow under investigation. The cardio-vascular and

acid base status were also assessed at various stages of herniorrhaphy. The role of these parameters has been discussed and the guidelines drawn to make the approach more rational and rewarding.

COMPARATIVE STUDY OF BLADDER REPAIR BY DIFFERENT APPROACHES IN BOVINES

DR. E.I. RAJENDRAN, DR. M.S. GOPAL & DR. GODFREY DAVID
Department of Surgery & RVS., Madras Veterinary College, Madras.

This paper deals with the merits of different approaches by which the bladder was repaired, in clinical cases. In four cases bladder rupture was repaired by suprapubic (Two cases), flank (one) and perineal (one) incisions. All the cases had obstruction at the level of the sigmoid flexure and the rupture was irregular and close to the neck of the bladder. The BUN varied from 72 mg% to 120 mg% and a large volume of fluid had collected in the abdominal cavity. After evacuating the fluids to the maximum by paracentesis abdominis and restoring the patency of the urinary tract, laparocystorrhaphy was performed.

The anaesthesia was high epidural with local infiltration. In the suprapubic approach in both the cases, bladder could not be exteriorised and repair had to be performed within the abdominal cavity. Intestinal loops interfered with the repair. In the right flank approach better reach was noticed, but the bladder

could not be exteriorised. Less interference by the intestines was noticed. In the perineal approach a "C" shaped incision was made in the ischio-rectal fossa and going through the pelvic cavity by blunt dissection, the peritoneum attached to the rectum was identified. The peritoneum was incised and the collected fluids escaped with force. The bladder was negotiated through the incision within the pelvic cavity. The damages were palpable and repairs were carried out in the pelvic cavity. By this approach even though the repair had to be carried out in a narrow space, interference by the intestinal loops was not observed. The closure was by apposing the peritoneal and skin incisions, providing drainage for 3 days. Complications observed were, slight difficulty in defaecation for 3 days and healing was achieved by first intention. Comparing the three approaches the perineal approach is better for repair of the bladder.

TAPPING OF URINARY BLADDER IN BOVINES

K. BHASKAR SINGH

Vety. Hospital, Gudavalli & Guntur, A.P.

Three sites of tapping the urinary bladder *i.e.*, per rectum, pre-pubic, and plevic sites were tried in 34 cattle and 19 Buffaloes. The technique adopted for pelvic site was described.

The comparative merits and demerits and other field practices were discussed. It is observed that the pelvic site of tapping of bladder is good and practicable even for field veterinarians.

UTERINE HEALING IN GOATS—AN EXPERIMENTAL STUDY

I.V. MOGHA, G.R. SINGH & R. KUMAR

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

Sixteen adult Black Bengal goats were used to study the effect of different suturing patterns on uterine healing. Sixty-four identical uterine incisions, (four in each animal) were performed and repaired by single layer Lembert continuous lock stitch, continuous. Interrupted Lembert and double layer Lembert continuous techniques. These techniques were evaluated on the basis of gross tensile strength, angiographic and histopathological observations at 3rd, 5th, 7th and 21st post operative days.

The adhesion with internal adjacent organs were observed in interrupted Lembert, lock stitches and single layer Lembert in decreasing manner. The inflammatory reaction was seen in all the groups except in double layer Lembert where the necrosis and inflammatory reaction were comparatively severe. No complete muscularis reunion was seen upto 21st post operative day in any of the groups although beginning of healing process was indicated by the presence of fibrous bands on the incision line.

The bursting strength of the uterine wall at various time interval of healing was recorded in all the techniques and observed that double layer Lembert suturing pattern had compara-

tively greater resistance to disruption at suturing site in beginning where as in later stages the interrupted and single layer Lembert had higher resistance to disruption in comparison to lock stitch and double layer Lembert patterns.

Early angiographic observations showed that capillaries are well visualized on 3rd post operative day in each group. On 5th day angiogram avascularity at the site of surgical incision was visualised more in double layer Lembert than other groups. 7th day angiograms showed narrowing of gap and organization of vascular pattern. At this stage crossing over of arterial system demonstrated revascularization of healed surgical wound with minimum tissue reaction in single layer Lembert technique. Lock stitch technique was similar to single layer and interrupted Lembert patterns and avascularity was much less when compared to double layer Lembert techniques.

On the basis of these observations it can be concluded that the single layer Lembert and interrupted Lembert suturing patterns of uterine repair are better in comparison to lock stitch and double layer Lembert. The single layer Lembert continuous may be preferable over interrupted as less time is required for suturing the wound.

REPAIR OF VENTRAL HERNIA IN BOVINES

DR. R.R. PARSANIA, DR. D.M. TADKOD,
DR. K. SUKUMARAN AND DR. M. N. MANNARI
Gujarat College of Veterinary Science and A.H. Anand. Gujarat.

During the last decade 80 cases of ventral hernia in bovines have been repaired by the authors, in the different parts of this State under field conditions. Majority of these cases were from the hilly tract and invariably there was a history of either a goring wound or a fall. In 20 cases hernioplasty had to be adopted, since the herniae were large and approximation of the hernial ring was not feasible. For hernioplasty commonly available nylon mesh was used as a prosthetic material. In 8 cases reinforcement technique was adopted while in the remaining 12 cases the repair of the hernial ring was accomplished by onlay graft technique. In 60 cases, where approxi-

mation of the hernial ring was possible, herniorrhaphy was adopted for the repair. The repair was done by overlapping suture technique in 15 cases and in the remaining 45 cases the hernial ring was closed either by simple interrupted sutures or by mattress sutures. For both hernioplasty and herniorrhaphy nylon was used as a suture material. Follow up of these cases has revealed neither recurrence nor complications due to infection. The nylon mesh used for hernioplasty proved to be inert, easily available and very cheap compared to the costlier ready made prosthetic materials used in human surgery.

A SIMPLIFIED METHOD FOR MEASURING SOME MECHANICAL PROPERTIES OF SURGICAL WOUNDS IN DONKEYS

I.A. SHABAAN AND M. ABDEL-TAWAB (*Egypt*)

Some of the mechanical properties of surgical wounds in donkeys were measured in vivo and in situ by a simplified apparatus. The properties of 22 surgical wounds in five apparently healthy donkeys of different ages were included in the experiment. Breaking and tensile strengths as well as the wound extensibility were measured on similar wounds at the neck, fore limbs, abdomen, flanks and the stifle region.

The data obtained in wounds of 4-5 cm long were as follow: Overall average breaking strength was 1.916 kg., tensile strength was 1.24 kg/Cm², and the extensibility of the wounds was 4.0 cm. The parameters of infected surgical wounds were greatly diminished than those of healthy wounds.

HEXAXIAL REFERENCE SYSTEM FOR FRONTAL PLANE CARDIAC VECTORS IN BUFFALOES (*BUBALUS BUBALIS*)

V.K. SOBTI, RAMA KUMAR V. AND R.N. KOHLI

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

A hexaxial reference system was framed with three bipolar and three augmented unipolar leads to evaluate frontal plane P, mean QRS and T vectors in twenty two normal buffaloes. The P vector was generally directed downward and left ward while mean QRS vector was upward and rightward. The T vector had the same orientation as mean QRS vector in 40% of the buffaloes while the same was in opposite direction in 50% of the animals. Individual variations in frontal plane were

less than those reported in the horizontal plane. The orientation of these cardiac vectors in this plane differed appreciably from that of other species. This significant species difference must be considered in any clinical or research applications of vectorcardiography in buffaloes. Since the anatomical position of the heart in cattle and buffaloes is similar, these findings of the frontal plane vectorcardiography should be applicable to both the species.

EVALUATION OF SPATIAL CARDIAC VECTORS IN HEALTHY BUFFALOES WITH AN ORTHOGONAL LEAD SYSTEM

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Orthogonal lead system (Leads I, aVf and V10) was used to evaluate spatial cardiac vectors in twenty one apparently healthy buffaloes. The P vector was found to be oriented sinistrad, caudad and ventrad while the T vector was quite variable being placed dextrad, ventrad and cephalad in majority of the animals. The electrical forces of ventricular activation were found to be commonly directed dorsad, sinistrad and caudad. This orientation of the mean QRS vector was different from that of

other species and this finding must be taken into consideration in future clinical or research applications of spatial vector cardiography in this species. The spatial QRS-T angle between frontal and transverse planes showed less variation than those between frontal and sagittal and sagittal and transverse planes. However, the diagnostic value of spatial QRS-T angle between these planes has yet to be tested in the bovines.

SIMPLIFIED SURGICAL APPROACH TO VAGINAL AND UTERINE PROLAPSE IN SHE-GOAT

M. ABDEL-TAWAB AND G.M. OTHMAN (*Egypt*).

Prolapsus vaginae was recorded in two she-goats, whereas prolapsus uteri with retained placenta was seen in six cases.

The clinical observations of the submitted cases revealed that vaginal prolapse occurred in the late pregnancy and was accompanied with excessive straining. Cases of uterine prolapse had a history of previous labour, straining, dystocia and retention of placenta after parturition.

These cases were treated under the influence of posterior epidural anaesthesia using 1 %

solution of novocaine. The cases of vaginal prolapse responded to flushing and simple reduction of the prolapsed part. On the other hand, in cases of uterine prolapse, the retained placenta was manually released and entirely removed. The lacerated mucosa was irrigated with 3 % savlon-solution and sutured with plain cat-gut No. O. The prolapsed organ was gently reduced and tetracycline tablets were put inside the uterus. Prevention of the recurrence of the prolapse was done by suturing the vulva-lips with gauze which was removed after 4-5 days.

SPATIAL VECTORS DISTRIBUTION IN BUFFALOES WITH DIAPHRAGMATIC HERNIA

V.K. SOBTI, RAMA KUMAR V. & R.N. KOHLI

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

An orthogonal lead system (leads I, avf and V10) was used to evaluate spatial cardiac vectors in twenty adult buffaloes suffering from diaphragmatic hernia. The forces of atrial activation were sinistrad and ventrad. The mean QRS vector was generally directed dorsad, sinistrad and caudad while T vector

was placed mainly sinistrad, ventrad and caudad. The forces of atrial activation and ventricular recovery showed marked variation from those in healthy buffaloes. The various factors responsible for such changes have been discussed.

STUDIES ON INTESTINAL INFARCTION IN BUFFALOE CALVES

P. CHANDRA BABU AND O. RAMAKRISHNA

Andhra Pradesh Agricultural University

The present study was undertaken on eighteen experimental buffaloe calves. Left flank approach for ligating cranial mesenteric artery and right flank approach for cranial mesenteric vein were found ideal for surgical manipulation.

Acute abdominal pain, arched back, lowered head, kicking at the abdomen were severe in arterial ligation group and mild in venous ligation group. All the animals died within twenty seven hours in arterial ligation group. No deaths were recorded in venous ligation group within the period mentioned above. Significant increase in TEC, Hb, PCV and ESR was found in arterial group when compared to venous group. DLC showed neutrophilia with regenerative shift to the left

and lymphopenia. Biochemical estimations in serum and peritoneal fluid showed increased total proteins and inorganic phosphorous along with decreased blood glucose levels in both the groups. No significant changes were observed in urea nitrogen, creatinine, GOT, GPT, ALP, Sodium, Calcium and Chloride content in serum as well as peritoneal fluid of both the groups. Serum potassium level increased only in arterial ligation group.

At postmortem peritoneal fluid was haemorrhagic and putrid in arterial group and haemorrhagic in venous group. Distension of intestines with blood tinged fluid and gas along with severe congestion of jejunal and ileal mucous membranes was more in arterial group when compared to venous group.

REPORT ON INFECTIONS OF THE PAROTID SALIVARY GLANDS

M.S. GOPAL, DR. E.I. RAJENDRAN & DR. GODFREY DAVID,

Veterinary College, Madras.

Specific infections of the parotid salivary glands is met with often in white cattle during routine surgical treatment of parotiditis. Two such cases are reported. One in a year old cross bred Friesien heifer and the other a

Friesien bull aged three years. Surgical removal of the masses, histopathological studies and cultural examination revealed T.B. infection in the heifer and Actinomycosis infection in the bull.

CLINICAL APPROACH FOR TREATMENT OF ARTHRITIS OF THE ELBOW JOINT OF BUFFALO (*Bos, bubalus bubalus*)

M. ABDEL-TAWAB, I.A. SHABAAN AND G.M. OTHMAN (*Egypt*)

The study was carried out on five isolated specimens of the elbow-joint of buffalo as well as ten living subjects. The best access for the elbow joint of such species was eight cm. proximal to the lateral tuberosity of the radius on the lateral aspect of such joint. The needle was inserted in an oblique cranio-distal direction along the medial aspect of the lateral epicondyle till its tip touched the articular cartilage (about

4 cm.). In this site the needle was better inserted while the joint was flexed.

Twelve clinical cases showed various types of arthritis of the elbow-joint could be reported and treated with intra-articular combination of crystalline penicillin and corticosteroids. Encouraging results, without complications were obtained. The radiography of the normal elbow-joint was conducted to locate the proper site of intra-articular injections.



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CERTAIN SALIVARY AND CARDIOVASCULAR EFFECTS OF EXPERIMENTAL HYPERKALEMIA IN BUFFALO-CALVES

V.K. SOBTI, RAMA KUMAR V. AND R. N. KOHLI

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

Experimental hyperkalemia in five clinically healthy buffalo-calves resulted in severe hypotension, ventricular tachycardia, increased central venous pressure and salivary potassium concentration. Variations in the electrocardio-

graphic patterns included ventricular fibrillation first or second degree atrioventricular block and absence of P waves. Factors responsible for these changes have been discussed.

EXPERIMENTAL STUDIES ON STRANGULATION OBSTRUCTION IN BUFFALOE CALVES

N.T. KRISHNA MURTHY AND O. RAMAKRISHNA

College of Veterinary Science, Tirupati (A.P.)

The present study was undertaken on 24 experimental buffaloe calves.

The right flank laparotomy was done under local infiltration analgesia and the ileum was exteriorized. The venous channels to a 40 cm segment of ileum were doubly ligated and a closed loop obstruction was made by firmly tying an umbilical tape at each extremity of the segment. This has produced a reliable strangulation obstruction of variable intensity and onset.

The post-strangulation symptoms include suspended rumination, abdominal pain, pyrexia, tachycardia, increased respirations and high pitched intestinal sounds and reddish brown peritoneal fluid with offensive odor. Polycythemia, increased ESR, Leukocytic Neuro-

phylia with a shift to the left and lymphopenia were suggestive of trauma, stress and infection in post-strangulation period. A highly significant elevation of serum amylase and inorganic phosphorus and a significant decrease in MAP and CVP were suggestive of diagnostic importance in intestinal obstruction.

Resection of gangrenous segment followed by anastomosis with drainage of toxic peritoneal fluid and irrigation of the peritoneal cavity with saline constituted the treatment. A combination of penicillin and neomycin and fluid therapy with saline was found to be effective. A single blood transfusion along with penicillin and neomycin increased the survival rate and no adverse reactions were recorded during the first blood transfusion.

“STUDIES ON PARIETAL PERITONEUM HEALING IN BUFFALO CALVES”

K. RAVI KUMAR & O. RAMAKRISHNA

Andhra Pradesh Agricultural University

The present study was undertaken on forty two experimental buffalo calves and seven clinical cases. Laparotomy was done in left flank, left pararectus and midline areas. Defects were created in the peritoneum on either side of the incision. The right side defect was covered with polythene sheeting and the left side defect was uncovered. In 21 animals, the peritoneal incision was left unsutured and in other 21 the incision was sutured.

Adhesions were found to be more in the polythene covered defect and in the peritoneum sutured animals than in the uncovered and unsutured animals. Wound dehiscence and

hernia was not observed in animals in which the peritoneum was left unsutured.

The healing of peritoneal defects occurred in two stages. Fibrinous exudate and inflammatory cells were found at the beginning of the healing. This was later replaced by connective tissue derived from fibroblasts. There was increased number of macrophages in the peritoneal fluid.

Peritonealization was seen by 6th post-operative day in polythene covered defect and in sutured peritoneum. A longer time of 10 to 12 days was taken for peritonealization in uncovered and unsutured animals. Generally, simultaneous healing of the peritoneum was seen all over the surface of peritoneal wound.

EFFICACY OF HIMAX AS AN ANTIMYCOTIC, ANTIFUNGAL AND IDEAL WOUND HEALING AGENT”

P.B. KUPPUSWAMY, *Retd. Principal & Dean, Vety. Faculty, Bihar, Indian Herbs Research & Supply Co., Branch : Bangalore—4.*

HIMAX ointment., a product of the Indian Herbs Research & Supply Co., Saharanur (U.P.) has been employed by large number of Veterinary Research Laboratories and Farms in almost all the species of animals in a wide range of skin troubles, surgical wounds, burns,

mange, ringworm, chronic eczema, etc., and found it safe and superior to Chemical antiseptic dressings. It proved to be an effective and excellent wound-healer even without the use of a bandage because of its fly repellent property, which is an added advantage.

UNUSUAL MIGRATION OF FOREIGN BODY IN OESOPHAGUS OF A BULLOCK:

R.L. Naik, K.G. Kapgate, and P.E. Kulkarni,

Government Veterinary Polyclinic, Akola,

Professor of Surgery, Punjabrao Krishi Vidyapeeth, Akola, Maharashtra.

An adult bullock history of chronic cough, dysphagia, salivation, keeping the neck stretched was brought to the Polyclinic, Akola. The animal had swelling at the neck region at the level of the fourth cervical vertebra. Careful clinical examination revealed that the bullock had laboured and noisy breathing, slight tympany and marked dysphagia. It was not able to take the water even. On palpation of the swelling the animal showed severe pain.

A tentative diagnosis of oesophagitis probably due to foreign body traumatisation, was made. The animal was subjected to radiological examination which revealed the presence of a metallic wire lodged in oesophageal wall.

The foreign body was surgically removed by adopting the conventional technique. The animal made complete and uneventful recovery in 10 days.

The case being of rare occurrence is reported

SURGICAL MANAGEMENT OF CERTAIN FILARIAL AFFECTIONS IN THE ONE HUMPED CAMEL

I.A. SHABAAN

Surgery Department, Faculty of Vet. Med. Zagazig University.

Fifty two one humped male-camels of different ages suffering various long standing surgical affections were investigated. The clinical picture and proper etiology were recorded. Moreover effective surgical management was adopted. Examination of the presence of microfilaria in the blood or filaria worms in the lesions was performed. Identification and the antibiotic sensitivity test for the existing bacteria in the discharges were carried out.

Microfilaria was present in the blood of 14 affected camels. In the lesions of two camels filaria worms were demonstrated in the lanced-swelling.

Stibophen injections made a good progress indicating that filaria was the main factor retarding the recovery of such cases. General health, appetite, gaining weight and body fitness for work were greatly improved.

ELECTRO-VECTROCARDIOGRAPHIC CHANGES FOLLOWING EXPERIMENTAL UREMIA IN CALVES:

V.K. SOBTI, A.M. JALALUDIN, RAMA KUMAR. V. & R.N.KOHLI

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

Uremia was induced experimentally in five clinically calves by rupture of bladder. Variation in the electrocardiographic patterns included ventricular tachycardia in the initial stages of uremia, second degree atrioventricular fibrillation in the later stages. Analysis of a spatial cardiac vectors revealed marked changes in the forces of atrial excitation as the uremic syndrome progresse. Various factors responsible for these changes have been discussed.

CLINICAL REPORT ON PINK EYE IN BUFFALOE CALVES

V.S. PANCHBHAI, L.B. SARKATE, A.P. BHOKRE and M.N. KULKARNI,

Punjabrao Krishi Vidyapeeth, krishinagar, Akola, Maharashtra.

Pink eye condition is widely seen in Cattle sheep and goats. Twenty male buffallo calves between the age group of 6-8 months, having natural ocular infection formed the examination material in this study. Tears and conjuctival scrappings revealed Morexella bovis organism, which was sensitive to chloromycetine. Animals were randomly divided in 3 groups. Group-I animals was treated with chloromycetine applicaps, Group-II of animals was treated with antiseptic lotion prepared from zinc sulf 4 gm, boric acid 2gm and rose water 22 ml. Group-III was kept as control group without any treatment. All the 20 animals had bilateral conjunctivitis, with symptoms of engorgement of episcleral vessels, mucoid discharge, photophobia, blephrospasms and epiphorination TEC- DLC, and Hb examination was carried out for 7 days and treatment was given for 10 days. The symptoms disappeared by 7th day of treatment in Chloromycetine applicaps treated group with complete recovery. Group-II animals treated with antiseptic lotion did not show satisfactory recovery and symptoms persisted in five animals even after seven days treatment without any changes. The animals from control group continued with the symptoms without any changes. However none of animals developed corneal ulcer. 't' test was employed to test the differences in Hb, TEC, and TLC, DLC the values. On application of test to Group I and II no significant difference in the values was found.

M. Bovis infection showed a very typical differential leucocytic count. Values of affection animals were N-16 per cent, L-82 per cent, M-1 per cent, E-1 per cent, B-0 per cent. This is highly significant departure from the values of clinically normal animal.

SQUAMOUS CELL CARCINOMA OF TONGUE IN A BULLOCK

A.P. BHOKRE, V.S. PANCHBHAI, L.B. SARKATE AND B.B. DESHPANDE

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

A Red Kandhari bullock, aged eight years was admitted in the Veterinary Polyclinic, Marathwada Agricultural University, Parbhani. The animal was weak, debilitated and having growth upon tongue since last $4\frac{1}{2}$ months. Clinical examination of patient showed a tumour of tennis ball size attached firmly on the dorsum of tongue and interfering with mastication and deglutination.

The animal was operated upon under sedation and local infiltration anaesthesia. Application of tourniquet behind tumour checked haemorrhage during operation effectively. The tumour along with its base in the tongue tissue was resected with some healthy tissue surrounding it. The muscles and mucosa were opposed by using interrupted sutures of 1/0 catgut. Post operative treatment consisted

of injection of Terramycin and dextrose saline by intravenous route and dressing of the lesion by boroglycerine for three days. The animal started eating and drinking and was discharged on fourth post operative day.

The tumour was circular having 8 cm diameter and weighed 101.5 gm. Histopathological examination revealed characteristic appearance of 'pearls' indicative of squamous cell carcinoma.

In the case under report wide surgical resection of the tumour was excersized and proved to be successful as the owner reported no recurrence of tumour and animal improving in health after three weeks of operation. However after $2\frac{1}{2}$ months the owner communicated about the death of the animal.

INCIDENCE OF HORN CANCER IN BOVINES

S.K. PANDEY AND G.N. KOLTE

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

Seventeen cases of horn cancer over a period of 10 years were histologically examined. Three bullocks and one cow showed recurrence. No recurrence was reported in buffaloes. The recurrence in bullocks was noticed after the expiry of 8 months, while in cow it appeared after 4 days. The incidence was high in bullocks, less in buffaloes and still less in cows. No breed specification could be established because all the bullocks were of non descript type, while all buffaloes were of Murrah breed.

The one cow was of Haryana breed while the other one was of Gir breed. The cases in which the recurrence was noticed were showing mucous mixed blood discharge from the nostrils of the affected side. No apparent enlargement of the parotid salivary gland was noticed. Trauma at the base of the horn was reported in all the above cases.

(10 bullocks of 6—12 years, 2 cows of 6—8 years, and 5 buffaloes of 6—10 years)

PROPHYLAXIS OF FOREIGN BODY SYNDROME BY MAGNET FEEDING IN CATTLE

P.E. KULKARNI AND A.R. PATIL Punjabrao Krishi

Vidyapeeth, Krishinagar, Akola, Maharashtra.

Foreign body syndrome was experimentally produced in 20 calves between the age group of 12 to 18 months, by introducing 3" long, 3 wires and 3 nails into the rumen through canula. Regurgitation of 21% foreign bodies was noticed in 1 to 3 days after introduction. Appropriate number of bodies were fed to the calves.

The animals were divided in 2 equal groups; one was kept as control and the other was treated with the magnet feeding. 'Comet magnet' supplied for trials by M/s O & P. Veterinary Equipments ApS, Denmark, were used. The animals were observed daily till either the development of foreign body syndrome or upto 180 days after introducing the bodies.

On an average elevation of temperature, heart and respiratory rate was observed on 11th, 12th, and 14th post introduction days. The three diagnostic tests viz., Goetz's test wither pinch test and William's reticular grunt test gave positive indication more or less simultaneously i.e., on or about 28th day on an average. Leucocytosis and neutrophilia

also developed practically at this time. The disease was confirmed with radiographic examination. The affected animal were then operated and the bodies were removed. It was observed that:

Total No. of bodies fed	..	76
No. of bodies regurgitated	..	16
No. of bodies found in:		
reticulum	..	55
rumen	..	2
peritoneal cavity	..	3
No. of bodies penetrating the reticular wall	..	34

The animals recovered completely after the removal of the foreign bodies. None of the treated animals developed the syndrome through out the period of observation of 180 days. The magnets recovered thereafter showed typical attachment of the bodies to the magnet. These observations show that foreign body syndrome can be prevented by magnet feeding to the bovines.

SURGICAL TREATMENT OF SALIVARY FISTULA IN BOVINE

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Orissa University of Agriculture and Technology, Bhubaneswar, Orissa.*

Surgical management of salivary fistula in one bullock and four cows have been described. Ligation of the stenson's duct in the posterior border of the vertical ramus of the lower jaw was found to be convenient than the

approach in front of masseter muscle. Unilateral ablation of the parotid gland was performed when it was infected. All the animals made an uneventful recovery after the operation.

not presented.

PLASTIC REPAIR OF PENILE SHEATH IN A BULLOCK FOR REPOSITIONING OF VENTRALLY DEVIATED PENIS.

MOHANTY, J., BOSE, V.S.C., MITRA, A.K., AND ROY, A.K.

College of Veterinary Science & Animal Husbandry, Bhubaneswar, Orissa.

A case of prescrotal fistula and fibrosis of penile sheath in a bullock has been reported. The entire mass of fibrosed tissue and unhealthy portion of the sheath were excised and thereafter anchoring of polythene tube was unsuccessful. In order to extend the penis into the

healthy penile sheath, undermining around the sigmoid flexure was undertaken. The fibro elastic layer of the penis was closely anchored to the healthy penile sheath to prevent leakage at the site of operation. The bullock recovered uneventfully and the skin sutures were removed after eight days.

Presented by Sr. Bose.

SURGICAL CORRECTION OF THE LUXATED PATELLA IN GOATS

DRS. T. K. GAHLOT, S.S. RATHOR,

D.S. CHOUHAN, R.J. CHOUDHARY AND P.R. DUDI

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Eleven goats with lateral (10) and medial (1) luxations of patella were given surgical treatment and comprising results were obtained. The surgical technique consisted of manual reposition of patella followed by application of a stainless steel wire in figure of eight fashion. The upper loop of figure of eight encircled the apex of reposed patella and middle point gave the anchorage to the crossing wires on transfixed screw at medial epicondyle of femur in lateral luxation and lateral epicondyle in medial luxations. The lower loop was passed tibial tuberosity or through the vicinity of insertion of patellar ligaments at anterior

tibial tuberosity and before tying the knot complete flexion and extension of the limb with patella in position was assured. Reinforcement silk sutures were also applied incorporating the muscles and fascia.

Bending of the screw and breakage of wire with recurrence of luxation were observed radiographically in first postoperative week in two cases, possibly due to tight wiring. Radiographic examination on 2nd to 3rd postoperative months revealed broken wire but without incidence of recurrence in remaining cases.

THE EFFICACY OF LUGOL'S IODINE IN CLINICAL CASES OF LYMPHANGITIS AND MULTIPLE ABSCESSSES IN CAMELS—A PRELIMINARY TRIAL

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In a preliminary trial, the lugol's iodine was given intravenously in clinical cases of lymphangitis and multiple abscesses in camels. Following a poor response from parenteral therapy of OxysteclinR and DicrysticinR, the animals were treated with lugol's iodine for these ailments at a dose rate of 100 ml. per

adult camel, intravenously for five days. A dramatic recovery was observed following the single course of this therapy. The relative cost of the treatment was also estimated to be less as compared to other parenteral antibiotics treatment.

UNUSUAL CASES OF CYST HAVING OSSEOUS GROWTH IN CAMEL (A case report of three clinical cases)

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Two cases revealed cone shaped swelling at the thoracic vertebral region adjacent to the dorsal border of the scapula while the third case showed similar swelling near the chest pad. Their aspiration revealed straw coloured viscous fluid.

Under chloral mag anaesthesia a criss-cross incision was made in the skin, followed by blunt dissection to enucleate the cystic structure. This was interrupted at the base

of the cyst owing to the bony growth. It was attached to the underlying bone and could only be detached by chisel and hammer. The cavity was curetted, sprinkled with antibiotics and sutured with stainless steel wire. Parenteral antibiotics were given for 7 days and sutures were removed on 12th day.

Histopathology of the bony portion revealed osseous tissue of spongy nature being indistinguishable from osteoma.

TREPHINING IN A COW TO REMOVE A MASSIVE NASAL POLYP.

DR. J. MOHANTY, DR. A.K. MITRA AND DR. A.K. RAY, *Dr. V.S.C. Bose.*

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Animal Husbandry, O.U.A.T. Bhubaneswar, Orissa.*

A country-bred cow with a massive nasal polyp was presented in this department for operation. The cow developed dyspnoea and noisy respiration about 4 months back and the owner brought the cow.

The cow was sedated and trephining was carried out under local anaesthesia in the mid-nasal area immediately above the left facial vein. The base of the polyp was found to have extended posteriorly. A second trephining was also attempted at the posterior extremity of the nasal chamber. The animal developed severe respiratory distress with oozing of blood through nostrils. Tracheotomy was quickly performed and an improvised tracheotomy tube was soon introduced into the tracheal

opening. The tracheotomy tube was fabricated in this department using a polythene tube, a circular rubber sheet and a netting of ordinary tea-strainer. It was anchored to the skin surface.

The polyp was removed from the base and the trephined sites were closed by suturing the skin edges. Local application of Spt. Acriflavin and parental administration of Dicrysticin (large) were continued for 8 days. The tracheotomy tube was removed after 8 days and the skin lips were opposed. The cow was discharged. The cow was again examined after 3 months as a follow up and there were no complications.

Presented by Dr. Bose.

NASOTURBINAL FIBROMYXOMA IN A BULLOCK

S.P. MOULI, NIDUBROLU (A.P.)

An advanced clinical case of a large fibromyxomatous growth weighing 780 gm. has been reported. The growth involved the nasal meatus and the turbinate bone of the right side. The clinical symptoms initially caused diagnostic aberration with diseases such as nasal schistosomiasis and fungal

granuloma of the nasomeatus. Surgical ablation of the lesion under sedation, maxillary nerveblock and local analgesia was accomplished successfully via the dissected nasal bone of the side. Tracheotomy facilitated surgical intervention and the bullock made an uneventful recovery in a period of two weeks.

PHYSIOLOGICAL SIGNIFICANCE OF INCREASED OXYHAEMOGLOBIN AFFINITY FOLLOWING SHOCK, URAEMIA AND THIOPENTAL ANAESTHESIA IN THE BOVINE SPECIES

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The various parameters related to the oxygen transport system were analysed and correlated following septic shock, and thiopental anaesthesia, and uraemia in the buffalo calves and calves, respectively to find out the physiological significance of increased oxyhaemoglobin affinity in these experiments.

Increased oxyhaemoglobin affinity appeared to hamper the availability of oxygen to the tissues in the early stages of shock but the same

was effectively compensated in the later stages. Results of this study suggest that during shock, thiopental anaesthesia and uraemia in these animals, a lower driving potential for oxygen could be achieved by changes in capillary-tissue oxygen gradients to maintain or enhance the tissue oxygen availability. In all the three situations, the left shift appeared to be advantageous by increasing the loading of oxygen in the lungs.

TORSION OF UTERUS IN LARGE ANIMALS

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In the present paper the factors responsible for uterine torsion, its symptoms diagnosis and prognosis are reported. The line of treat-

ment like rolling the dam, rotation of the foetus and the surgical correction following right flank laparotomy are discussed.

PULMONARY HERNIATION DUE TO GORED WOUND

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Kovilpatti, Tirunelveli, Dt. (T.N.)

A Jellikhet Bull has been injured on the right 8th and 9th Intercostal space. The lung was protruding to outside. Surgical operation

was performed and the wound was sutured. The wound healed by first intention.

A NEW APPROACH FOR THE SURGICAL MANAGEMENT OF UPWARD FIXATION OF PATELLA

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It is customary to perform medial patellar desmotomy as a radical treatment for upward fixation of patella in cattle/buffaloes. The site for surgery lies in the triangular area which is formed when the distal extremity of patella above, anterior tuberosity of tibia antero-ventrally and the central prominent area of the medial tibial condyle postero-ventrally are joined by an imaginary straight lines.

In the presently reported new approach medial patellar desmotomy is performed in the close contiguity of the tibial tuberosity in an area just posterior to it. The incisional length is smaller and the insertion end of the ligament is almost hypodermic. Desmotomy

at the site is attended with minimum operative and post operative complications and minimum post operative care is needed. Besides this, the surgical technique does not necessitate casting the animal on the affected limb. The hind limbs can be secured together and immobilisation of the limb to be operated by securing a pole on the fetlock; pulling in extreme extension is not required.

In the docile animals desmotomy with the technique has been done in standing restraint in the cattle crush. In the cows in full term or with peak lactation having a voluminous udder the present technique offers a decided merit *vis-a-vis* other approaches.

OBSERVATIONS ON THE ABATTOIR INCIDENCE OF TRAUMATIC RETICULOPERICARDITIS IN BOVINES AT MATHURA (UTTAR PRADESH) a

S. S. MISRA AND S.J. ANGELO,

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Traumatic-reticulopericarditis (TRP) is a pernicious thoraco-abdominal malady of bovines recognized to be a potent economic hazard in cattle and buffalo husbandry. The incidence of the malady has largely been presumptive and so far no data are available for the incidence of this disease in Uttar Pradesh.

An abattoir survey of Mathura district was conducted. The material for this investigation consisted of 630 animals and included 265 aged male buffaloes, 93 adult male buffaloes, 109 young male buffaloes, 141 female buffaloes and 22 aged and infirm bullocks.

The incidence of TRP was calculated on the basis of actual autopsical examination of the slaughtered animals, and with the evidence of lesions of the syndrome such as a penetrating foreign body to have caused reticulitis, peritonitis, extensive reticulopericardic adhesions and pericarditis of varying descriptions. The presence or absence of the foreign body was not the criteria but the

presence and magnitude of the lesions was deciding. Each animal, prior to their slaughter was screened by a metal detector which, however, was found to have an extremely limited significance.

The overall incidence TRP was calculated to be 9.1%. It was maximum in the aged female buffaloes (12.0%) while lowest (4.6%) in the young male buffaloes. In the adult male buffaloes and in the aged male buffaloes the incidence was 10.2% and 9.7% respectively. Aged and infirm bullocks registered a 9.0% incidence.

The overall incidence of 9.1% cannot exactly be representative of the entire bovine population of the region/district for the cows, heifers, young bullocks, and bulls did not form the material for this study for obvious religious and legal reasons.

aPart of Ph.D. Thesis submitted by S.S. Misra to the C.S. Azad University of Agriculture and Technology, Kanpur, 1981.

Orthopaedic Surgery

TRANSARTICULAR FIXATION IN THE TREATMENT OF SUPRACONDYLAR FRACTURES OF FEMUR IN RABBIT—AN EXPERIMENTAL STUDY

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Orthopaedic Surgeons generally face the problem to immobilize the supracondylar fractures of femur even in small animals. The complications which may follow are non union, malunion or ankylosis of the stifle joint. We have tried a new technique to immobilize such fractures, where we drove the nail across the stifle joint into the tibia to overcome the long lever arm of the proximal fracture fragment which forces motion to occur at the fracture site.

The study was conducted in ten rabbits. The animals were anaesthetized with thiopental sodium given @ 30 mg/kg. body weight. The lateral aspect of the thigh from stifle to hip joint was prepared for surgery. The femur was approached through antero lateral skin incision and by separating the biceps femoris and vastus lateralis muscles. The supra condylar

fracture was then created with small file. A double pointed Steinman pin was then fixed in proximal fragments in retrograde manner. The fracture was reduced and pin was fixed in distal fragment. The limb was then extended to its maximum and slowly pin was driven through joint into the tibia. The wound was closed in routine manner. The animals were kept in separate cages and weekly follow up radiographs were taken.

The position of pin remained unchanged throughout the period of observation. The fracture healed after 4th week and the pin was removed at this stage. The animals were again kept under observation for few days. A slight stiffness in the joint was observed, however, all the animals maintained postoperative range of motion.

TRANSFIXATION TECHNIQUE AND ITS MODIFICATIONS IN THE REPAIR OF LONG BONE FRACTURES IN LARGE ANIMALS

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Fractures of long bone were treated by transfixation technique in original and modified forms. These modifications were based on the site and nature of fractures and the anatomical

relationship of the fractured bone. While retaining the original features of transfixation technique, the modifications helped in tiding over certain difficulties which hamper its extensive use.

AUTOGENOUS FASCIAL TENDON GRAFTING IN BUFFALO CALVES—AN EXPERIMENTAL STUDY

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A total of eight animals of 1½ to 2 years of age were used in the experiment. They were divided into two groups of four animals each. The animals of group I were subjected to fascial tendon grafting. The fascia was obtained from the tensor fascia lata of the thigh of another limb. Receptient bed was prepared in the superficial digital flexor tendon after removing a piece of 4-5 cm. length. A piece of fascia of about 5 cm. length was removed to bridge the gap of the tendon with fascial graft. The fascial flap was anchored with the tendon on both the ends with continuous suture. The longitudinal free edges of the fascia were sutured in a continuous fashion. After closing the tendon sheath and the skin wound, plaster cast was applied in all the animals for a period of 14, 21, 28 and 42 days. Thereafter the operative site was incised for collection of tissues from both the junctions of the graft for histopatho-logical examination. Group II was kept as control and the severed tendons were left unrepaired for normal healing and the site was immobilised by plaster cast.

There was limping in all the animals of group I, which disappeared completely in 14 to 19 days post-operatively. They started

bearing weight from 8 to 13 post-operative days. On exploration of the operative site it was revealed that the fascial graft had taken well in all the animals. The degree of adhesion of the sheath with tenon varied from mild to severe and in one case it was absent. Gliding of the tendon within the sheath was full in 25% cases, partial in 50% cases and absent in 25% cases.

The microscopic examination revealed that the union between the fascia and the tendon was caused by proliferating fibrous connective tissue at both the ends of the graft. Initiation of feathering phenomena in the tendon fibres due to the growth of fibroblasts and fibrocytes, in between the bundles of tendon fibres could be seen at 42 days of grafting and there was a complete union between the fascial and tendon ends. At this stage it was difficult to locate the exact site of union and it could be possible only by recognising the huge number of blood vessels and a few collagen fibres having criss-cross arrangement.

The control group of animals were unable to bear weight by the operated limb throughout the period of clinical observation with manifestation of severe limping.

FRACTURE OF HORIZONTAL RAMI OF MANDIBLE—IN AN ONGOLE BULL—A CASE REPORT

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Bilateral fracture of horizontal rami of mandible in an Ongole bull aged about 8 years was successfully treated with silver wire.

Calandula (Homeopathic drug) for cleaning and dressing the fracture wound gave good results.

EFFECT OF ELECTRICAL STIMULATION ON FRACTURE HEALING IN BUFFALOE CALVES—AN EXPERIMENTAL STUDY

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Effect of electrical stimulation on the reactangular defects of the right metacarpi was studied in 12 buffaloe calves. In the first group of 6 buffaloe calves a constant 20 μ A D.C. current was passed at the site of defect for 9 days & in the second group of 6 animals. Similar current was passed for 18 days. The cathode was placed & anchored at the defect itself whereas the anode was secured in the subcutaneous tissues away from the defect. The source of D.C. current was through a 3 volt battery and a potentiometer. A similar defect in the left metacarpi without electrical stimulation served as control.

The effect of the current was evaluated radio-graphically, angiographically & histomorphologically. Radiographically no diffe-

rence could be detected between the treated & control limbs. However, increased vascularization was evident in the electrically treated limbs when compared to the controls. Histomorphologically by 9th day an accelerated attempt towards healing was evident in the electrically treated calluses through proliferation of fibroblasts & infiltration of cells when compared to the control calluses. By 18th day a definite acceleration of healing in the electrically stimulated calluses was evident through marked osteoblastic activity & osteoid tissue. The trabaculae were more compact with very little intertrabacular space. However, the control calluses were cartilagenous with sparse trabacular formation and wide intertrabacular space.

REPAIR OF TIBIAL FRACTURES IN BOVINE—A CLINICAL STUDY

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Evaluation of different techniques of immobilization of tibial fractures in bovine revealed the efficacy of these methods in the following order: Double plate fixation, Single plate fixation, Kunschner nailing and hanging

pin cast. Follow up observations upto 8 to 10 weeks are recorded. In the case of double plate fixation technique external immobilization was considered necessary in adult cattle.

STUDIES ON EXPERIMENTAL AUTOGENOUS PARTIAL TENDON GRAFTING IN BUFFALO CALVES

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The experiment was conducted on eight male buffalo calves of 1½ to 2 years. The animals were divided into two groups of four animals each. In group I, partial tendon grafting was performed. The grafting material was procured from superficial digital flexor tendon of the same hindleg. Receptient bed was prepared by creating a gap in the tendon and then the proximal stump of the tendon was slit and a piece having half the width of the normal tendon and equal to the length of the gap created was removed from the side of the tendon. Likewise, the distal stump was also slit for a short distance and a piece of the tendon was excised and discarded to make both the stumps of equal width for easy application of Koch-Mason suture. The gap was bridged with the piece of the graft taken from the proximal end of the tendon and the tendon sheath, and skin was closed. The limb was immobilised with plaster cast for a period of 14, 21, 28 and 42 days and then removed for the collection of tissue. In group II, the severed tendon was left unrepaired after plastering for normal healing.

The operated limb of group I animals was kept extended for a fortnight and thereafter flexion was exhibited. Severe limping could be noticed for a week in all the animals which

gradually subsided by the end of the second week. The animals started bearing weight after 9-12 days of operation. On exposing the operated site, it was found that there was complete union between graft and host tendon in all the cases. The adhesions were severe, partial and absent in 50%, 25% and 25% cases respectively.

At two weeks interval, the microscopic examination revealed severe haemorrhage, proliferation of tendinoblast at both the ends of the tendon and a few tendinoblast with *Vesicular nucleus* without much collagen substance around them infiltrating the site of the graft. After 3 and 4 weeks of grafting the gap showed haphazard arrangement of the tendinoblast at the union with mononuclear cell infiltration. A large number of lymphocytes with macrophages and giant cells could also be seen in the adjoining area. In addition, the proliferation of blood vessels and perivascular cuffing of lymphocytes were also discernible. After 42 days of grafting the union was effected by the haphazard growth of tendon tissue. The infiltration of mononuclear cells and perivascular cuffing of lymphocytes were still visible. The animals of the control group showed lameness throughout the period of observation without repair of the tendon.

EFFECT OF LIMB TOURNIQUET ISCHAEMIA ON LOCAL AND SYSTEMIC ACID-BASE AND BLOOD GASES OF CATTLE

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Effect of fore-limb tourniquet ischaemia of 90 minutes duration was investigated in six cow bulls aged 2—3 years. Studies were also conducted upto 150 minutes after release of tourniquet. Parameters investigated were pH, pCO_2 , pO_2 , oxygen saturation and HCO_3 . These parameters were studied in the blood samples from carotid artery, jugular vein and local vein (radial vein). In systemic circulation no variation in different parameters was observed during 90 minutes of ischaemia. However, after 30 and 45 minutes of release of tourniquet, significant increases in arterial and venous pH were observed, respectively. This increase was

due to concomittent elevation of HCO_3 . Other parameters were not affected.

In the affected limb ischaemia resulted in severe acidosis due to significant increase in pCO_2 and nonsignificant decrease of HCO_3 . There was significant hypoxemia due to fall in pO_2 and saturation of haemoglobin. After release of tourniquet local vein pH increased significantly due to significant fall in pCO_2 and nonsignificant increase in bicarbonate. There was a significant increase in pO_2 and oxygen saturation of haemoglobin. This was confirmed evidence of very poor oxygen exchange and utilization upto 150 minutes after release of tourniquet.

AN EVALUATION OF IMMOBILIZATION TECHNIQUES FOR REPAIR OF BILATERAL MANDIBULAR FRACTURES IN CAMELS

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In the present paper an evaluation of different techniques used to immobilize the bilateral, compound and infected fractures of mandible in sixteen camels, is described. The transfixation technique and silver wiring techniques were used for the repair. Except for the oblique fractures and fracture anterior to the Wolf's teeth (Tushes), the silver wiring technique proved to be most practicable and superior than the other techniques because it was economic, easy to perform, needed no general anaesthesia and facilitated the surgical

care of the abscesses developed on the ventral aspect of the fractured region. The other technique proved to be cumbersome and required general anaesthesia to perform. The post operative complications included local osteomyelitis, percutaneous transfixation wounds, eruptions and loosening of the pins and skin necrosis. But still the transfixation technique is only alternative for oblique fractures and fractures anterior to the Wolf's teeth because the wiring technique cannot avert frequent over riding of the fragments.

MODIFIED TECHNIQUE OF IMMOBILIZATION OF BOVINE HIND LIMB FOR TENORRAPHY

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Modification in the technique reported by Marudwar & Kulkarni (1980) in so far as it relates to the lower hind limb has been tried and perfected. In this modification a sling is prepared between the lower thigh and the tow for flexing the hock and fetlock joints so that the animal does not put weight on the affected limb.

A hole is drilled in the insensitive toe of each claw. A 10 inch long string wire is passed through the holes and the ends are tied to prepare a loop. Through the loop cotton rope of half inch diameter is passed and tied. The limb is flexed in fetlock and hock and the

rope is tightly tied above the hock in such a way that the joints remain in flexed position. Before the rope is tied above the hock sufficient cotton padding is provided to avoid or reduce scar formation likely to be caused by the tightly tied rope.

The method is successfully tried in 12 experimental tenorrhaphies in male buffalo calves between age group of 12 to 18 months. Absence of tension on the tendons due to body weight contributed towards uneventful healing of the severed tendons anastomosed with modified Meyer-Bunnel technique of suturing using stainless steel wire.

STUDIES ON EXPERIMENTAL AUTOGENOUS TOTAL TENDON GRAFTING IN BUFFALO-CALVES

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The experiment was conducted on eight male buffalo-calves, aged about 1½ to 2 years. The animals were divided into two groups of 4 animals each. In group I, total tendon grafting was done and group II was kept as control. The grafting bed was prepared after removing a 3-4 cm. piece of tendon from the superficial digital flexor tendon and the piece thus removed was used as a grafting material to bridge the gap created in the tendon. To secure the graft in position, Koch-Mason suture using 3/0 black braided silk thread was applied. The retracted tendon sheath was then brought over the grafted tendon and its edges were sutured in continuous fashion to cover the repaired superficial flexor tendon. The skin wound was closed in mattress fashion and the limb was immobilised by plaster cast for a period of 14, 21, 28 and 42 days and then it was removed for the collection of tissue. In control group, the severed tendon of the animals was left unrepaired for normal healing after immobilising it.

The animals of group I the disappearance of limping and light weight bearing could be observed from 17 to 21 days and 7th to 10th days respectively. In 50% animals there were full gliding of the healed tendon within the tendon sheath and in others the adhesion of sheath with tendon varied from mild to severe. Continuity of the graft with host tissues was observed at both the ends in all the animals with moderate to sufficient tensile strength

and moderate thickening of the grafted part. The grafted tendon appeared to be a little whitish than the host tendon.

The microscopic examination of two weeks old graft revealed severe congestion of blood vessels and thickening of tendon sheath due to proliferation of connective tissue with moderate amount of tendon cells proliferation in the host tissue. The arrangement of newly formed tendon cells and fibrils were parallel to the long axis whereas the connective tissue cells with their fibres were horizontally migrating at the site of the union. There was infiltration of mononuclear cells around the suture.

The microscopic examination at 3 and 4 weeks interval showed formation of fibroblast in the host tissue and few large blood vessels at the site of union. A more perfect union of graft and host tissue was evident, however, infiltration of a few mononuclear cells, at places, could be seen at this stage also.

The tendon graft after six weeks showed a severe proliferation of tendon cells in the host tissue and the union was so complete that it was difficult to locate the site of union except that the tendon fibrils ran obliquely at this location. There were no cellular infiltration and congestion of blood vessels.

Limping was observed in the animals of control group throughout the period of observation.

BIOCHEMICAL RESPONSE OF PREDNISOL ADMINISTRATION IN ARTHRITES

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Arthritis was produced in 18 male cow calves by injecting 10 ml of 5% formaldehyde solution in the left stifle joint. The animals were divided into three groups of 6 animals in each Group. I animals were kept as control. In group II and III 5 ml. of prednisolone (50 mg/ml) was injected intra-articularly and intramuscularly on 4th and 8th day. The synovial fluid was removed immediately before injection of formaldehyde and there after on 4th, 8th, 12th and 16th day. The synovial protein was significantly maintained high between 4th to 12th day in group I and III while in group II it was high only on 4th and 8th day. Similarly synovial globulin value was higher between 4th—16th in group I and III while near normal on 12th day in group II. The synovial albumin was significantly increased in group I, II and III. No significant change in serum protein, albumin and globulin was noticed.

The synovial glucose showed a significant decrease between 4th—16th day in group I,

between 4th—8th day in group II and III. The rise in synovial glucose level between 12 and 16th was significant in group III. The blood glucose level did not show any significant change in group I, II and III.

The synovial alkaline phosphatase activity showed significant rise from 4th to 16th day in group I where as in group II & III this rise was significant only between 4th to 12th day. The serum alkaline phosphatase activity showed significant rise between 4th to 12th day in group I, while in group II and III the values were significant only on 4th and 8th day.

The rise in acid phosphatase activity was significant between 4th—16th day in group I, between 4th—12th in group II and between 4th—8th in group III. Similarly the rise in serum acid phosphatase was significant between 4th—16th in group I, while in group II and III it was significant only on 4th day.

TIRUMALA TIRUPATI DEVASTHANAMS, TIRUPATI
SRI VENKATESWARA NITYA LADDU DANA ENDOWMENT SCHEME

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Do you wish to make PERMANENT LADDU Danam to all the Devotees visiting Lord Venkateswara in any particular day every year?

This is a sacred scheme with provision for every pilgrim visiting the Temple getting one Laddu of 25 grams free.

The Donor will be twice blessed: will receive the blessings of the Lord and the benedictions of thousands of devotees every year for the magnificent munificence.

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THE SALIENT FEATURES OF THE SCHEME ARE:

- * The Devotee has to donate Rs. One Lakh as endowment towards this scheme by means of a crossed draft in favour of the Executive Officer, T.T.D. drawn on any Bank in India. The interest will be utilised for preparation of 25,000 Laddus, 25 grams each in his name.
- * The distribution will be done on any day of the devotees choice including with his birth day, wedding anniversary, parents shradha day, starting of Companies, Annual accounts opening or closing.
- * The name of the Donor will be displayed prominently on a Board at Padikavali—where the Laddus will be distributed to every devotee after darshan.

THE DONOR WILL BE PROVIDED WITH THE FOLLOWING FACILITIES:

- * Accommodation in the V.I.P. Guest House.
- * Free darshan of Sri Varu for family (five persons) that day every year.
- * The name and the Gotram of the Donor will be read out at "KOLUVU" in Sri Vari Temple, Tirumala in the morning on the specified day of distribution.
- * The Donor will be given one Vasthram as Bahumanam.
- * The Donor will be given 6 T.T.D. Laddus and 6 Vadas as Prasadam.
- * The Donor or his representative can be present on the day of distribution: If nobody is present, intimation about the distribution of Laddu on the day will be intimated to the Donor, along with the Mahaprasadam packets.

For any clarification, the Executive Officer, T. T. Devasthanams, Tirupati, may kindly be addressed.

The donation should reach the Executive Officer, T. T. Devasthanams atleast 15 days in advance of the specified date, furnishing the following particulars:

Name and address of the remitter:

Name and address of the person/persons or Company in whose name the distribution has to be done, together, with the Gothram family name to be read in the "Koluvu" of Sri Varu:

Name and address of the person in whose name the Income Tax Exemption certificate is to be issued:

Dates in order preference on which the distribution of Laddu is desired.

EXECUTIVE OFFICER