

ABSTRACTS



INDIAN SOCIETY FOR VETERINARY SURGERY

**Silver Jubilee Annual Congress
and National Symposium**

**On
Clinical Orientation of Research in
Veterinary Surgery**

Organised by
**Department of Veterinary Surgery and Radiology
College of Veterinary Science
CCS HAU, Hisar**

Editors
**Kuldip Singh
A.P. Mamtani**

5-7 December, 2001

Published by



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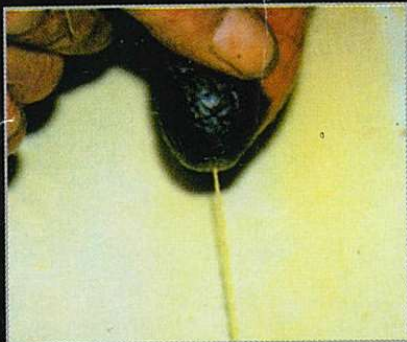
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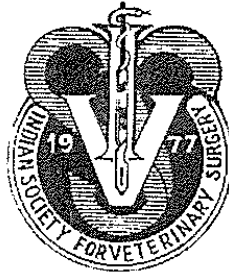


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Dr. Kuldip Singh

Professor, Department of Veterinary Surgery and Radiology,
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Published by:

Dr. A.P. Mamtani on behalf of Indian Society for Veterinary Surgery & Radiology, Hisar and Intas Pharmaceuticals Ltd., Ashram Road, Ahmedabad - 380009. Tel. 079-6576655, Fax : 079-6578862.

Printed at:

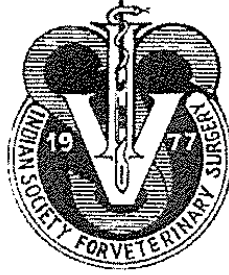
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DECEMBER - 2001

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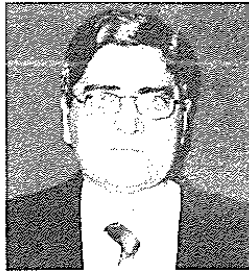
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Dr. Jit Singh

INDIAN SOCIETY FOR VETERINARY SURGERY

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Foreword

The Indian Society for Veterinary Surgery came into existence on 28th Oct. 1977 in Hisar with an aim to provide a common platform for the members to exchange scientific knowledge in the field of veterinary surgery and radiology. The society is celebrating its Silver Jubilee function at Hisar from 5th-7th December, 2001. During the last 25 years, Veterinary Surgery has made a commendable contribution by developing surgical techniques to tackle major surgical problems like diaphragmatic hernia in buffaloes, urolithiasis in ruminants and repair of long bone fractures in large animals. Great strides in research in the field of veterinary anaesthesia and diagnostic imaging both in large and small animals have also been made in India. This was possible due to participation and discussions by scientists working in field of Veterinary Surgery and Radiology and field veterinarians at Annual Conventions of ISVS held every year. Of late, lot of restrictions have been put recently on conducting experimentations on the animals by Animal Welfare Board under Ministry of Social Justice and Empowerment, Government of India. it has now, therefore, become difficult to conduct scientific experiments on live animals. Thus the objective selected for the symposium is to focus and exchange information on *clinical orientation of research in Veterinary Surgery*.

Around 120 papers in the field of Surgery, Orthopedics, anesthesiology, diagnostic imaging were received for presentation at this symposium. The scientific deliberations by the scientists at this conference will be extremely useful to plan research on clinical surgical problems in future. We are highly thankful to Intas Pharmaceuticals Ltd., Ahmedabad (Gujarat) for publishing the abstracts of ISVS Conference on the occasion of Silver Jubilee Celebrations.



(Dr. Jit Singh)

Professor and Head,

Department of Veterinary Surgery and Radiology,
CCS, HAU, Hisar.

Calendar 2002

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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Theme papers section

Clinical Orientation of Research in Veterinary Surgery

Gajraj Singh

Division of Surgery, IVRI, Izatnagar, (U.P.)
(To be presented)

A Critical Appraisal of the Technical Papers Presented at Annual Conventions of ISVS (1988 to 2000)

P.A. Deore

A/7 Vine Wada, 129, Shukrawas Path,
Pune-411 002

A total of 1150 papers presented during annual conventions of ISVS from 1988 to 2000 were analyzed from the point of view of field veterinarians possessing bare minimum surgical facilities. It was observed that 46% papers were related to large animals, 48% to small animals (including sheep & goat) and 4% to wild animals & birds. Only about 6% of the papers were presented by field vets. Of the total papers presented, only 1.1% could be of direct use to field veterinarians. It was also seen that about 62% of the papers presented by field vets were related to large animal practice. Subjectwise categorization of papers presented was: general surgery (24.2%), anaesthesia (8.1%), orthopedics (7.4%) and diagnostic imaging (3.6%). Some of the papers did provide useful good surgical techniques.

Section No. 1 Anesthesiology

1.1 Physiological and Clinical Effects of Midazolam and Ketamine in Dogs

V. Butola, B. Singh and R.P. Pandey

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Husbandry, C.S. Azad University of Agriculture
and Technology, Mathura-Campus,
Mathura-281 001 (U.P.)

Experiment was conducted on eight clinically healthy mongrel dogs aged 2-4 years and 10-25 kg body weight. The animals were divided in two groups of four animals each. Midazolam @ 0.3 and 0.5 mg/kg intravenously immediately followed by ketamine hydrochloride by slow intravenous injection was administered "to effect". Clinical, physiological, MAP and CVP parameters were studied.

Ketamine hydrochloride @ 15.53 ± 1.018 mg and 12.11 ± 0.879 mg/kg body weight was required for induction of general anesthesia in T1 and T2 groups of animals with duration of general anaesthesia, time to licking philtrum, time to sternal recumbency, standing time and complete recovery times 18.00 ± 0.913 and 12.75 ± 0.629 , 32.00 ± 0.707 and 14.5 ± 1.323 , 45.75 ± 1.652 and 35.75 ± 3.4 , 65.25 ± 2.323 and 59.25 ± 2.175 and 107.00 ± 2.858 and 90.75 ± 4.535 minutes, respectively. Significant increase in heart rate and decrease in respiratory rate and non significant decrease in rectal temperature at different intervals in both the groups were recorded. A significant increase in MAP in T1 group of animals and a non-significant decrease in MAP in T2 group of animals with non-significant minor reduction in CVP were observed at different intervals in both groups of animals. Midazolam in both the doses in combination with ketamine produced good surgical anaesthesia with good muscular relaxation. To sum up, these combinations can be used for short duration surgical anaesthesia without any adverse effect on cardiopulmonary functions in dogs.

1.2 Propofol as General Anaesthetic in Combination with Preanaesthetics in Dogs

V. Sharma, M.K. Bhargava and S.K. Pandey

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

Six healthy non descript adult male dogs weighing 10-25 kg were used for the experiment. Atropine sulphate @ 0.05 mg/kg was injected intramuscularly to each animal in all the four treatments. In treatment I, triflupromazine hydrochloride @ 1 mg/kg b.wt. was injected I/V 15 minutes prior to administration of propofol I/V (1%) till loss of pedal reflex. In treatment II, triflupromazine and propofol were given as in treatment I, followed by propofol intermittently thrice to prolong the duration of anaesthesia. In treatment III, midazolam @ 0.3 mg/kg b.wt. was administered I/V followed by propofol as in treatment I, whereas in treatment IV midazolam was given as in treatment III followed by propofol as in treatment II. The rectal temperature, pulse and respiratory rates and haematological estimation were recorded at different intervals. The onset of anaesthesia was in 60.83 ± 6.88 , 50.00 ± 7.18 , 53.33 ± 4.94 and 58.33 ± 6.53 seconds in treatment I, II, III and IV respectively. Duration of surgical anaesthesia was 11.16 ± 0.79 , 34.83 ± 1.49 , 6.66 ± 0.55 and 27.16 ± 1.77 minutes, whereas complete recovery from anaesthesia was 251.83 ± 78.43 , 322.66 ± 59.79 , 63.82 ± 23.05 and 69.83 ± 6.47 minutes in treatment I, II, III and IV respectively. The dose of propofol used to produce surgical anaesthesia was 3.29 ± 0.20 and 3.88 ± 0.59 mg/kg b.wt. in treatment I and III respectively, whereas in treatment II and IV, the total dose required was 7.66 ± 0.51 and 7.96 ± 0.64 mg/kg b.wt. Heart rate and neutrophil count showed significant increase, whereas significant decrease was observed in packed cell volume, lymphocyte, eosinophil and monocyte counts. However, rectal temperature, respiratory rate, total erythrocyte count, total leucocyte count and haemoglobin showed non significant decreases in all the four treatments.

1.3 Dose Sparing Effect of Epidural Ketamine on Thiopental Anaesthesia in Dogs Undergoing Tibial Fracture Repair

H.R. Bhardwaj*, Amarpal** and G.R. Singh**

* College of Veterinary Science and Animal Husbandry,

SKUAST-J, R.S.Pura, Jammu (J and K)

**Division of Surgery, IVRI,

Izatnagar-243 122 (UP)

Sixteen adult dogs were divided in four groups (I, II, III and IV) of four animals each. The creation and fixation of the tibial fracture was done under general anaesthesia induced by atropine-triflupromazine-thiopental sodium along with epidural analgesia with lignocaine HCl (4mg/kg), ketamine HCl (3mg/kg) and pethidine HCl (2mg/kg) in groups II, III and IV, respectively. In animals of group I, instead of epidural analgesia, 2 ml of placebo (normal saline) was injected. Atropine sulphate (0.045 mg/kg) was administered subcutaneously followed ten minutes later by triflupromazine (1 mg/kg) intramuscularly. Ten minutes later, normal saline, lignocaine HCl, ketamine HCl and pethidine HCl were administered epidurally in groups I, II, III and IV, respectively. After a gap of another ten minutes, anaesthesia was induced in all groups using thiopental sodium (2.5%) "to effect" intravenously. Mean duration of surgery in groups I, II, III and IV was 67.50 ± 8.89 , 60.00 ± 5.40 , 67.50 ± 12.50 and 68.75 ± 3.14 minutes respectively. The frequency of administration of thiopental solution for maintenance ranged from 1-3, 1-2, 1-3 and 2-3 in groups I, II, III and IV respectively.

The total dose of thiopental required to induce and maintain the anaesthesia for entire duration of surgery was 40.31 ± 5.82 , 30.62 ± 5.80 , 32.18 ± 3.69 and 35.00 ± 3.49 mg/kg body weight in groups I, II, III and IV respectively. Therefore, the minimum dose of thiopental per kg/min of surgery was required in group III, followed by groups IV, II and I. Epidural ketamine (group III) had maximum dose sparing effect on thiopental sodium.

1.4 Evaluation of Anaesthetic Regimen for Heart-Lung Bypass Surgery in Dogs

K. Ramanujam, N.N. Balasubramaniam, Archibald B. David and R. Ganesh

Tamilnadu Veterinary and Animal Science University, Chennai-600 051.

In heart-lung bypass surgery, anaesthetic studies were conducted on three groups of dogs. Pancuronium and gallamine were used as muscle relaxants after premedication with atropine sulphate and acepromazine. Thiopentone was used as induction agent and anaesthesia was maintained with nitrous oxide, halothane and isoflurane. The anaesthetic studies revealed significant decrease in time taken for deep anaesthesia in isoflurane and halothane compared to nitrous oxide, also less number of debrillator application and less number of inotropic support in isoflurane-pancuronium group. The total dose of muscle relaxants administered during the pre- and post- bypass was significantly higher with gallamine than pancuronium. The time taken for rewarming, weaning from the ventilator was significantly less in isoflurane followed by nitrous oxide and halothane group. It was concluded that isoflurane-pancuronium regimen was more beneficial in heart-lung bypass followed by nitrous oxide and halothane.

1.5 Evaluation of Pentazocine Alone and in Combination with Acepromazine, Detomidine and Diazepam in Buffalo Calves (*Bubalus bubalis*)

Ashok Kumar, Jit Singh and P.K. Peshin

Department of Surgery and Radiology, College of Veterinary Science CCS HAU, Hisar

Twenty experimental trials were undertaken on clinically healthy male buffalo calves. Pentazocine, acepromazine, detomidine and diazepam, were

administered at dose rates of 2.00, 0.01, 0.05 and 0.75 mg/kg respectively. Various parameters were investigated before administering the drugs i.e. at peak effects of drugs, after recovery and at 24, 48, 72 hours of drugs administration. Pentazocine alone produced CNS excitation in all the animals. There was no cutaneous analgesia. Animals recovered at 185 ± 5 minutes after its administration. There was non-significant increase in rectal temperature and heart rate at its peak effects. However, the values showed significant increase at recovery. Respiratory rate showed non-significant rise. Pentazocine-acepromazine combination induced no analgesia, however, animals appeared sleepy but could be aroused. Complete recovery took 204 ± 6 minutes. Heart rate and respiratory rate decreased significantly after detomidine administration. Heart rate showed non-significant increase after pentazocine administration. Pentazocine-diazepam combination produced no analgesia. Animals showed signs of CNS excitation. There was significant increase in rectal temperature, heart rate and respiratory rate. No significant changes were observed in any of the haematological and blood biochemical parameters in this study.

1.6 Effects of Diazepam-Thiopentone Combination in Buffalo Calves: An Unsafe Anaesthesia (*Bubalus bubalis*)

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The study was done on ten clinically healthy male buffalo calves. Diazepam (0.5 mg/kg) intravenously produced good sedation and muscle relaxation but most animals had severe ataxia and went into sternal/lateral recumbency. Preadministration of diazepam reduced the dose of thiopentone required for surgical anaesthesia to almost half. There were no significant changes in rectal temperature, Hb, and PCV values. Animals took 5-6 hours for complete recovery. Diazepam produced considerable hypotension without any change in heart rate and CVP. This combination has proved as unsafe anaesthesia in buffalo calves.

1.7 Evaluation of Midazolam-Thiopentone Sodium Combination in Crossbred Cow Calves

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Midazolam is an imidazobenzodiazepine derivative and has been used in past as sedative and induction agent in human and in small animal anaesthesia. In present randomized study on five male crossbred calves, midazolam was used as a sedative agent alone and in combination with thiopentone sodium. Midazolam alone @ 0.5 mg/kg body weight produced good sedation without any significant effect on cardiorespiratory, haematological, and biochemical parameters except a mild and compensated respiratory acidosis. Midazolam @ 0.4 mg/kg body weight, when used in combination with thiopentone sodium "to effect" provided satisfactory surgical anaesthesia for about 30 minutes. The dose of thiopentone was reduced by about 25 percent. A slight but transient hypotension and tachycardia were observed. A mild respiratory acidosis which was compensated partially along with slight hypoxemia was observed. No significant effects on ECG, hematological and biochemical parameters was observed.

1.8 Epidural Analgesia with Medetomidine and Ketamine alone and in Combination in Cow Calves: An Experimental Study

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Epidural administration of medetomidine (20 µg/kg) or ketamine (3 mg/kg) alone or in combination on twelve healthy male Sahiwal calves produced hind limb analgesia sufficient for surgical intervention. The mixture of medetomidine and ketamine produced quick onset and longer duration of analgesia. The bradycardia, respiratory depression, ruminal stasis and other cardiopulmonary depres-

sant effects produced by medetomidine were minimized when it was combined with ketamine. The hematological profiles of animals remained unaffected with these treatments. Significant ($p < 0.01$) hyperglycemia of transient nature was noticed. This combination can safely be used for producing hind quarter analgesia.

1.9 Evaluation of Diazepam and Triflupromazine in Neonatal Calves: An Experimental Study

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The present study was conducted on 16 neonatal male cow calves, 12-15 days old and weighing between 14-26 kg. On pilot trials, a dose rate of 0.3 mg/kg, IV and 0.5 mg/kg, IV were found suitable for diazepam and triflupromazine respectively and the same were used separately in five animals each (Group I and II) for detailed study. The onset time was immediate following diazepam administration whereas it was 3.50 ± 0.75 min following triflupromazine administration. The down time recorded was immediate to 3 min in group I and 16.25 ± 2.56 min in group II. The recovery was at a later stage in group I (84.0 ± 12.4 min) in comparison to group II (71.4 ± 2.81 min). The animals remained sedated for 50-119 min in group II and for 62-78 min in group I whereas the peak effect (deep sedation) was for 7-35 min and 14-67 min respectively. Muscular relaxation was better in group I. In both the groups, analgesia was absent. A decrease in rectal temperature was observed in both the groups but it was significant only in group II. There was evidence of tachycardia in triflupromazine premedicated animals. The respiratory rate and various haematological parameters remained within normal range in both the groups. It was concluded that diazepam or triflupromazine could safely be used as tranquillizers in neonatal calves.

1.10 Evaluation of Medetomidine-Ketamine Anaesthesia in Cow Calves

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The study was conducted on 12 cow calves aged 6 to 12 months and weighing between 60-80 kg b.wt. Ketamine (2 mg/kg) by I/V route was administered at peak effect of medetomidine administration (15 µg/kg). In six animals, sedative effects, rectal temperature, heart rate, respiratory rate, Hb, PCV, ESR, blood glucose, total plasma proteins, creatinine, sodium and potassium were estimated at various time intervals. In remaining six animals MAP, CVP and ECG were recorded at different time intervals.

Animals showed the signs of ataxia (0.40 ± 0.03 min) after medetomidine administration. Animals assumed lateral recumbency after 1.30 ± 0.02 min of its administration. There was complete relaxation of muscles with profuse salivation and ptosis. All the animals showed analgesia on pinprick reflex. Recovery took 69.5 ± 3.4 minutes. There was a significant rise in blood glucose levels after medetomidine and ketamine administration. Plasma proteins were significantly decreased at peak effects of medetomidine and ketamine administration. There was a significant hypertension immediately after medetomidine administration followed by hypotension which further decreased after ketamine injection. There was a significant rise in CVP at peak effects of medetomidine which returned to normal at recovery.

1.11 Evaluation of Xylazine and Midazolam Combination in Buffalo Calves: An Experimental Study

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Experiment was conducted on six non-descript male buffalo calves, aged 10-20 months and weighing between 50 to 150 kg. Three treatments were given to these animals repeated after 30 days interval. Xylazine hydrochloride was given intramuscularly (0.04 mg/kg) (I) group followed 10 minutes later by midazolam administration I/M route (0.3 mg/kg) (II) group or by intravenous route (III) group. These treatments were repeated four times on different animals. Clinical, haematobiochemical parameters were studied.

Onset of sedation with treatments I, II and III was 15.50 ± 1.76 , 18.50 ± 1.56 and 17.75 ± 1.71 minutes respectively. The duration of peak effect was 17.00 ± 2.86 , 27.75 ± 2.96 and 26.00 ± 4.95 minutes with complete recovery time of 46.50 ± 6.24 , 58.00 ± 2.48 and 55.00 ± 5.40 minutes, respectively. Cutaneous analgesia was noticed in IInd and IIIrd groups of animals up to 27.75 ± 3.57 and 20.50 ± 3.67 minutes while the animals of all the Ist, IInd and IIIrd groups attained sitting or recumbent position up to a period of 42.00 ± 4.16 , 47.75 ± 2.72 and 47.00 ± 5.15 minutes respectively.

Decrease in heart and respiratory rates in Ist, IInd and IIIrd groups of animals was highly significant at some intervals but of transient nature. Mean arterial pressure showed a significant reduction in IInd group of animals during peak effect of drug with slight reduction in CVP in all the groups of animals. Significant to non-significant reduction in PCV was observed with non-significant changes in Hb in all the animals. The significant increase in ESR was observed from 60 to 120 minutes in Ist group of animals. Blood glucose showed a significant increase in all the groups, while changes in

serum creatinine were noticed only in IIIrd group of animals. There were non-significant changes in serum alkaline phosphatase, TLC, DLC, serum potassium and chloride values while serum sodium showed transient significant drop in all the groups of animals. Midazolam in combination with xylazine decreased the adverse effect of xylazine on heart rate, MAP and CVP. There was quick recovery and their combination provided moderate to excellent degree of analgesia.

1.12 Clinicophysiological Effects of Xylazine, Lignocaine and their Combination for Lumbar Epidural Analgesia in Buffalo Calves

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A study was conducted on 15 male buffalo calves divided in three groups (A, B and C) of 5 animals each. In group A, xylazine (0.05 mg/kg), in group B lignocaine (2.0 mg/kg) and in group C, a combination of xylazine and lignocaine (0.05 mg/kg and 2.0 mg/kg) were administered in the first lumbar epidural space. An early onset in 3 min with complete surgical analgesia of thorax, flank, inguinal region and hind limbs was recorded for 45 to 90 min in the xylazine and lignocaine group. A complete analgesia of 10 to 15 min was observed at perineum and tail. A significant decrease in heart rate, respiratory rate and rectal temperature was recorded in groups A and C which remained nonsignificantly low during the entire observation period. Haemoglobin, PCV and TLC values decreased for a short duration in all the groups which returned to the base line at 24 hrs.

Xylazine and lignocaine combination induced an early onset and produced a longer duration of lumbar epidural analgesia with a transient effect on physiological and haematological parameters in buffalo calves as compared to xylazine and lignocaine used alone.

1.13 Lumbar Epidural Analgesia with Xylazine, Ketamine alone and in Combination in Buffalo Calves

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The study was conducted on 15 male buffalo calves divided in three groups (A, B and C) of 5 animals each. In group A xylazine (0.05 mg/kg), in group B ketamine (2.5 mg/kg) and in group C, xylazine and ketamine combination (0.05 mg/kg and 2.5 mg/kg) were administered in the first lumbar epidural space. An early onset with complete surgical analgesia of thorax, flank, inguinal region and hind limbs was recorded for 60 min in the xylazine and ketamine group. A significant decrease in heart rate was recorded in group A. Respiratory rate and rectal temperature decreased in groups A and C. Haemoglobin, PCV and TLC decreased for a short duration in all the groups. Xylazine and ketamine combination produced a longer duration of lumbar epidural analgesia with a transient effect on physiological and haematological parameters in buffalo calves as compared to xylazine and ketamine used alone.

1.14 Epidural Analgesia with Medetomidine, Ketamine alone and in Combination in Buffalo Calves

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The study was conducted on 12 male buffalo calves aged 8-12 months of age and weighing between 70 and 90 kg, divided into three equal groups, A, B and C. In the animals of group A, medetomidine

(15 µg/kg), in animals of B, ketamine (2 mg/kg) and in animals in group C, a combination of medetomidine and ketamine at the same dose rates were administered epidurally at sacrococcygeal space. The onset of analgesia was recorded within 5 min in all the groups. Medetomidine produced complete analgesia of tail, perineum, upper portion of hind limbs and inguinal region and moderate analgesia of flank, thorax and ventral aspect of abdomen. Ketamine induced 10-15 min of complete analgesia at perineal region only. The combination of ketamine and medetomidine in group C decreased the onset time, and increased the depth and duration of analgesia. Medetomidine (group A) induced significant decrease in respiratory rate, heart rate and rectal temperature. Ketamine administration in group B resulted in increased respiratory and heart rates, but the rectal temperature remained unaffected. The fall in respiratory and heart rate in animals of group C was lesser as compared to that recorded in animals of group A. The results of this study suggested that medetomidine induced longer duration of analgesia in buffalo calves. The ketamine with medetomidine not only increased the depth and duration of analgesia, but also reduced the cardiopulmonary side effects produced by medetomidine when used alone.

1.15 Diaphragmatic Herniorrhaphy under Midazolam-Thiopental Sodium Anaesthesia in Buffaloes

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The study was conducted on 10 buffaloes subjected to diaphragmatic herniorrhaphy. Midazolam was given @ 0.2 mg/kg (I.V.), thiopental sodium (5%) was given "to effect" after five minutes. Dose of thiopental was significantly reduced to 6 mg/kg. ECG changes were minimal in lateral recumbency but were significant in dorsal recumbency. Some animals also showed uncompensated respiratory acidosis. Changes in heart rate and respiratory rate

were significant but were of transient nature. Seven out of ten animals made uneventful recovery. Two animals suffered from massive regurgitation and never recovered from anaesthesia. One animal died of cardiac arrest during recovery phase. The results of study indicate that Midazolam and thiopental sodium can be safely employed in diaphragmatic herniorrhaphy of buffaloes.

1.16 Effects of Spinally Administered Ketamine alone and its Combination with Xylazine and Medetomidine in Goats

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The study was conducted on nine adult goats of either sex weighing 15 to 20 kg. Nine trials each of the three treatments were conducted using ketamine (2.5 mg/kg), ketamine and xylazine (2.5 mg/kg and 0.05 mg/kg) and ketamine and medetomidine (2.5 mg/kg and 10 µg/kg). The drugs were administered at the lumbosacral subarachnoid space. Ketamine produced mild to moderate analgesia of hindquarters. Its combination with either xylazine or medetomidine produced surgical analgesia of hindquarters for 45 to 60 min. Ataxia was moderate in ketamine group, whereas animals attained sternal recumbency in the other two groups. Moderate degree of sedation and cardiopulmonary depression were recorded in the combination groups. Cardiopulmonary stimulation in ketamine group was recorded. Haematological parameters decreased in all groups. Increase in serum glucose, creatinine and urea nitrogen was recorded in all the groups. Serum electrolytes did not show any significant change. A decrease in MAP and an increase in CVP were recorded in the combination groups. Electrocardiogram showed bradycardia and occasional arrhythmias in combination groups.

The results showed that the combination of ketamine with xylazine or medetomidine produced good degree of surgical analgesia of hindquarters with transient cardiopulmonary and haemodynamic changes.

1.17 Evaluation of Epidurally used Xylazine and Ketamine for the Management of Post traumatic Pain in Goats

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Acute arthritis was induced by injection of turpentine oil (0.15ml) in left hock joint under thiopental anaesthesia in twelve non-descript-goats of either sex divided into 3 groups. Epidural injections with normal saline 4 ml (group A), xylazine and ketamine (0.05 mg/kg and 2 mg/kg) in (group B), diclofenac sodium (1 mg/kg) in (group C) were administered post traumatically at lumbosacral space to compare the analgesic potency of these drugs on management of post traumatic pain. These drugs were administered at the interval of 2 hrs, 24 hrs, 48 hrs and 72 hrs after induction of arthritis. Physiological parameters, pain scores, haemato-biochemical and hormonal assay were studied at intervals of 7, 15 and 30 days post traumatically respectively. Severe post traumatic pain changes were noticed in untreated group A. On the basis of present study, it was concluded that the combination of xylazine and ketamine @ 0.05 mg/kg and 2 mg/kg body weight respectively may be recommended as a suitable analgesic protocol for pain management in animals when compared to use of diclofenac sodium in group C.

1.18 Influence of Epidural Analgesia on Blood Glucose and Insulin Levels in the Management of Post traumatic Pain in Goats: An Experimental Study

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Under thiopental anaesthesia, acute arthritis at left hock joint was induced in 20 non-descript goats of either sex divided in to five groups. Epidural injection with normal saline 4 ml (group A), xylazine and ketamine (0.05 mg/kg and 2 mg/kg) (group B), bupivacaine (1 mg/kg) (group C) and buprenorphine (5 µg/kg) (group D) were administered at lumbosacral space post traumatically. Diclofenac sodium (1 mg/kg) (group E) was administered by *I/M* route. All the drugs were administered at 2 hrs, 24 hrs, 48 hrs and 72 hrs after induction of arthritis. Biochemical analysis indicated hyperglycaemia and hypoinsulinemia in all the groups. However, these changes were least in group B animals.

1.19 Studies on Retrograde Intravenous Regional Analgesia of Distal Limbs in Goats

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Prior to undertaking surgery on thirty-two clinical cases in goats, retrograde intravenous regional anaesthesia was induced on distal fore/hind limbs. Two percent lignocaine HCl was infused @ 2, 3 and 4 mg/kg b.wt. into the cephalic/dorsal metatarsal vein of tourniquetted fore/hind limbs. Control trials were conducted by infusing 5 ml of normal saline using same technique. Heart rate, respiratory rate and rectal temperature at different stages of anaesthetic procedure were recorded.

Complete anaesthesia distal to the tourniquet was developed in all the animals where lignocaine HCl was infused @ 4 mg/kg b.wt. The induction time was 0.37 ± 0.07 and 0.56 ± 0.16 minutes in the respective fore and hind limb trials. The anaesthesia appeared just below the tourniquet and progressed from proximal to distal direction, the interdigital space was last to get desensitized. Anaesthesia persisted till the tourniquet was kept *in-situ* i.e. for 60 minutes after the onset. There was complete loss of sensory reflexes during the anaesthesia but motor reflexes and weight bearing ability were retained in all the animals. Complete return of sensation was attained in 35.0 ± 3.53 and 30.0 ± 2.04 minutes after the release of tourniquet.

1.20 Evaluation of Propofol as an Anaesthetic in Dromedary

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Minimum anaesthetic dose of propofol was found to be 1 mg/kg body weight intravenously in dromedary camels that were subjected to a double blind trial. The propofol anesthesia did not significantly affect the hemato-biochemical parameters in camels. A significant decrease in systolic, diastolic and mean arterial pressure was noticed. Propofol was found to be suitable for undertaking surgical procedures lasting for very short duration. The animals showed smooth and quick recovery.

1.21 Comparative Study of Lipid and Lipid free Propofol Anaesthesia in Canines

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A total 24 clinical cases of dogs of either sex, aged between 1 to 13 years were used for the evaluation of lipid and lipid free propofol. The dogs were divided into 4 groups each consisting of six dogs. Xylazine (0.5mg/kg) was administered intramuscularly 10 minutes prior to the intravenous injection of lipid propofol (Gr.- I) and Lipid free propofol (Gr.- II), while acepromazine (0.125 mg / kg) was injected intramuscularly 10 minutes prior to the intravenous injection of lipid propofol (Gr.- III) and lipid free propofol (Gr.-IV). Both lipid and lipid free propofol were administered at the same dose rate of 2.5 mg/kg body weight in all the the dogs.

Different major and minor operations such as extraction of tooth, castration, pyometra, aural hematoma and mammary tumor etc. were performed successfully. The duration as well as quality of anaesthesia and muscle relaxation was exactly similar with lipid and lipid free anaesthesia. Further, the combination of xylazine (0.5 mg/kg) and propofol produced better quality of anaesthesia and muscle relaxation than the combination of acepromazine (0.125 mg/kg) and propofol.

1.22 Evaluation of Acepromazine Maleate as a Pre-anaesthetic Prior to Lignocaine and Bupivacaine local Anaesthesia in Gelding.

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A total of 12 apparently healthy horses of 2 - 5 years age and weighing between 161 - 325 kgs. were used for this study. The horses were divided randomly into 2 groups, each consisting of 6 horses. Acepromazine (0.067 mg/kg.) administered intravenously 15 minutes prior to local infiltration of lignocaine (2%) in Gr.-I and bupivacaine (0.5%) in Gr.-II. The onset of sedation, signs of sedation, the duration of sedation and quality of muscle relaxation during acepromazine sedation was studied. The quality of anaesthesia during gelding was evaluated and compared.

The onset of sedation was observed within 16.42 ± 0.54 minutes. The signs of sedation such as lowering of head, drooping of eyes, relaxation of lower lip, descending of testicles and relaxation of anal sphincter were seen in all the horses. The duration of deep sedation remained upto 38.67 ± 1.14 minutes. Qualitatively the degree of sedation and muscle relaxation was very good to excellent. There was no significant difference in the onset of anaesthesia between Gr.-I and Gr.-II but duration of local anaesthesia in Gr.-II (98.33 ± 1.41 minutes)

was significantly longer than Gr.-I (57.62 ± 1.12 minutes). The quality of local anaesthesia was better in Gr.-II than Gr.-I.

1.24 Xylazine- Ketamine Anaesthesia and its reversal in Tigers

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A total of 11 anaesthetic trials were conducted using xylazine (1mg/kg) and ketamine (3 mg/kg) combination in 6 healthy and diseased animals at Sanjay Gandhi National Park, Borivali and Veer Jija Mata Zoo Byculla. Animals were divided into 3 groups consisting of 3 animals in group I & III and 5 animals in group II. Group I was kept as control while in group II & III, the anaesthesia was reversed by using yohimbine (0.08 mg/kg) and a combination of yohimbine (0.08 mg/kg) plus 4-aminopyridine (0.13 mg/kg) respectively. During the study the animals were observed for induction of anaesthesia, duration of anaesthesia and recovery times. During anaesthesia, the respiratory rate, heart rate and rectal temperature were recorded. Blood sample of each animal was collected at peak level of anaesthesia and analysed for hematology and blood biochemistry.

During anaesthesia, the respiratory rate and heart rate decreased significantly at the onset of anaesthesia in all the groups. Hypopnea and bradycardia persisted till recovery in controls group (Gr-I). In group II & III intravenous administration of yohimbine and a combination of yohimbine plus 4-aminopyridine respectively resulted increase in respiratory and heart rate at arousal as compared to prereversal value. Combination of yohimbine with 4-aminopyridine resulted quicker arousal but did not offer real advantage over yohimbine alone in shortening the recovery period since there was no significant difference in the mean total recovery period between the two reversal groups. Yohimbine and yohimbine plus 4-aminopyridine decreased the total recovery period by 66.5 per-

cent when compared to control animals. The hematological and blood chemistry values did not alter significantly except hematocrit value and blood glucose.

1.25 Lipid free Propofol Anaesthesia in Equine Gelding - A Preliminary Report

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A lipid free propofol formulation (400 mg/ml) was used for gelding in two ponies and one male donkey. All the three animals were prepared by fasting them for 12-18 hours. The anaesthesia was induced by injecting propofol alone at the dose rate of 10 mg/kg in a pony as well as in the donkey. xylazine (0.5 mg/kg) was administered intramuscularly, 10 minutes prior to intravenous injection of 8 mg/kg of propofol in another pony. Heart rate and respiratory rate were monitored at 5 minutes, 10 minutes and 20 minutes after the injection of propofol. the onset of anaesthesia, duration of anaesthesia, signs of anaesthesia, quality of anaesthesia and muscle relaxation were studied in each animal.

Tachycardia and severe respiratory depression was observed following the injection of anaesthesia. Induction of anaesthesia was seen in two minutes, while the duration of anaesthesia was 26 minutes and 30 minutes in case of pony and donkey respectively, while 40 minutes of anaesthesia was seen in another pony where propofol (10 mg/kg) alone was given. All the animals recovered smoothly, rapidly and started taking feed within 65 minutes.

1.26 Comparative study on Xylazine, Acepromazine and Pentazocine as Pre-anaesthetic Sedatives to Propofol Anaesthesia

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A total of 24 cats irrespective of breed and age weighing between 2-3 kgs were randomly divided into four equal groups. In Gr-I, lipid free propofol alone was used for induction and maintenance of anaesthesia for carrying castration. While, in cats of Groups II, III and IV, the xylazine (1mg / kg), acepromazine (0.2 mg / kg) and pentazocine (3 mg/ kg) were administered 10 minutes prior to induction of propofol anaesthesia. Spaying operation was performed in cats of group II, III and IV.

Sedation was best in Gr-II, satisfactory in Group III and poor in Group IV. A significant shorter induction time was seen in Group II while in all other groups, induction time did not differ significantly. Duration of effective induction of anaesthesia in Group II was significantly longer than Group IV. A total amount of lipid free propofol required for induction and maintenance of anaesthesia did not differ significantly between Groups II, III and IV. Overall quality of anaesthesia and muscle relaxation was better in Group II, satisfactory in Group I and III and poor in Group IV.

1.27 Practical utility of Propofol Anaesthesia in critically ill Canines

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A total of 18 critically ill canine patients of either sex, weighing between 4-30 kgs. and 7-13 years of age were utilised for the study. These patients were

randomly divided into 3 equal groups, consisting of 6 dogs each. General anaesthesia was induced by the intravenous administration of 5 mg/kg, 3.5 mg/ kg and 3 mg/kg of propofol in Gr-I, II and III respectively. Preanaesthetic midazolam (0.5 mg/ kg) and acepromazine (0.5 mg / kg) was administered intravenously in dogs of Gr- II and Gr- III respectively, 15 minutes prior to the injection of propofol . Induction time, duration of anaesthesia and recovery were evaluated and compared among the three groups. Induction of anaesthesia was rapid, smooth and excellent in Gr-III, better in Gr-I and poor in Gr-II. However, no significant difference in the onset of anaesthesia was seen among the three groups. Similarly duration of anaesthesia also did not differ significantly amongst the three groups. The sedation produced by midazolam in Gr-I was not satisfactory. The quality of anaesthesia and muscle relaxation was very good in Gr-III, good in Gr-I and satisfactory in Gr-II .

Section No. 2 General Surgery/ Experimental Surgery

2.1 A Glance at History of Veterinary Surgery in Iran

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This work forms part of detailed research with reference to some 2200 books and many ancient manuscripts on the history of medicine and veterinary medicine in Iran. *Rhazes (d.925)* wrote a book on the way of using metal instruments in surgery and orthopedics. *Hally Abbas (d.994)* in his book described certain surgical methods. *Abulcassis (d.1013)* was the greatest surgeon of the Islamic period and the middle ages. The chapter on surgery in *A1-Tariff* was translated in Latin and its Arabic version was published in oxford in 1878. Iranian veterinarians in ancient times knew more about external operations. Cauterization was practised skillfully in both human and veterinary surgery. Purulent wounds were lanced. Sometimes, the

nose was punctured for tetanoid convulsions. Laminitis was treated by massage/applying a poultice and in some cases by surgery and lastly cauterization. Hoof tenderness was treated by paring the hoof and applying a hot brick. Cotton cloth was used to stop bleeding and to dress wounds. In cases of severe colic, suppositories and enemas containing onion juice, garlic or soap were employed. A band was placed around the body at the neck and back and pulled tight to evacuate intestinal gases, or a reed was placed in the rectum to allow a continuous flow of gases. In pyometra, pus and secretions were evacuated manually, then olive oil and suet were introduced and a woolen pad was inserted to absorb secretions. Infertile mare as a result of fibroma or other neoplasms were treated by surgical excision followed by insertion of a woolen pad impregnated with musk, camphor, pepper and honey to which a thread was attached so that it could be removed later.

2.2 Perineal Herniorrhaphy in Dogs: AN Experimental Study

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Experimentally created perineal hernia was repaired in 24 mongrel dogs using chromic catgut, polypropylene mesh, pericardial allograft, transposition of m. superficial gluteal. Both polypropylene mesh and pericardial allografts were well accepted by 25th day. With transposition of m. superficial gluteal, trauma and haemorrhage were significant but it formed strong barrier. Sinus formation in two dogs with polypropylene mesh was observed. Severe cellular reaction with catgut, polypropylene mesh and mild cellular reaction with pericardial allograft was noticed on histopathological examination. Pericardial allografts and muscle flap combination did not exhibit cellular reaction. Fibrous tissue and blood vessel proliferation in sub mucosal region of urinary bladder was seen without cellular reaction in cystopexy with pubic bone.

2.3 Use of Oxidised Regenerated Cellulose and Dextran-40 for Preventing Internal Adhesions in Dogs- An Experimental Study

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A study was conducted on 18 apparently healthy male mongrel dogs divided in three groups of six animals in each group. A standardised trauma was made at five places on Jejunum of all animals by allis tissue forcep. Before closure, animals of group A and B were subjected to local application of oxidised regenerated cellulose and intraperitoneal instillation of Dextran-40 @ 20 ml/kg b.wt. respectively. Third group acted as control. Severity of adhesion formation was graded by numerical scoring and adhesion counting by re-exploring peritoneal cavity 12 days after the first operation. Adhesion count and score was significantly less ($p < 0.05$) in group treated with 10% dextran-40. Less fibrous tissue reaction was noticed in this group. On the other hand, use of oxidised regenerated cellulose led to insignificant reduction in adhesion formation. Thus, Dextran-40 was found to be more effective in preventing internal adhesions as compared to use of oxidised regenerated cellulose.

2.4 Effects of I/V Administration of Hypertonic Saline on the Haemodynamic and Blood Biochemical Parameters in Hypovolemic Calves: An Experimental Study

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Experiments were conducted on 15 calves weighing 50-100 kg to study the effects of intravenous infusion of 7.2% sodium chloride @ 3.75 ml/kg

after acute hemorrhage. In one group (n=5) single infusion was given while in another group (n=5) infusion was repeated at an interval of 30 minutes. In third group (n=5), hypertonic saline infusion was followed by administration of polyionic salt solution. Approximately 15% of the blood was shed to bring the MAP to around 50-60 mm Hg. After hemorrhage, the changes recorded were tachycardia, decrease in MAP and some fall in CVP. Respiratory rate was not affected. There were no appreciable changes in PCV, potassium and chloride values but total plasma proteins and plasma sodium values were decreased.

Hypertonic saline solution brought about much improvement in the MAP, CVP values and heart rate. There was appreciable drop in the PCV and total proteins. The plasma concentration of sodium and potassium increased considerably. A reduction in the plasma potassium concentration was recorded only when second time hypertonic saline was infused. There was sufficient evidence of haemodilution and plasma volume expansion especially when two infusions of hypertonic saline were given.

2.5 Evaluation of De-epithelized Ileal Segments for Cystoplasty in Dogs: An Experimental Study

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Bowel segments have proved good for reconstruction of urinary bladder, repair of damaged urinary tract and urinary diversion. Intestinal mucosa is the primary site responsible for some complications and any procedure aiming at the prevention of untoward effects, should abolish the absorptive and secretory functions of the mucosa. Augmentation cystoplasty by using ileal segments were performed on three bitches. De-epithelialization of the mucosa with use of certain enzymes like collagenase and trypsin preceded the cystoplasty procedure. The functional capacity of the epithelium was determined by a simplified glucose absorption test in the fourth postoperative week. Morphological ex-

amination before the absorption test did not reveal any fibrosis or shrinkage of the ileal segments. Complete elimination of the absorptive capability in enzyme treated mucosa was found on glucose absorption test, while a rapid and highly effective absorption was observed in the control group.

2.6 Cataract Lens Extraction in Dog

**Mrs. C.K. Sharma, Mahendra Soni,
Monika Jain and Tarunbir Singh**

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Bikaner (Rajasthan)

A technique of extracapsular extraction of lens was standardized in five mongrel dogs. The similar technique was successfully applied on a clinical case of cataract in dog.

2.7 Studies on Experimentally Induced Cystitis and Nephritis in Buffaloes

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Eight clinically healthy male buffalo-calves aged 12-18 months weighing between 80-130 kg body weight were randomly divided into two groups. Nephritis was created in first group and cystitis in second group. Nephritis was created by intravenous injection of freshly prepared uranyl nitrate 1% solution in normal saline @ 5 mg/kg body weight. Clinical nephritis was evident by rise in urinary GGT and alkaline phosphatase level, presence of renal casts, red blood cells, white blood cells, and proteins in urine. Significant increase in blood urea nitrogen and plasma creatinine on 2nd and 4th day was observed. Cystitis was experimentally produced by administering 50ml of freshly prepared solution of 0.1% salicylic acid in ethanol followed by 1ml of *Staphylococcus aureus* culture (2-7 million cells/ml) directly into the urinary bladder. Clinical cystitis was evident by presence of red blood

cells, white blood cells, epithelial cells and proteins in urine. Rise in blood urea nitrogen and plasma creatinine with hypoproteinemia were also evident.

2.8 Experimental Studies on Urethroplasty Using Formalin Preserved Urinary Bladder and Cecal Grafts in Buffalo Calves

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Experimental urethroplasty was conducted on eight apparently healthy male buffalo calves weighing between 86 to 115 kg in which formalin preserved urinary bladder allografts and cecal allografts were used as urethral prosthesis using chromic catgut (no. 2-0) and black braided silk (no. 3-0) on four animals each. Clinical manifestations, blood urea nitrogen as well as gross and histopathological examination for a maximum period of 60 days post operatively were studied. There was complete regeneration of uroepithelium on 60th postoperative day over the cecal grafts as well as along with the transitional epithelium. All animal survived except one.

2.9 Beneficial Effects of Autotransfusion of Synovial Fluid in Aseptic Arthritis in Yaks (*Bos grunniens*): An Experimental Study

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CSKHPKV, Palampur (H.P.)

The present study on induced aseptic arthritis vis a vis effects of autotransfusion of synovial fluid in knee joint was undertaken on seven yaks. Various parameters of synovial fluid i.e. relative viscosity, TLC, total proteins, certain enzymes like GOT, ALP, LDH levels were estimated. To sum up, fresh autogenous synovial fluid transfusion into acute arthritic animals has positive therapeutic effects.

2.10 Quantitative and Qualitative Study of the Ischemia Reperfusion (I/R) Injury in the Caecum of Horse and Sheep

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The study relates to oxygen derived free radicals mediated I/R injury in caecum of horse and sheep with particular emphasis on effects of Allopurinol in attenuating such injury. Fifty merino rams (weighing 28-48 kg, age range of 3-4 years) and thirteen horses of different sex and breed weighing 250-450 kg were used in this experiment. Caecum exteriorized surgically were subjected to experimental protocols which involved ischemia and reperfusion. The effects of oxygen-derived free radicals (ODFRs) mediated I/R in the horse caecum were investigated qualitatively and quantitatively [measuring 2, 3 dehydroxy benzoic acid (2, 3 DHBA) in the plasma]. The peak concentration of 2, 3 DHBA was measured 60 s post ischaemic. Correlation between quantitative and qualitative assessment was also made.

2.11 Assessment of Wound Healing Rates on the Forelimb and Hind Limb in the Horse: An Experimental Study

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Second-intention healing of wounds on the forelimb and hind limb was studied in four horses. Standardized 2.5 X 2.5 cm full-thickness skin wounds were created on the dorsolateral aspect of both metacarpi and metatarsi. All wound were treated topically with normal saline and bandaged with a non-adherent dressing. Every other day,

wound bandages were changed and wounds were photographed. All photographs were scanned and wound areas (total wound surface, granulation tissue and re-epithelialized areas) were calculated, using a digital software program. Linear regression analysis of the percentage of wound contraction and re-epithelialization was performed. Slopes of regression lines determining rates of contraction, epithelialization and total wound healing were smaller in forelimbs (2.44 ± 0.16 , 3.44 ± 0.17 and 4.15 ± 0.21) as compared to that seen in hind limbs (2.89 ± 0.16 , 3.92 ± 0.16 and 4.41 ± 0.22). To sum up, second-intention healing of wounds occurs faster on the hind limbs as compared to the forelimbs.

2.12 Effects of Pneumoperitoneum of Varying Degrees on CVP and MAP Values in Goats: An Experimental Study

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In an attempt to standardize optimum degree of pneumoperitoneum for laparoscopic work in goats, effect of various degrees of pneumoperitoneum on central venous pressure (CVP) and mean arterial pressure (MAP) was studied in four adult goats. Pneumoperitoneum was created at 10, 15 and 20 mm Hg intra-abdominal pressure (IAP) using filtered air insufflated via Veress needle. Recording of parameters was done at 10, 15 and 20 mm Hg (IAP) after maintaining each IAP for 15 minutes, immediately after decompression of the abdomen and one-hour after deflation. Mean CVP changed from 5.4 ± 0.48 cm H₂O (base value) to 5.9 ± 0.43 , 7.3 ± 0.13 , 8.2 ± 0.60 , 5.6 ± 0.61 and 5.5 ± 0.57 cm H₂O at 10, 15, 20 mm Hg IAP, immediately post deflation and one-hour post deflation, respectively. Mean MAP changed from 114.0 ± 5.10 mm Hg (base value) to 118.0 ± 3.70 , 118.0 ± 4.40 , 121.5 ± 4.00 , 115.5 ± 6.20 and 113.8 ± 3.96 mm Hg at 10, 15, 20 mm Hg IAP, immediately post deflation

and one-hour post deflation, respectively. These alterations were well tolerated and reversible in all the animals. For endomanipulation of the abdominopelvic structures during laparoscopy, IAP in the range of 10-15 mm Hg was found adequate.

2.13 Sutureless Closure of Skin Wounds in Goats- An Experimental Study

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G.R. Singh and Kalicharan**

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The present study was undertaken on eight clinically healthy adult goats divided into two groups (A and B) of four animals each. In each animal, one 8-10 cm long open skin wound was created surgically at both sides of the neck region under local anesthesia using aseptic precautions. After creating skin wound, muscle and underlying soft tissues were separated for making one gaping wound. Then these skin wounds were closed by using silk (4 incisions) and nylon (4 incisions) in groups A and B respectively. In these animals, eight contralateral skin wounds were closed by using nectacryl (n-Butyl 2-cyanoacrylate) adhesive. Clinically, cyanoacrylate glue allowed skin closure with minimal interference, saved time, minimal scarring, reduced patient trauma thus led to a significantly better wound healing. Time required to close the incision using adhesive was $\frac{1}{4}$ as compared to either suture techniques. Incidence of wound infection was also less in comparison to suturing.

2.14 In-Vitro Study of Antibacterial Efficacy of Rhubarb (*Rheum emodi*) Root Powder

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Antibacterial activity of root powder of Rhubarb,

a local herb was evaluated against gram positive (*Staphylococcus* species and *Bacillus* species) and gram negative (*Pseudomonas* and *E. Coli*) organisms. The results indicated that 5% concentration and above of Rhubarb were effective against gram positive bacteria. The growth of gram negative organisms could not be checked by Rhubarb even at 10% concentration.

2.15 In-Vitro Study of Anti Fungal Activity of Rhubarb (*Rheum emodi*) Root Powder

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Studies were done to evaluate the efficacy of the roots of Rhubarb as antifungal agent at 1%, 5% and 10% concentrations. Fungi were divided into 2 groups viz, the aerial contaminants (group 1) and cultures of *Aspergillus*, *Candida* and *Trichophyton* species (group 2). In addition, positive and negative control groups were also incorporated. Growth of most of the fungi in group 1 was inhibited at 5% and 10% concentrations with 100% effectiveness against *Aspergillus*, *Candida* and *Trichophyton* species in both the groups as compared to the positive control group.

Section No. 3 Orthopaedics and Diagnostic imaging

3.1 Intramedullary Interlocking Nailing (IIN) Technique for Clinical Management of Long Bone Fractures in Dogs: A New Approach

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An aiming device (Jig) appropriate for use in dogs was designed for 6mm and 8mm nail fixation. Accordingly 2.7mm and 3.5mm cortical screws were used to interlock the nail. The technique of IIN fixation (static and dynamic) was standardized on twelve clinical cases with fractures of femur (9), tibia (2) and humerus (1). Types of fractures included simple, transverse, compound and comminuted with severe bone loss. Static IIN technique was used in nine cases of femur (8) and tibia (1). Dynamic IIN was done in three cases, one each in femur, tibia and humerus. Pre-operative and post-operative radiographs of the affected limb were taken at suitable intervals to evaluate fracture healing. On an average all dogs could bear partial weight on the third post-operative day and showed complete normal limb usage by 10th post operative day. Radiographically, complete bridging of the bone ends was noticed by 10 weeks. One case of femur fracture had delayed union. even after 12 postoperative weeks, in which dynamization was performed by removing screws from one of the fragments. Two cases of femur fracture developed complications like refracture and nail dislodgement due to jumping from height. Dynamic IIN produced relatively more callus than static IIN technique. IIN appears to be very good technique for stabilizing diaphyseal fractures in dogs.

3.2 Evaluation of Bone Cement and Autogenous Bone Grafting in Dogs: An Experimental Study

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The present study was conducted on 15 clinically healthy adult dogs aged 1-3 years and weighing between (20-30 kg) to evaluate the effect of bone cement and autogenous bone graft. A piece of complete mid-shaft left tibial cortical bone was removed in all animals. The animals were divided into three groups of five animals each. In group I, the bone was fixed with suitable intramedullary pin. The gap was filled up with harvested autogenous rib bone in group II animals. The bone cement was used to fill up the gap in animals of group III for first 30 days, thereafter, it was replaced with iliac chip bone. On 60th day, grossly, there were granulation and fibrocartilage tissues in group I and II and thick fibrotic capsule around bone cement on 30th day and 60th day in group III animals. On histological examination, changes like fibrocartilagenous tissues with thick bundle of collagen fibers beside hypertrophic chondroblasts in group I, active osteoblasts at the margin of bony trabeculae with spongy new bone formation mixed with sequestra in group II and fibrotic capsule, periosteal layer, new bone formation well formed bone marrow were noted in group III animals. Use of bone cement has been found to enhance osteogenic stimulation.

3.3 Evaluation of Internal Fixation Techniques for Repair of Comminuted Femoral fracture in Dogs: An Experimental Study

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Fifteen mongrel adult dogs of either sex were

randomly divided into three groups of five animals each. Identical comminuted femoral fracture was created under general anaesthesia in all the animals. The fracture was then immobilized by using intramedullary Steinmann pinning and cerclage wiring (group A), neutralization bone plating (group B) and neutralization bone plating with cerclage wiring (group C). In group A, fibrocartilagenous activity was more pronounced and osseous tissue was present only at places suggesting delayed union. In group B, primary bone union was characterized by the presence of numerous osteoid tissues at the defect site and new bone trabeculae. In two animals of group C, almost complete union with remodelling at the fracture site was observed whereas in other three animals, non-union was evident.

3.4 Evaluation of External Skeletal Fixation using Transfixation Pins in the Treatment of Fracture of Distal Third of Radius and Ulna in Dog: An Experimental Study

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The study was conducted to evaluate a modified technique viz, external skeletal fixation with external PVC plates fixed with transfixation pins (Kirshner pins 2.5mm diameter) for the management of fracture of distal third of radius and ulna in 5 dogs (group A). Pins emerging through the skin on both sides were attached to external PVC plastic plates. Another 5 animals (group B) served as control where only plaster of paris bandage was applied. Use of POP bandage alone is not good for alignment of fracture fragments. External fixation along with transfixation pins could immobilize the fracture fragments perfectly. Clinical fracture union was achieved by day 45 postoperatively.

3.5 Osteoinductive Property of Roots of PARIJAT (*Nyctanthes arbortristis*) and MASIPACHI (*Artemesia parviflora*) in Dogs: An Experimental Study

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Osteoinductive property of roots of Parijat (*Nyctanthes arbortristis*) and Masipachi (*Artemesia parviflora*) was studied in twenty seven clinical cases of simple diaphyseal transverse fracture of radius-ulna in adult dogs. The fractured limb in all the animals was externally immobilized with moulded polyvinyl coaptation splints within 1-2 days following fracture. After immobilization, nine animals were administered 1ml aqueous suspension of 10% ethanolic extract of *Parijat* roots (Group B) and another nine animals with 1 ml of aqueous suspension of 10% ethanolic extract of *Masipachi* roots (Group C). Remaining nine animals (Group A) served as untreated control.

Restoration of total limb function after removal of external support was observed in order of group B (30.27 ± 1.84 days), group C (36.19 ± 2.6 days) and group A (44.60 ± 2.98 days). Radiographs taken at day 30, 45 and 60 in group B, C and A respectively revealed absence of fracture line. In all the animals, a significant increase in serum calcium level was observed at day 30 which registered a decline at day 60 in group A and C except in animals of group B. Serum phosphorus concentration remained low as compared to base values in treated groups at day 30 but in animals of control group, a significant high value was observed at day 45. Moderate increase in serum alkaline phosphatase level was observed at day 15 in animals of group B and C and at day 30 in group A. *Parijat* roots showed better osteoinductive property as compared to that of *Masipachi* roots.

3.6 Clinical Surgical Management of Femur Fracture Using Schanz Screws in Dogs and Cats

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Femur fracture repair was undertaken by open retrograde method of intramedullary pinning using Schanz screws of 3 to 5 mm diameter under anaesthesia using Ketamine - xylazine combination in cats and Xylazine - Thiopental sodium combination in dogs. The limb was immobilized externally using crepe bandage and antibiotics were administered systemically during the postoperative period. All the animals showed uneventful recovery.

3.7 Translocation of Tibial Tuberosity alongwith Trochlear Recession and Lateral Capsular Imbrication for Correction of Medial Patellar Luxation in Dog: A Case Report

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A six-month-old male Pomeranian dog was presented with the history of abnormal gait and limping with right hind limb since birth. The condition gradually aggravated leading to complete non-weight bearing by the affected limb for the last two months. On clinical and radiological examinations, the case was diagnosed as grade-4 medial patellar luxation associated with severe musculoskeletal deformities of right femur and tibia. Successful surgical correction of the condition was accomplished with trochlear recession and translocation of tibial tuberosity along with lateral capsular imbrication of patella. One-month follow-up of the case revealed normal use of the affected limb by the animal.

3.8 Clinical Surgical Management of Multiple Fractures in a Dog: A Case Report

T.N. Ganesh, C. Ramani, Dhananjaya Rao, R. Seshachalam, S. Thilagar, K. Ameerjan and W.P. Archibald David

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A one and half year old Doberman male dog was brought to veterinary clinic for treatment. Animal was in lateral recumbency and found dull. The dog had suffered from compound, comminuted fracture of left femur with a punctured wound in the medial thigh, craniodorsal luxation of femoral head, stable fracture of right ischium and pubis, multiple abrasions in hind quarters of the body. Under general anaesthesia, the fractured left femur was reduced with an intramedullary pin and two cerclage wires followed by correction of right hip dislocation by traction and manipulation. The right leg was rested with Ehmer sling. Three weeks cage rest was advocated for the management of fractured pelvis. However, the animal developed post operative complications viz. wound infection and sloughing of skin on the left medial thigh. Broad spectrum antibiotics, supportive therapy and dressing with Sofratulle gauze followed by Fibrin-Gelatin composite (Fibro-gel CLRI, Chennai) hastened wound healing. Periodical draining of urine by catheterisation and treatment with antibiotics controlled urinary tract infection. An orthopaedic cart was fabricated to help the dog to stand and walk. The animal started using right hind limb from 20th post operative day onwards. Stimulation with surg-faradic current therapy was done daily for seven days so as to avoid muscle atrophy therapy. By six weeks, the dog was able to stand and walk on its own without any support.

3.9 Repair of a Supracondylar Fracture by Using Cross-Pinning Method in a Dog: A Case Report

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A four months old nondescript dog was brought to clinic with the history of accident and inability to bear weight on the right hind leg since two days. Clinical examination revealed swelling just above the stifle joint and radiographic examination revealed oblique supracondylar fracture of the femur. Under general anaesthesia, the fracture site was approached through a cranial incision and arthrotomy of the stifle joint was performed. Cross pinning was done using a 2mm K-wire after reducing the fragments. Postoperative radiographs were taken at varying intervals to assess the position of the implant and fracture healing. Cross pinning gave a rigid stability that was evident by early ambulation and weight bearing on the operated limb.

3.10 Clinical Management of Carpal Instability by Arthrodesis in a Dog: A Case Report

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Carpal arthrodesis was performed under general anaesthesia in a 2 ½ year old dog which suffered from subluxation of radial carpal bone. An incision was made on the cranial aspect of the limb and soft tissues were deflected to expose the distal half of the radius, radial carpal bone and the third metacarpal bone along with their articulations. The articular cartilage of the distal radius, proximal and distal joint surfaces of the radial carpal bone and

the proximal articular surface of the third metacarpal bone were scraped off. A 12 hole, 3.5 mm, dynamic compression plate (DCP) was placed in position and cortical screws were driven into the holes drilled into the radius (seven screws), radial carpal bone (one screw) and third metacarpal bone (four screws) in such a way that rigid fixation of the joint was obtained. Cancellous bone grafts harvested from the greater tubercle of the humerus were packed in the joints and the incision was closed in a routine manner. Postoperative care included antibiotic therapy and bandage with PVC splint support. The surgical wound healed uneventfully.

3.11 Surgical Treatment for Hip Luxation through Open Reduction Method in a Dog: A Case Report

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A German shepherd dog aged one year was presented for treatment with a history of dragging of left hind limb since fifteen days. The condition was diagnosed as coxofemoral luxation on radiographic examination. Since the case was old, open reduction and fixation of the joint with cortical screws and stainless steel wires was advised. Under thiopentone sodium anaesthesia with xylazine and atropine premedication, a curvilinear incision was made at the lateral aspect of the left thigh extending 1 cm away from the mid dorsal line to a length of 10 cm anterior to the trochanter major. The tendinous attachment of the gluteus medius was transected from the trochanter major and reflected anteriorly to expose the deep gluteus. The deep gluteus was also dissected from its attachment at the trochanter tertius so as to expose the coxofemoral joint. The acetabular rim was identified and two holes 15mm deep were made using a drill bit of 2.7mm size at the 10 o'clock and 2 o'clock positions. Two self-tapping cortical screws

of size 3mm by 15mm were driven into the holes on the acetabular rim. A third hole, 20mm deep was made on the femoral shaft below the trochanter major using a drill bit of same size, through which another self tapping cortical screw of size 3mm X 20mm was driven. The femoral head was repositioned into the acetabular cavity after clearing the acetabulum off blood clots and tissue debris. The three screws were connected by using a stainless steel wire of size 22g in a figure of eight patterns. The dissected portions of the muscles were reattached to their respective positions. Closure of the incision was done in routine manner. Post operatively the limb was immobilized by using a butterfly cast using plaster of paris. Ampicillin was administered @ 10mg/kg body weight thrice daily for seven days post operatively. Skin sutures were removed on 8th postoperative day and the cast was retained for six weeks. The animal made an uneventful recovery.

3.12 Clinical Surgical Management of Fracture of Tuber Calcis in a Pup

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A German shepherd dog aged nine months was presented with a history of a road accident three days back. The animal was lame on its left hind limb. Oedema was evident at the hock region and the animal showed pain on palpation of the hock region. Tendoachillis was found loosely attached. Radiograph revealed an avulsion fracture of the middle third of the tuber calcis. Open reduction and fixation with lag screw was advised. Animal was anaesthetized using thiopentone sodium and trifluopromazine @ 1mg/kg was used as pre-anaesthetic. A curvilinear incision was made on the lateral aspect of the hock joint. Blunt dissection was performed avoiding damage to the tendinous attachments of the tuber calcis. Fractured fragment was identified, drilled a hole through the proximal fractured end with a 2.7mm drill bit. After correction

of the fracture, self tapping cortical screw of size 3mm X 30mm was driven and was tightened until apposition of fractured fragments was obtained. Closure of incision was performed in the routine manner. Post operatively, the limb was immobilized with plaster of paris cast. Animal was administered a course of amoxycillin and cloxacillin @ 15mg/kg body weight orally for seven postoperative days. Skin sutures were removed on 8th postoperative day and the cast was retained for six weeks. The animal made an uneventful recovery.

3.13 Plasma Preserved Tendon Allografts for the Reconstruction of Flexor Tendon in Cow Calves: An Experimental Study

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Six male crossbred cow calves of 6 to 18 months age and body weight 80 to 250 kg were used. A 2.5 cm long defect was created in superficial digital flexor tendon in midmetatarsal region under xylazine (@ 0.05 mg/kg body weight) and ketamine (@ 2.5 mg/kg body weight, max dose 100mg) lumbosacral spinal analgesia. The defect was repaired with plasma preserved tendon allografts with locking loop suture technique using nylon. The limb was immobilized for 14 days with plaster of paris cast. Contralateral limb in each animal was operated after a gap of at least 30 days. The biopsy specimens were collected from host tendon graft junction at day 7, 14, 30 and 90 postoperatively.

Gross observations on day seven revealed formation of granulation tissue, and thickening of the tendon with peritendinous adhesions. Regression of adhesions was seen in later stages i.e. on day 14 and 30. Graft was slowly absorbed and replaced by tendon tissue on day 90. Microscopic observations on day 7 and 14 revealed formation of granulation tissue. Graft was surrounded by newly formed fibrous connective tissue. On day 90 collagen fibers were matured and arranged parallel to the longitudinal axis of the tendon. Scanning electron micro-

scopic observations revealed finger like projections at host tendon graft junction on day 14.

3.14 Comparison of Circular and Linear Fixators for the Management of Radial Fractures in Male Calves: An Experimental Study

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Mid-shaft comminuted radial fractures were stabilized using circular (modified Ilizarov type) ring fixators and linear fixators in four experimental male calves weighing about 125-200 kg. The circular fixator consisted of 8 half rings (forming 4 identical full rings) and 12 threaded side bars (4-5" long, 8mm diameter, 4 between each rings), each ring was made of 4mm thick, 2mm wide M.S. strips (nickel plated) measuring 15-17 cm in diameter with 18-20 equidistant holes (10mm diameter). Eight beaded SS wires (3.5 mm) were used as transosseous pins and fixed to the rings under tension. The linear fixator consisted of two sidebars, each having a central cylindrical rod (7cm long, 20mm outer diameter and 12mm inner diameter) with threaded bolts attached on both ends. The bolts were of 8.5cm long, 3.3cm threaded part and 5cm long non threaded part consisting of at least 2 holes (7mm diameter). The threads in two bolts were carved in opposite direction so that the length of the side bar assembly could be changed to reduce the fracture and to provide compression at the site by rotating the central rod. The two sidebars were connected by four transosseous threaded pins (6mm diameter), two on either side of the fracture site.

Xylazine (0.1 mg/kg) IM and ketamine (2 mg/kg) IV were administered. The use of pre-assembled ring fixator was found easy with good fracture reduction and required less time. Application of linear fixator was, however, relatively simple and easier than circular fixator. Postoperative wound dressing was relatively easy with the linear fixator. Clinical examination revealed that both the fixators

were well tolerated by the animals with immediate full weight bearing.

One animal (weighing about 200kg) with the linear fixator showed signs of fixation failure on 3rd post-operative day itself and hence it was euthanised. Pin tract infection was seen in all the animals, however, injection of Mycosal 2.5g (Enrofloxacin 250mg + Pefloxacin 750 mg + Zinc 25 mg) bid for 7-10 days helped to control pin tract infection. Fixation was maintained till the healing occurred (50-60 days) in all the remaining animals. Animals immobilized with the circular fixator had relatively more callus formation. To sum up, application and postoperative care with linear fixators is relatively easy, however, it could provide stable fixation only in light animals.

3.15 Evaluation of Immobilization Techniques Following Achilles Tenorrhaphy in Bovines: An Experimental Study

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The present study was conducted on fifteen clinically healthy crossbred cow calves which were divided into three groups, i.e. group I (n=8), group II (n=4) and group III (n=3). After surgical transection of left Achilles tendon under general anaesthesia, tenorrhaphy was performed using four single locking loop sutures with polyamide No. 2. In group I, transfixation of tibia was done using transverse insertion of two Steinmann's pins in the tibia and two in the calcaneal bone. In group II, immobilization was performed by oblique insertion of two modified threaded Steinmann's pins. In group III, external unilateral skeletal fixation device was used by transverse insertion of two threaded Steinmann's pins into calcaneal bone and two in the tibia from the lateral side of operated limb and these pins were connected by aluminium sidesplints which were enclosed in plaster of paris. Healing was satisfactory in group I whereas it was not good in group II and III. Full weight bearing at rest was seen two weeks after tenorrhaphy and immobilization in group I. No weight bearing after immobilization

failure in groups II and III was observed in operated limb. Transfixation (group I) of tibia and calcaneal bone proved good enough to check the undesirable extension and flexion of tibiotarsal joint for a period of four weeks and helped in reducing tension on the repaired Achilles tendon. In group II, the immobilization did not succeed and resulted in dislodgement, bending of pins and tibia fracture within 3-5 days after application. In group III, external fixation assembly also could not provide immobilization for desired period and led to tibia fracture and tearing of repaired Achilles tendon within three days after application. Transfixation of tibia and calcaneal bone (group I) was found satisfactory for providing efficient immobilization for healing of transected Achilles tendon in bovines.

3.16 Effect of Ciprofloxacin on Fracture Healing in Rabbits: An Experimental Study

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The effect of ciprofloxacin on fracture healing was studied in ten adult New Zealand white rabbits divided in two groups (A and B) with four animals in each group. In all the animals, mid-shaft transverse fracture of both the ulnae was created under thiopental (2.5%) anaesthesia. Group (A) served as control. In test group (B), seven days after fracture, ciprofloxacin was administered @ 50 mg/kg body weight s/c twice daily for three weeks. Radiographs were taken on 0, 7, 15, 21, 30 and 45 days postoperatively. On histological examination, control group animals (A) showed periosteal proliferation on day 15, complete obliteration of fracture gap on day 30, remodeling of bridging callus and well developed periosteal continuity on 45th post-operative day. In group B, there was delayed fracture union even beyond 35th postoperative day.

3.17 Effect of Magacal (Herbal Product) on Fracture Healing in Rabbits: An Experimental Study

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Experimental study on the effect of Magacal on fracture healing was conducted on ten clinically healthy adult New Zealand white rabbits of either sex divided equally into two groups (A and B). Mid-shaft transverse fractures of both the ulnae were created under thiopental (2.5%) anaesthesia. In animals of group A, magacal was given 5 ml/animal/day, orally from day 5-20 post fracture, whereas in group B, no drug was given. Radiographic examination on days 0, 10, 20, 30 and 40 post fracture was suggestive of accelerated fracture healing in test group (A) when compared to control group (B). In test group A, well organized dense callus obliterating the fracture line on day 40 was visible, whereas in group B, the fracture gap was clearly visible at this stage. On histological examination, fracture healing was relatively faster in group A as evidenced by newly laid down trabecular bone. Whereas, in group B, incomplete union at the fracture site and newly formed osteoid tissue were well distinguished from that of normal bone.

3.18 Effects of Certain Contrast Agents on Blood Biochemical Parameters in Dogs: An Experimental Study

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Effects of two contrast agents i.e. sodium diatrizoate and iohexol were evaluated at two dosages of 600 mg iodine/kg and 1000 mg iodine/kg body weight intravenously were evaluated on 48 dogs weighing (5-7kg). Alteration in blood biochemical parameters were studied at 5 minutes and 30 minutes after the administration of the contrast media. The

blood glucose, total proteins, blood urea nitrogen and serum creatinine levels were estimated and found to be decreased at 5 minutes after the administration of the contrast media. The decreased values were significant in sodium diatrizoate at dose of 1000 mg iodine/kg body weight.

3.19 Nutritional Secondary Hyperparathyroidism in cats: A Radiographic Study

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This study was performed to determine the earliest and definitive radiographic sign(s) of juvenile osteoporosis. Ninety-seven radiographs of the cats were restudied. Fifty-two (53%) cases were diagnosed as normal, 29 (29.9%) cases as juvenile osteoporosis and 16 (16.5%) cases as healed osteoporosis. Radiographic criteria for such diagnosis were decreased density of spinous process, cortical thinning, pelvic deformity, vertebral deformities and pathologic fractures for Juvenile osteoporosis and pelvic deformity, vertebral deformity and long bones deformities for healed osteoporosis. All affected kittens with Juvenile osteoporosis were under 6 months of age and all affected cats with healed osteoporosis were above 6 months of age. Decreased density of spinous process was 100%, cortical thinning 100%, pelvic deformity 98%, deformity of long bones 58%, deformity of the vertebrae 52% and pathologic fractures 38%.

3.20 Radiographic Anatomy of the Splenic Artery of Camel

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Spleens collected from four camels were used to

demonstrate vascular pattern of splenic artery. The splenic artery flushed by luke warm heparinized saline solution were injected with radio-opaque 20% lead oxide solution. The radiographs were obtained at 8 mAs, 50 KVP and 90-100 cm FFD. The arteriograms presented a cranial and a caudal segment of the spleen on the basis of primary arterial branches. Both the primary branches entered the hilus of the organ independently and supplied caudal 2/3 of the spleen, whereas, the cranial 1/3 was supplied by a branch of right ruminal artery. The primary branches gave out secondary branches which divided into tertiary and further several fine branches.

3.21 Fetometry Using Trans Abdominal Ultrasonography in Caspian Horse

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The study was done to produce fetometry tables by using trans abdominal ultrasonography on five pregnant Caspian horses from day 108 of pregnancy to 230 days. Stomach diameter, rib and intercostal space etc were measured. The size of the fetus in Caspian horse was smaller than other horses. The ratio of stomach of Caspian horses and other findings are also discussed.

3.22 Evaluation of Anti-Arthritic Drug (ART) and 0.5 watt/cm² Therapeutic Ultrasound in Treatment of Degenerative Joint Disease in Donkey: An Experimental Study

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The study was conducted on ten clinically healthy donkeys. Chronic arthritis was induced in left radiocarpal joint. The animals were divided randomly into two groups of five animals each. Group

A, served as control and group B was treated with ART @ 20 gm daily starting on day 0 for 25 days alongwith therapeutic ultrasound @ 0.5 watt/cm² for 10 minutes daily for 10 days. All the animals were euthanised on day 42 i.e. 84 days after the start of experiment. Microscopically in group A animals, necroses of synovial membrane and erosions on articular cartilage were noticed, whereas in group B, synovial membrane and articular cartilage showed degenerative changes.

3.23 Effects of Therapeutic Ultrasound (1.0 watt/cm²) on Fracture Healing Following Autogenous Cortical Bone Grafting of Radius in Dogs: An Experimental Study

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A mid-shaft diaphyseal defect of 2cm was created in the right radius of experimental dogs. The gap was filled with fragmented autogenous cortical bone grafts (2-5 mm in diameter) made from the same 2cm piece of bone removed from the radius and maintained by fixing neutralization plate. All the dogs were subjected to pulsed ultrasound therapy @ 1.0 watt/cm² on day 4 after grafting for 10minutes daily for 10 days. The surgical wound was healed by first intention in 6 days in all the dogs. The pain on palpation was severe to moderate in all the animals for first 5 days except in one dog in which it was mild up to day 10 and was absent by day 20. The full weight bearing was observed by day 45 while standing and after day 30 during walk. The angiograms taken at day 60 showed numerous small tortuous vessels invading the graft area.

3.24 Effect of Ultrasound Therapy on the Healing of Severed Achilles Tendon in Dogs: An Experimental Study

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The present experiment was undertaken on five clinically healthy dogs. Achilles tendon was surgically exposed and severed through and through, 3-4cm proximal to the point of hock. Tenorrhaphy was undertaken by three, single locking-loop sutures using polyamide no. 1-0. Superficial digital flexor tendon was sutured with catgut using two horizontal mattresses. In animals of group I (control), no ultrasound therapy was used. Ultrasound therapy was given in animals of group II, on third day postoperatively @ 0.5 watt/cm² minutes daily for 10 days. A screw was used for immobilization of tibiotarsal joint and same was removed four weeks after tenorrhaphy. Clinically, dogs showed significant lameness for the first 4-5 days which disappeared early in ultrasound treated (group II) animals than control (group I) animals. Extension and flexion of hock joint were found near normal at 6 weeks after the repair of Achilles tendon. Gross observations suggested that Achilles tendon in group II showed comparatively less adhesions than in group I animals. In group II (treated), on day 40, union was comparatively better without any inflammatory reaction. By day 120, tendon tissue was comparatively acellular and looking like a normal tendon. To conclude, ultrasound therapy @ 0.5 watt/cm² helped in early restoration of limb function and satisfactory healing in dogs.

3.25 Clinical Management of Paraplegia in a Dog by Therapeutic Ultrasound

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A two years old female Dachshund dog was presented with the history of dragging the hind quarters and involuntary defaecation and urination. It was treated with ultrasound @ 0.5 watt/cm² for 5-10 minutes twice daily for eight weeks. The animal showed marked improvement. The animal recovered completely.

3.26 Cost effective methods of long bone fracture repair in goat - A clinical study

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Twelve clinical cases of long bone fracture in goat of either sex and three months to three and half year age group, referred to College clinic, were successfully treated. They were randomly divided into two equal groups, consisting of six goats each. The fracture of group I were treated by immobilising it with polyvinyl chloride mould while plaster of paris cast was used in the immobilisation of fracture in group II. Clinical and radiological evaluation of each fracture case was done for the degree of pain and weight bearing on the 21st, 35th and 42nd day of fracture healing. The cost of fracture treatment was calculated in each group for comparison.

Mild pain was observed in both the groups on the 14th post operative day. However, the degree of pain on day 21st was less in group I than in group II. Weight bearing by the affected limb was much better in all the goats of group I than in group II. The callus formation and callus organisation observed on the 35th and 42nd day was much better in group I than group II. Overall cost of fracture management in group I was very less than in group II.

Section No. 4 Clinical Surgery

4.1 Fixation of an Eye Implant in a Dog: A Case Report

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A one year old male dog was presented with a swollen and protruding left eye ball. The cornea was opaque and there was complete loss of vision. The eye ball was enucleated and the corneo-scleral implant was successfully fixed into the orbital cavity which helped to retain the cosmetic appearance of the eye. The owner could remove the eye implant and clean it regularly.

4.2 Surgical Treatment of Pyloric Hypertrophy in a Dog: A Case Report

T.P. Balagopalan, N. Aruljothi, R.M.D. Alphonse and B. Rameshkumar

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An year old cockerspaniel dog was presented with the history of chronic vomiting since a week. The animal was sluggish and emaciated, not responding to routine medical therapy. Contrast gastrography indicated inadequate gastric emptying. Gastrotomy was performed under general anaesthesia using Triflupromazine and Thiopentone sodium combination. The pyloric region showed hypertrophy of circular smooth muscles and hence pyloromyotomy was performed. Gastrotomy and laparotomy incisions were closed in routine manner. The animal was maintained on Cefotaxime (500mg) and parenteral fluids daily for seven days post operatively. The dog recovered uneventfully.

4.3 Surgical Treatment of Haemangiosarcoma Involving Eye Region in a Dog

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A two year old Doberman dog was presented with exophthalmos of right eye since a month. Clinical examination revealed extensive keratitis, chemosis with discharge and a hard swelling around the rim of the orbit. The eye ball was enucleated under general anaesthesia using Triflupromazine-Thiopentone sodium combination. The necrotic tissue occupying the orbital cavity and part of the maxillary sinus was scooped out. The hard palate at the level of premolars and part of the soft palate were soft and thin. The skin wound was closed in routine manner keeping a corrugated drain sheet in situ for drainage. Ampicillin (500mg) was administered daily for seven days. Histological study of the harvested tissue revealed haemangiosarcoma.

4.4 Clinical Management of Acute Uremic Crisis in a Dog

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A Lhasa apso dog was brought to the clinic with the history of chronic oligouria, anorexia, vomiting, depression, altered urine output. It also showed low sodium, increased phosphate, metabolic acidosis and hyperkalemia. Radiographically, there was no evidence of calculi. The animal was successfully treated for functional renal failure.

4.5 Ingestion of Foreign Body in a Bitch: An Unusual Case

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A six month old Dalmatian female had a history of swallowing a metallic choke-chain twice. Under general anaesthesia, a mid-line incision was given on linea-alba, the stomach was exteriorised and 1.5 cm. long incision on stomach was given and a chain was taken out. The stomach was sutured with inverted cushion sutures with catgut # 2-0 thread and skin sutured with nylon while linea-alba was sutured with catgut # 1-0. Dextrose saline, pelox and novalgin were administered. The animal again ingested the chain and enterotomy was done to remove the chain again. Routine postoperative care was undertaken.

4.6 Surgical Treatment of Paraprostatic Cyst in a Dog: A Case Report

S. Dharmaceelan, V. Ramaswamy, N. Rajendran, A. Arunprasad, B. Justin William and S.R. Srinivasan

Veterinary College and Research Institute, Namakkai, Tamilnadu

A seven year old Doberman dog was presented with a history of vomiting, anorexia and dysuria. Clinical examination revealed a soft fluctuating palpable mass in the abdominal cavity. Radiological and ultrasonographical examination confirmed a distended fluid filled sac in the abdominal cavity. Mid ventral laparotomy was performed. A large sized cyst arising from the prostate which compressed the bladder was noticed. The cystic fluid was drained out and the cyst was excised. The laparotomy wound was closed in a routine manner. The animal made uneventful recovery.

4.7 Surgical Treatment of Bilateral Nephrolith and Cystolith in a Dog

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A 11 year old dachshund bitch was referred to the veterinary college hospital with a history of chronic anorexia and occasional vomiting. On clinical examination, pain was evinced on palpation of lumbar region. The radiological and ultrasonographical examination revealed the presence of bilateral nephrolith and multiple cystoliths. Bilateral nephrotomy and cystotomy was performed under diazepam-ketamine anaesthesia. Stones were removed and the surgical wound was closed. The animal made uneventful recovery.

4.8 Rotational Laparotomy Technique for Sterilisation of Bitches

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Rotational laparotomy through a small incision was performed from right flank in 12 bitches under general anaesthesia. After securing bitches in left lateral recumbency, a site was prepared just below the lumbar transverse process aseptically. A transverse incision (one and a half to two inch long) was given one inch posterior to the last rib and three inch below the transverse process of lumbar vertebrae. The right ovary was visible through incision and its stump was ligated. Then by holding the uterine horn, left ovary was grasped and both stump and body of uterus were ligated. The muscles were sutured by using chromic catgut no.2 and skin was sutured by using silk. Postoperatively, animals were given longacting penicillin (six lacs units intramuscularly) and diclogencan sodium 1.5ml intramuscularly. Out of 12, two bitches made com-

plete wound dehiscence leading to evisceration in first 24 hours and resuturing was performed. In another two bitches, the skin sutures were removed by self mutilation and healing was allowed by second intention. In this technique, two small incisions (one on skin and other on muscle) were made (muscle incision made slightly away from skin). Rotational laparotomy technique proved superior to the technique where skin and muscle incisions were made at the same level.

4.9 Efficacy of Mitomycin and Vinblastine in Conjunction with Surgical Excision of Canine Mammary Neoplasms (CMN)

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The effects of chemotherapy using Mitomycin and vinblastine in conjunction with surgical excision of canine mammary neoplasms were studied. Clinical staging by TNM system, radiography and histopathology of 33 cases of canine mammary neoplasms was carried out. The surgical procedure performed in all groups was enbloc dissection. The cases were divided into two groups i.e. Benign tumours (n=6) in which only surgical treatment was given and Malignant tumours (n=22) further divided into three subgroups on the basis of use of chemotherapeutical regimens viz. Surgical treatment only (n=10), Surgery + Mitomycin (n=7) and Surgery + Vinblastine (n=5). No treatment was given in four bitches due to owner's reluctance and one bitch was euthanised following grave prognosis.

Majority of CMNs were reported in the month of September and October and more cases in the age group of 9-12 years. Maximum CMNs were encountered in breed Samoyed/White spitz followed by Doberman. Most of the bitches were intact, nulliparous and had never shown signs of pseudopregnancy. Histopathologically, majority of CMNs were adenocarcinomas followed by a few malignant mixed mammary tumours. Post operative follow up of the cases was done for six months.

Malignant tumours which were surgically treated showed recurrence on an average after one month and few of them died following post operative complications. Mitomycin was found to be more effective in earlier stages of tumour development while Vinblastine showed better response in the advanced cases with lesser side effects. Adjuvant chemotherapy in conjunction with surgery prolongs survival rate.

4.10 Treatment of Bilateral Cataract in a Bullock: A Case Report

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An eight-year old bullock was presented with the history of complete blindness for the last eight months. The clinical examination of the eyes revealed reduced photopupillary reflexes and diagnosed as bilateral cataract. One of the lenses was removed surgically by extracapsular lens extraction technique. The ensuing complications of corneal opacity and blood clots adhering to posterior lens capsule were later managed successfully by surgical and medicinal means. The animal regained its vision four weeks after surgery. Eight-month follow-up of the case revealed satisfactory restoration of visual ability in the operated eye.

4.11 Surgical Removal of Nasal Growths in Bovines: Case Report

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Seven bullocks and three buffaloes of different age groups were treated for removal of nasal growths. The aseptic surgery was carried out under xylazine sedation and local infiltration through a skin flap and a window in the bone to approach nasal cavity was created, nasal growths were excised and re-

moved. Postoperative antibiotics and other related therapy along with daily antiseptic dressing of surgical wound resulted in uneventful recovery in all the cases. Recurrence was reported in one bullock after three years.

4.12 Surgical Treatment of Sialoliths in a Buffalo: A Case Report

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A nine year old female buffalo was reported with the history of developing two hard swellings on right cheek. It gradually increased in size and eventually ruptured one month back. A transparent watery fluid was continuously leaking from the ruptured site since then. The clinical examination revealed the presence of a salivary fistula over the course of right Stenson's duct along with its marked enlargement caudally and complete obliteration of lumen by two big sized salivary calculi cranially to fistula. The successful surgical removal of the calculi and repair of salivary fistula is described.

4.13 Oesophageal Disorders in Animals: A Retrospective Study on 12 Cases

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Various oesophageal disorders in different species of animals were subjected to treatment. Oesophageal obstruction at mid cervical region was the most common in six cases. Oesophageal perforation/fistula was the second most common complications observed in three cases followed by oesophageal diverticulum and dilatation. Oesophageal disorders

were more common in female (5) than in male (2) bovines. Higher incidence of this disorder was recorded in bovine (7), canine (3) and equine (2).

4.14 An Analysis of Survivor Cases of Diaphragmatic Hernia in Buffaloes

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Majority of these cases (75.7%) were in the age group of 5-8 years. Non-pregnant animals constituted to be 46.9% and 5.9% were heifers. Most of the cases had recurrent tympany and partial anorexia for 15-30 days (71.1%). Constipation was recorded in 82.5% cases. Brisket oedema was noticed only in 1% cases. Haemoglobin content was 10g/dl or less in 27.9% animals. In 49.6% cases, the foreign bodies were recovered during rumenotomy, out of these 42.5% animals had sharp foreign bodies. In 71.5% of the buffaloes, the DH was confirmed radiographically and in 41.5% animals, foreign bodies were visualized upon radiography. In 57.4% animals, more than half of the reticulum had herniated in the thorax. During anaesthesia, 2.5% buffaloes showed regurgitation. In 38.5% buffaloes, there were adhesions with pleura. 3.4% had adhesions with pericardium, 4.9% had excessive adhesions with diaphragm and 6.8% had tough adhesions in thorax. In 2.5% animals, foreign bodies were recovered during DH repair. In 4.9% of the animals the nodules/abscesses were present on reticular wall. In majority of cases, (91.2%) surgical wound healed satisfactorily and in 8.8% cases wound infection developed. Favourable factors for survivors of diaphragmatic hernia cases were recorded.

4.15 Beneficial Effects of Certain Antioxidants in Buffaloes Suffering from Diaphragmatic Hernia

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The study on 25 buffaloes subjected to diaphragmatic herniorrhaphy revealed that malondialdehyde (MDA) and reduced glutathione (GSH) concentrations of the blood were significantly higher in diseased animals as compared to healthy ones. The antioxidant potential of ascorbic acid plus vitamin E and selenium, ascorbic acid plus dexamethasone and dexamethasone plus vitamin E and selenium were assessed in buffaloes suffering from diaphragmatic hernia. To sum up, the combination of various antioxidants failed to reduce oxidative stress substantially in buffaloes suffering from diaphragmatic hernia.

4.16 Efficacy of Ascorbic Acid and Vitamin E + Selenium Combination as Antioxidants in Buffaloes Suffering from Traumatic Reticuloperitonitis

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This study was done on eighteen adult buffaloes suffering from traumatic reticuloperitonitis. In all cases, preoperative blood samples were taken and left flank laparotomy was done to remove foreign bodies. Postoperatively, all these animals received broad-spectrum antibiotics, analgesics and vitamin B complex. Six animals served as control where no other therapy was given. In another six animals, ascorbic acid @ 7.5 gm in 500 ml 5 percent dextrose normal saline was administered

intravenously, immediately after surgery and then at 24 and 48 hours post surgery. In the remaining six animals, 10 ml E-Care Se was given intramuscularly with the same schedule as in ascorbic acid group. Parameters investigated were rectal temperature, heart rate, respiration rate, haemoglobin (Hb), packed cell volume (PCV), blood concentrations of reduced glutathione (GSH) and malondialdehyde (MDA) and plasma concentrations of sodium, potassium and chloride. The oxidative stress factor (OSF) was calculated as an absolute value.

Preoperatively, these buffaloes had lower than the normal values of sodium potassium and chloride. The GSH and PCV values were higher than the normal. The OSF was 56 percent higher than the normal. In control animals, the OSF increased by 37.8 percent at 54 hours post surgery. Administration of ascorbic acid reduced the OSF by 32.5 percent whereas vitamin E with selenium reduced it by 44.1 percent at the same stage. In all animals, there was no improvement in the plasma concentrations of electrolytes.

4.17 Diaphragmatic Herniorrhaphy in Buffaloes: A Retrospective Study on 72 Clinical Cases

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Diaphragmatic herniorrhaphy through linea alba incision was performed on 72 clinical cases (67 adult she buffaloes and 5 buffalo-heifers). Forty-three animals (63%) were discharged successfully following herniorrhaphy. Among the non-survivors, most of the deaths (19/26) occurred during recovery from general anaesthesia. Three animals died during surgery due to rupture of vital organs while separating adhesions with reticulum or hernial ring. Surgery should be avoided in patients till their dehydration and low haemoglobin values are corrected. Similarly, surgery should be postponed in

advanced pregnant animals and animals having lung lesions or history of regurgitation as they are poor anaesthetic risk. Diaphragmatic hernia cases associated with functional stomach disorders were managed with ruminal cud transplant and hypertonic glucose saline with potassium chloride infusion to avoid postoperative digestive problems.

4.18 Treatment of Lower Teat Obstruction in Cattle/Bufferaloes: An Analysis of 580 Clinical Cases

M.K. Bhargava

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After aseptic preparations of the teat to be operated, a cruciate incision was given on the tip of the teat orifice about 3-4 mm in length and the careful deeper incision on the tissue continued to the depth of the obstruction till the free flow of milk started. Once the free flow of milk starts, the bleeding if any, is checked by pressure. This was followed by infusion of tilox for three days and local application of liquid wokadine soaked in cotton and bandaging with the help of adhesive tape in 280 cases. In rest of 300 cases, no intramammary infusion, but only local dressing was done. Parenteral administration of Bistrepren/Dicrystacin 2.5 gm I/M twice daily for three days, Avil 10 ml and Fenac 20 ml I/M daily for 3 days was also given in all the cases. Results will be discussed in detail.

4.19 Treatment of Teat Obstruction by Using Prosthetic Tubes in Cows: A Clinical Report

N. Aruljothi, R.M.D. Alphonse, T.P. Balagopalan and B. Rameshkumar

Department of Veterinary Surgery and Radiology, Rajiv Gandhi College of Veterinary and Animal Science, Pondicherry-9

Thirty cases of teat obstruction in cows were subjected for surgical correction under sedation by

administering xylazine hydrochloride and local analgesia at the site. Sterile prosthetic tubes made up of plain and modified polyvinylchloride attached with a 2 ml sterile disposable syringe were introduced into the lumen and fixed in situ for maintaining the patency of the teat canal. Gentamycin was administered @ 5mg/kg body weight systemically and locally into the teat post-operatively for seven days. The prosthetic tubes were found to be satisfactory in maintaining the patency of the lumen of the teat after the surgical correction. The merits and demerits of this surgical procedure are also discussed.

4.20 Intestinal Rupture Following Intussusception in a Cow: A Case Report

T.V. Jayamohan

Veterinary Dispensary, Chengalayi, Kannur, Kerala

A six years old cow with the history of cessation of defaecation, bilateral abdominal distension and anorexia since a week was presented for treatment. Abdominal paracentesis revealed presence of dung material in the peritoneal cavity. Right side laparotomy revealed intestinal rupture and peritonitis following intussusception. Enterectomy and entero-anastomosis was done as per standard technique along with peritoneal lavage. Peritoneal drainage was done for two weeks using a fenestrated polythene tube. The animal made an uneventful recovery.

4.21 Surgical Treatment of Rectal Prolapse in a She Buffalo

Raju Sharda, S.K. Tiwari and S. Roy

Department of Veterinary Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Anjora, P.B. No. 6, Durg (C.G.)

A buffalo aged about 8 years suffering from whole thickness rectal wall prolapse was brought for treatment. The length of mass was approximately 30 cm, light reddish black. Under epidural anaesthesia, the prolapsed mass was amputated surgically.

The protruded mass was divided into four quadrants and each was rejected one by one with proper suturing. The stump of the rectum retracted spontaneously. The animal showed uneventful recovery in a period of eight days without any recurrence in a follow up period of six months.

4.22 Surgical Management of Free-martinism in a Cow Heifer: A Case Report

M. A. Jalil and V.P. Chandrapuria

College of Veterinary Science and Animal Husbandry, J.N.K.V., Jabalpur (M.P.)

A Holstein Friesian cross bred female cow aged eleven months was examined for abnormal development of external genitalia. Heifer was born as co-twin with a normal male calf. On clinical examination, fusion of half of the dorsal commissure of vulvar opening was observed with hyperplastic persistent hymen covering internally lower portion of vulva up to the prominent clitoris. A tuft of hair was noticeable at ventral commissure of the vulva. Internal genitalia were felt poorly developed but normal. The deformities of external genitalia were corrected surgically by vulvoplasty and excision of hymen. The genital tract patency was checked by inserting a pipette. The reproductive efficiency of the heifer could not be ascertained due to under puberty age.

4.23 Clinical Management of Urolithiasis in Cow Calves

D.M. Makhdoomi

Department of Surgery and Radiology,
Faculty of Veterinary Science and Animal Husbandry, Skuast-K, Jammu and Kashmir

30 male cow calves aged 3 to 12 months manifesting clinical urolithiasis were divided into five groups. The surgical procedures adopted were decided depending upon clinical status of the animal, levels of blood urea nitrogen and creatinine, location of calculi, ruptured or intact urinary bladder and duration of urinary obstruction. Diversified

surgical approaches and treatment regimens in five different groups were allocated. In each group, the prognosis depended upon a number of factors viz. duration of obstruction, degree of uroperitonitis and uremia, status of bladder and tissue damage. Irreversible changes occur after 72 hours of urinary obstruction.

4.24 Treatment of Papillomatous Digital Dermatitis in Cows

I. Nowrouzian

Department of Clinical Science, Faculty of Veterinary Medicine, Tehran University, P.O. Box: 14155-6453, Tehran

Six dairies in the vicinity of Tehran with a prevalence rate of 18.13% to 26.08% of lameness were considered for this study and a total of 610 lame cows out of 1814 were identified clinically as (P) DD. The majority of cases exhibited erosive, reactive (strawberry-like) to proliferative (wart-like) growth mostly at the plantar aspect of lateral claw of hind limbs with no significant difference between right or left limbs. In all, spray solution of Lincomycin HCl was used for treatment twice daily for one week.

4.25 Double Diaphragmatic Hernial Ring Repair in Holstein-Friesian Cow: A Case Report

**B. Justin William, S. Dharmaceelan,
A. Arun Prasad, L. Nagarajan,
N. Rajendran and S.R. Srinivasan**

Veterinary College and Research Institute,
Namakkal, (Tamilnadu)

An adult high yielder recently calved Holstein-Friesian cow was presented to the college hospital with a history of anorexia and recurrent bloat. On clinical examination, severe bilateral distension of the abdomen with suspended rumen motility and rumination were observed. Muffled cardiac sounds with absence of reticular sounds were noticed on auscultation. Contrast radiography revealed the presence of diaphragmatic hernia. Rumenotomy was

performed to evacuate the contents. Double diaphragmatic hernial defects were observed with the reticulum herniated through the larger defect. Herniorrhaphy was carried out through a left paracostal approach. The animal, however, collapsed on the 10th postoperative day. Post mortem changes noticed were severe constrictive pericarditis, pneumonia and peritonitis.

4.26 Surgical Treatment of Rhambdomyoma in a Bullock: A Case Report

Kuldip Singh, Sukhbir Singh and Ashok Kumar

Department of Veterinary Surgery And Radiology, College of Veterinary Science, CCS HAU, Hisar

A bullock was presented to veterinary clinic with the history of large sized growth on back of animal. Biopsy from the growth was subjected to histopathological examination. And confirmed to be a case of rhambdomyoma. Under sedation, the growth was surgically excised.

4.27 Surgical Treatment for Coenurosis (Gid) in Caprine: A Report on 120 Clinical Cases

S.P. Sharma, Naveen Kumar and Md. Moin Ansari

Department of Surgery and Radiology, Bihar Veterinary College, Patna-800 014

Coenurosis involving brain and spinal cord is commonly found in ovine, caprine and rarely in bovine and equine. 120 clinical cases in goats (34 male and 86 female) aged one to four years were surgically operated. The surgery was conducted under triflupromazine sedation and local infiltration of 2% Xylocaine mostly when the site was palpable from outside. After removal of Coenurus cyst, the cutaneous incision was closed with nonabsorbable suture. Operated goats received broad spectrum antibiotic for five consecutive days and B-Complex injection along with stomachic powder orally for a week.

4.28 Clinical Efficacy of PALM(*Phoenix dactylifera*) and JAMUN (*Syzygium cumini*) as Antidiarrhoeal Agent in Cross-bred Cattle

P.K. Singh, N.S. Jadon, Sonu Jaiswal and Pankaj Kumar

Department of Surgery and Radiology, G.B. Pant University of Agricultural and Technology, Pantnagar-263 145

In the present study, two antidiarrhoeal agents i.e. dried flowers of Palm(*Phoenix dactylifera*) and powder of dried seeds of Jamun (*Syzygium cumini*) were evaluated for their efficacy in clinical cases of cattle suffering from nonparasitic diarrhea. To sum up, seed powder of Jamun was found more effective than powder of flowers of Palm.

4.29 Clinical Management of Some Surgical Affections in Captive Wild Animals

Mohinder Singh, J.M. Nigam, S.K. Sharma, A.C. Varshney, Adarsh Kumar and S.P. Tyagi

Department of Surgery and Radiology, College of Veterinary and Animal Science, CSKHPKV, Palampur-176 062 (H.P.)

A total of 15 clinical cases in different species of captive wild animals were attended. Different types of wounds, simple fractures of tibial and metatarsal bone and muscular cyst were recorded in these species. The clinical and surgical procedures employed under various physical and chemical restraint techniques will be discussed.

4.30 Use of Cryotherapy in Management of Certain Clinical Conditions in Wild Animals

I. Nath, V.S.C. Bose, T.K. Pattanaik and A.T. Rao

Department of Surgery, Veterinary College, Bhubneshwar (Orissa)

Successful cryotherapy for clinical management of perianal fistula in a tiger, parasitic granuloma of eye in a Mithun, squamous cell carcinoma in a Manipur deer and chronic ulcer at tail tip of a reticulated python was undertaken. All animals recovered uneventfully.

4.31 Epidermoid Carcinoma of the Eyelids in Tiger

V.S.C. Bose, I. Nath, J. Mohanty, S.K. Panda and A.T. Rao

Department of Surgery, Veterinary College, Bhubneshwar (Orissa)

A tiger with a growth involving eyelid was excised under Ketamine and Xylazine anesthesia. Histopathology of the excised growth revealed it to be an epidermoid carcinoma. The tiger recovered uneventfully. The details of anaesthetic management and surgical procedure will be discussed.

4.32 Ventral Hernia in a Monkey

D. U. Lokhande, G. S. Khandekar, L. B. Sarkate, Manjramkar and C. S. Lele.

Bombay Veterinary College, Parel, Mumbai - 12. Maharashtra Animal and Fishery Science University, Nagpur.

A female monkey belonging to I.R.R., Mumbai was referred to the Department of Surgery for the repair of ventral hernia. Clinical examination of monkey revealed an inch diameter hernial ring two inches below the umbilicus and on the right side of the abdomen. The monkey was anaesthetised by injecting xylazine (0.4 mg/kg) and ketamine (15 mg/kg) mixture intramuscularly.

Following the development of anaesthesia, an incision of 1.5 inch was taken on the skin and the adhesions between the skin, muscles and peritoneum were broken bluntly. The hernial ring was freshened and the peritoneum and muscles were sutured in two layers using 1-0 chromic catgut. Nylon interrupted sutures were placed to close the skin incision. The wound was dressed daily with nitrofurazone cream and antibiotic cefotaxime (250

mg) was administered twice intramuscularly for seven days. Rapid and uneventful wound healing was seen within 10 days. The nylon sutures were removed on the 11th day.

4.33 Caesarean Section in Indian Wild Sow.

L. B. Sarkate, D. U. Lokhande, C. L. Badgujar, Karawale and Kamal Kumar

Bombay Veterinary College, Parel, Mumbai - 12. Maharashtra Animal and Fishery Science University, Nagpur.

A four year old Indian wild sow weighing about 40 kgs. was presented to the Department of Surgery with history of dystocia. Clinical examination revealed one dead piglet in vaginal passage. The anaesthesia was induced by intramuscular injection of xylazine (5 mg/kg) and ketamine (5 mg/kg) in the squeeze cage. After the preparation of the site on the left flank region, a vertical incision was taken on the lower left flank. A clear straw coloured peritoneal fluid was allowed to drain before the exteriorization of the gravid uterus.

Following laparotomy both gravid uterine horns were brought to the laparotomy incision site and longitudinal incision of about 2 - 4 inches long was taken on the dorsal surface of the body of the uterus. Two dead piglets were present in the left uterine horn while one dead piglet was observed in the right uterine horn. These three dead piglets along with the placenta were removed. One furea bolus was placed in the uterus and the uterus was closed with Lembert and Cushing technique using chromic catgut No.1-0. The abdominal wound was closed in three layers. A total of 45 minutes were required to complete the procedure following the onset of anaesthesia. The animal recovered smoothly in four hours after operation without any complication. Post operatively, regular dressing was done for ten days and injection streptopenicillin (1 gm) was given intramuscularly daily for seven days. Sutures were removed on the sixteenth post operative day by restraining the sow in squeeze cage.

4.34 Surgical management of abnormally large Ovarian Cyst -

G. S. Khandekar, L. B. Sarkate, D. U. Lokhande and K. S. Chaudhari

Bombay Veterinary College, Parel, Mumbai - 12. Maharashtra Animal and Fishery University, Nagpur.

A non descript bitch of about 5 years age weighing 23 kgs. was brought for sterilization suspecting advanced pregnancy. The bitch had normal appetite and was active. The bitch was showing severe arching of the back with distended abdomen. She was unable to walk properly. All other parameters like heart rate, respiration rate and rectal temperature were within the normal range. Following routine preparation, the bitch was operated under chlorpromazine and thiopentone sodium anaesthesia. Midline laparotomy revealed a basketball sized fluid filled fluctuating swelling in the mid-abdominal region. An 8.5 inch long incision made for the exteriorization of growth which later revealed as a cyst on the left ovary. The routine ovario-hysterectomy was performed. The weight of the cyst was 7.25 kgs. and it contained clear fluid. The daily dressing of the wound was done for 7 days and injection strepto-penicillin (250 mg) was given for 5 days. The bitch recovered completely.

Section No. 5 Poster

5.1 Rare Eye Affections in Domestic Animals: A Clinical Report

Mrs. C.K. Sharma, M.K. Soni, T. Singh, M. Jain and Sakar Palecha

Department of Surgery and Radiology, College of Veterinary and Animal Science, Bikaner

Various eye affections viz sympathetic ophthalmia, supraorbital process fracture with eye laceration, corneal laceration in camels, exophthalmos in calf

and dog, keratomalacia in kid were treated surgically.

5.2 Incidence of Eye Disorders in Ruminants

C.V. Dharaneppa, S.M. Usturge and B.V. Shivaprakash

Department of Surgery and Radiology, Veterinary College, Bidar-585 401

Out of 4347 surgical cases (1995-1999) referred to college clinic, 233 cases indicated an overall incidence of eye disorders as 5.36%. Bovines had highest incidence (4.88%) of eye disorders when compared to caprines (0.32%) and ovines (0.16%). Corneal opacity accounted to 18.62% (42); neoplasms of eye, 17.6% (41); conjunctival abscess, 10.73% (25); corneal rupture, 8.15% (19); corneal ulcer, 9.44% (22); eye lid trauma, 10.30% (24) and cataract, 8.60% (20). Other conditions like conjunctivitis, eye lid myiasis, dermoid cysts, hyphema, hypopion, panophthalmitis etc. accounted to 17.17% (40).

5.3 Surgical Management of Severed Achilles Tendon in Dogs: A Clinical Report

N.S. Saini, P.S. Bansal, P.S. Sharma and J. Mohindroo

Department of Surgery and Radiology, P.A.U., Ludhiana-141 004, Punjab

The severed Achilles tendon was diagnosed on the basis of clinical signs, ultrasonography and air tenography. Out of these, three dogs had completely severed and one had partially severed Achilles tendon. The most common site of trauma was 3-4 cm proximal to the Tuber calcanei and the main clinical sign was hyperflexion of the hock. In three dogs, Achilles tendon was repaired successfully by using single locking loop sutures (three) with polyamide and in one dog, tenodesis was carried out. In all the dogs, immobilization of tarsus was carried out by using cortical screw which provided excellent immobilization for four weeks. Ultrasound therapy @ 0.5 watt cm⁻² helped in satisfactory healing of Achilles tendon in all the dogs as evidenced by the improvement of sonographic tex-

ture of tendon tissue, proper weight bearing, reduction in swelling in the operated area and restoration of the normal function of the limb in 6 weeks.

5.4 Ultrasonographic and Radiographic Diagnosis of Renal Calculi in Dogs

N.S. Saini and S.S. Saini

Department of Surgery and Radiology, P.A.U., Ludhiana-141 004, Punjab

Three dogs were brought with history of anuria, vomiting and dribbling of urine for treatment. Ultrasonography and radiology revealed stones in kidneys in all the dogs. Both spitz dogs were having bilateral kidney stones and one had stone in the urethra also. Third dog had stones in the left kidney, urinary bladder and urethra.

5.5 Laparoscopic Diagnosis of Certain Diseases in Dogs

T.N. Ganesh, Ceclia Joseph, C. Veerapandian, K. Vasu, S. Thilagar and W.P. Archibald David

Madra Veterinary College, Chennai (Tamilnadu)

Role of laparoscopy in the diagnosis of certain diseases in dogs was studied. Thirteen clinical cases with ailments involving the abdominal cavity were selected and subjected to laparoscopic examination. Biopsy of the diseased organs was taken using biopsy forceps wherever necessary, followed with electrocoagulation. The diseases viz cirrhosis, hepatocellular adenoma, tumours involving mesentery and splenic pathology were diagnosed by laparoscopy. The results will be discussed.

5.6 Surgical Management of Fibrosarcoma of Oral Cavity in a Dog

S.K. Tiwari, S. Roy, J.J. Bhelonde and V.P. Bhosle

College of Veterinary Science and Animal Husbandry, Anjora, Durg-491 001 (Chhattisgarh)

A male German-shepherd dog aged three years was presented for treatment. Clinical examination revealed presence of a large growth occupying the base of the oral cavity. The growth was fleshy, soft and noncapsulated. Under atropine sulphate (0.65mg) and xylazine hydrochloride @ 1mg/kg body weight IM premedication and general anaesthesia with ketamine hydrochloride @ 5mg/kg body weight IV, all neoplastic growths were excised and the area was cauterized with silver nitrate. The dog recovered in a period of 15 days. The histopathological examination of the growth confirmed it to be a case of fibrosarcoma. No recurrence was seen in a follow up period of six months.

5.7 Fibrosarcoma of Upper Jaw in a Dog: A Case Report

M.K. Bhargava, S.K. Pandey and M. Swami

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

A German shepherd dog aged about 8 years had a swelling in the upper jaw. The examination revealed a growth above the 2nd and 3rd premolar teeth involving the gums and the upper jaw. The growth was excised completely under triflupromazine and thiopentone anaesthesia. The animal recovered completely in 10 days. After two months, owner again brought the dog with the recurrence of the condition. The examination of the animal showed involvement of larger area extending up to 4th premolar and 1st molar. The animal was operated once again under general anaesthesia. The growth was completely excised and curetted out along with surrounding tissues. Parenteral antibiotics and daily dressings were similar to that done earlier. The animal was also administered 300 mg of cyclophosphamide I/V once in eight days along with 400 ml of dextrose with normal saline on a day earlier, on the day of injection and a day there after. Such five injection were made. Two months after the 2nd operation, the growth again started developing and within ten days it developed as large mass at the same place. The owner was advised to get the animal euthanised.

5.8 Surgical Management of Leiomyoma on Perineal Region of Bitch

S.K. Tiwari, S.K. Yadav and V.P. Bhosale

Department of Surgery and Radiology, College of Veterinary Science and Animal Husbandry, Anjora, Durg-491 001 (Chhattisgarh)

An eight year old pomeranian bitch was presented with the history of swelling in the perineal region clinical signs like severe straining during urination and defecation for the past one month were noticed. Clinical examination revealed hard tumor like mass adhered to the upper vaginal wall. The growth was excised after premedication with atropine sulphate (0.65 mg) and xylazine hydrochloride @ 0.5 mg/kg body weight IM and general anaesthesia was induced 15 minutes later using ketamine hydrochloride @ 5 mg/kg body weight IV. Under strict aseptic precautions, episiotomy was performed and the growth was removed. The closure was done in the routine manner. The skin wound healed in 10 days time. Histopathological examination of the growth indicated it to be leiomyoma.

5.9 Surgical Management Basal Cell Carcinoma in a Dog

S. Hazra, S. Ghosh, S. Halder and S.K. Nandi

Department of Veterinary Surgery and Radiology, West Bengal University of Animal and Fishery Science, 37, Kshudiram Bose Sarani, Kolkata-700 037 (West Bengal)

A five year old Labrador bitch was presented with a history of progressively growing swelling at the right fore paw. Clinical examination revealed a firm, well-circumscribed mass about 5 cm in diameter in right fore paw. The mass was dissected out with surgical diathermy under local infiltration and sedation. The animal had an uneventful recovery and no recurrence was reported since then.

5.10 Efficacy of Mitomycin in the Treatment of Perianal Adenoma and Perianal Fistulae in Dogs

Poonam Batra and Prabhjit Singh Simran

Department of Veterinary Surgery and Radiology, P.A.U., Ludhiana-141 004, Punjab

Ten clinical case study of perianal tumours and seven of perianal fistulae were diagnosed to be adenomas on histopathological examination. Single dose of mitomycin @ 6 mg/m² body surface area was sufficient and surgical intervention was required in two cases only.

5.11 Clinical Observations on Rhinotomy in a Dog

R.P. Pandey, B. Singh, S.D. Dwivedi, V. Butola, T. Yadav and A. Prakash

College of Veterinary Science and Animal Husbandry, C.S. Azad University of Agriculture and Technology, Mathura

Dorsal rhinotomy was performed in an aged Spitz male dog having history of dog bite on the nasal bridge. Clinical signs of dyspnoea, snoring, massive recurrent swelling, occasional exophthalmos with congested conjunctiva were present. Under general anaesthesia and tracheal intubation in sternal recumbency. Tubinectomy was done and drainage of sinuses was established in the nasal cavity. Before closure, patency of nasolacrimal ducts was checked and nose packing done upto 48 hours postoperatively. The bony flap at nasal bridge was retained with wire sutures and skin closure was done. The animal showed uneventful recovery.

5.12 Some Epidemiological Aspects of Mammary Neoplasms in Dogs

M.K. Palta*, **K.K. Mirakhur**** and **N.S. Saini****

* Veterinary Polyclinic, Faridkot, Punjab

** Department of Veterinary Surgery and Radiology, College of Veterinary Science, P.A.U., Ludhiana-141 004, Punjab

A total of 158 canine mammary neoplasms (CMNs) from 54 animals were studied. In 77.78% of the cases, CMN was presented as a single entity whereas pyometra was also observed in 12.96% of CMN cases. Clinical manifestation of the disease was present in majority of cases (35.19%) for 0-3 months duration, 57.41% of the neoplasms had extensive growth and 88.89% had well defined borders. Only 11.11% of the CMNs were presented as a recurrence of previous cases. Majority (41.14%) of the CMNs had broadest diameter of less than 3 cm and the minimum number (8.82%) had broadest diameter of 12 cm and above. Majority (68.52%) had hard consistency. Grossly 68.52% were fixed to skin and rest 31.48% were fixed both to underlying body wall and overlying skin. Nipple deformities were observed in 11.11% cases. Lymphatics of mammary glands were grossly affected with metastasis in 57.41% of cases of CMN. Distant metastasis (mainly pulmonary) was evident in 48.1% of CMNs on the basis of thoracic radiography.

5.13 Multimodality Treatment of Canine Mammary Neoplasms (CMN) in Bitches:

A Clinical Report

M.K. Palta*, **N.S. Saini****,
K.K. Mirakhur**, **R.S. Brar****
and **N.K. Sood****

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** Department of Veterinary Surgery and Radiology, College of Veterinary Science, P.A.U., Ludhiana-141 004, Punjab

Out of 54 cases of canine mammary neoplasms, 45 were subjected to multimodality treatment and 9

were not treated. Two groups were made on the basis of surgical techniques used viz. (A) simple mastectomy (n=24) and (B), enblock dissection including lymph nodes (n=21). Each group was further divided into three subgroups viz. (i) surgical treatment only (n=17), (ii) adjuvant chemotherapy (n=15) and (iii) neoadjuvant chemotherapy (n=13). Vincristine and cyclophosphamide were administered to all CMNs (n=25). Three bitches reported recurrence with the first treatment regimen and were subjected to 5-fluorouracil and cyclophosphamide treatment. No changes were noticed both in haematological and biochemical studies carried out before surgery and chemotherapy. All the cases were followed up clinically for a period ranging up to a maximum of one year. The overall survival rate was 53.33%. The disease free survival time and rate of the animals treated with adjunct chemotherapy were higher than that with surgical treatment alone. Neoadjuvant chemotherapy along with surgery had more disease free survival rate (69.24%) than adjuvant chemotherapy with surgery (66.67%). The overall disease free survival rate was maximum (83.33%) in animals treated with neoadjuvant chemotherapy and simple mastectomy.

Neoadjuvant chemotherapy effectively prolonged the disease free survival rate and time in the CMN cases with clinical duration of 0-3 months, slow growing neoplasms and invasive neoplasms with poor prognosis as compared to adjuvant chemotherapy. It effectively reduced the size of tumour mass to an average of 15% which was supported by the histopathological findings.

5.14 Surgical Treatment of Sarcoid of Maxillary Region in a Mare

V.S. Dabas, **J.N. Mistry**, **S. Chaudhary** and **G.S. Rao**

College of Veterinary Science and Animal Husbandry, G.A.U., Sardar Krushinagar-385 506 (Gujarat)

A two years old mare of non-descript breed having hard, ulcerative growth surrounded by thick bony edges since fourteen months on its right maxillary region was treated successfully under xylazine-

ketamine anaesthesia. A cricket ball sized growth embedded deep into the maxillary sinus was removed after taking an elliptical skin incision and slicing the thick bony edges. Routine postoperative antibiotic and other related therapy along with daily antiseptic dressing resulted in complete healing within 25 days. It was confirmed sarcoid on histopathological examination.

5.15 Surgical Management of a Sinus in a Mare

V.S. Dabas, J.N. Mistry, S. Chaudhary and K.P. Singh

College of Veterinary Science and Animal Husbandry, G.A.U., Sardar Krushinagar-385 506 (Gujarat)

A four year old mare of non-descript breed having a small wound with 24cms deep cranio-dorsal oblique tract on right posterior thigh region, at the level of stifle joint, discharging pus continuously was diagnosed as sinus and treated successfully under xylazine-ketamine anaesthesia. Following all aseptic procedures, a 20cms linear skin incision started from wound opening to the dorsum was taken. The musculature was cut under the guidance of stillete already fixed in to the sinus tract and three wooden pieces of different sizes were removed from the cavity. Chloremphenicol was administered intramuscularly in recommended doses along with the daily antiseptic dressing of the wound. Complete healing took place by mixed intention in twenty days.

5.16 Surgical Management of Intestinal Obstruction in a Bullock: A Case Report

Dilip Kumar, S.M. Usturge and P. Singh

Department of Surgery and Radiology, Veterinary College, Bidar-585 401 (Karnatka)

A six year old deoni bullock with the history of not passing faeces was diagnosed as a case of intestinal obstruction. Enterotomy was performed through right flank laparotomy and a plastic foreign body was recovered. End to end anastomosis was per-

formed at another site having thrombus of mesenteric vessels. The wound was closed in a routine manner. Animal recovered uneventfully.

5.17 Unusual Enteric Foreign Bodies in Small Animals

Dilip Kumar, K. Ameerjan and W.P. Archibald David

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

Three dogs and one cat had unusual intestinal foreign bodies. The three dogs had ingested nipple of feeding bottle, sewing needle and screw respectively and one cat had cork of a bottle in intestine. All the animals were treated successfully by right flank laparotomy and enterotomy.

5.18 Surgical Management of Ventral Hernia in a Dog

S.K. Nandi, S. Halder, D. Ghosh and S. Hazra

Department of Veterinary Surgery, West Bengal University of Animal and Fishery Sciences, Kolkata-700 037 (West Bengal)

A five year male dachshund dog was presented with a complaint of large swelling at the ventral abdomen. The history revealed that the dog had been knocked down by a cyclist two weeks back. A tentative diagnosis of ventral hernia was made and herniorrhaphy was advocated. The hernial ring was closed using strong synthetic suture Vicryl no-1. The subcutaneous and fascia were sutured by chromic catgut no 1-0. The wound healed uneventfully and sutures were removed on 12th postoperative day.

5.19 An Anaesthetic Regimen Using a Combination of Diazepam, Xylazine and Ketamine for Castration of Boar

K. Ramanujam, R. Ganesh and T. Gnanasubramaniam

Tamilnadu Veterinary and Animal Science University, Chennai-600 051

A healthy boar weighing 130 kg was referred to Peripheral Veterinary Hospital for castration. The animal was anaesthetized using a mixture containing 2ml of diazepam (10mg), 5ml of xylazine (100mg) and 10ml of ketamine (500mg), at the dose of 0.12ml/kg body weight after premedication with atropine sulphate @ 0.04mg/kg body weight intramuscularly. Half the calculated dose was administered intramuscularly and the other half after 5 minutes intravenously. The surgical anaesthesia was achieved within 3 minutes and maintained for 25 minutes. Orchiectomy was performed and tunica vaginalis was ligated to prevent the occurrence of scrotal hernia. The induction, maintenance and recovery from anaesthesia were smooth. The animal did not show any symptom of excitement, grunting, squealing and hyperthermia. The anaesthetic regimen was found to be useful for castration of boar.

5.20 Effects of Propofol-Ketamine Anaesthesia with or without Premedication in Dogs: An Experimental Study

E.L. Chandra Sekhar, A. Venugopal and V. Haragopal

Department of Surgery and Radiology, College of Veterinary Science, Acharya N.G. Ranga Agricultural University, Rajendra Nagar, Hyderabad-500 030

The experimental study was conducted on 18 clinically healthy dogs of either sex. Propofol-Ketamine combination with or without premedication could produce smooth and excitement free induction. Premedication with Diazepam produced transient

apnoea during induction. The propofol-ketamine combination produced short duration surgical anaesthesia. The recovery from anaesthesia was short in propofol-ketamine combination but was prolonged with triflupromazine hydrochloride or diazepam premedication. The recovery from anaesthesia was smooth except for mild and transient shivering and paddling movement in all the groups.

5.21 An Unusual Sized Abscess at Ventral Side of Neck in a Buffalo: A Case Report

Kuldip Singh, Prem Singh and R.S. Bisla

Department of Veterinary Surgery and Radiology, College of Veterinary Science, CCS HAU, Hisar

A buffalo was presented to veterinary clinic with the history of slowly developing unusually large sized abscess hanging from ventral side of neck, just touching the ground. The abscess assumed this size in a year or so. Surgical excision of abscess at its base was undertaken. Skin of wound was sutured with silk # 3 in a routine manner.

5.22 Clinico-Sedative, Cardiovascular and Electroencephalographic Studies Following Detomidine-Ketamine Anaesthesia in Neonatal Calves

Shakuntla, S.K. Sharma and Adarsh Kumar

Department of Veterinary Surgery and Radiology, College of Veterinary and Animal Sciences, CSKHPKV, Palampur (HP) 176 062

Detomidine hydrochloride (0.02 mg/kg) and ketamine hydrochloride (7.5 mg/kg) combination, was evaluated intramuscularly for surgical anaesthesia in 10 neonatal male cow calves, 10-15 days old and weighing between 14-32 kg. The study was carried out in two groups of 5 animals each. The onset time, down time and recovery time recorded were: 1.6 ± 0.31 min, 2.0 ± 0.41 min (sternal) and 5.6 ± 0.80 min (lateral) and 48.6 ± 0.42 min

(sternal), 88.2 ± 2.67 min (standing but ataxic) and 95.4 ± 2.63 min (normal gait), respectively. The surgical anaesthesia remained between 28 to 75 min as evidenced by complete muscular relaxation and analgesia. Significant to highly significant hypothermia (terminal), bradycardia and tachypnea were recorded initially. There was evidence of non significant hypertension. ECG changes revealed significant increase in PR interval with non-significant increase in QT and ST segment intervals. A non-significant increase and decrease were observed in QRS complex and T wave amplitudes, respectively. Electroencephalographic studies revealed high voltage activity against the background of low voltage in comparison to low voltage high frequency activity in all the animals (base value). The combination was successfully used for surgery on clinical cases in neonatal calves.

5.23 Common Surgical Affections of Camels (*Camelus Dromedarius*)

T.K. Gahlot and Mahesh Suman

Department of Veterinary Surgery and Radiology, College of Veterinary and Animal Sciences, Rajasthan Agricultural University-334 001

Mandibular fracture is commonest of these and is repaired by interdental wiring under xylazine sedation. Soft palate is injured and need to be resected under xylazine sedation. Foot pad is injured by nails, thorns, gravels, piece of glass or other sharp foreign bodies. Sometimes digital cushion is prolapsed through such opening and is treated by resection and plugging. Chest pad wounds and enlargements interfere with sitting and locomotion, hence need resection under xylazine sedation. Saddle gall is resulted due to pressure of saddlery accessories. "Rut" season causes havoc in male camels and they often bite scrotums of other camels leading to superficial to deep testicular injuries. Sand masturbation by male camels also leads to ascending urinary infection culminating into urethritis and urinary obstruction. Sometimes ruptured urethra is a complication. Lacerated nostrils, upward fixation of patella, frequent interdental gaps between upper cheek teeth often lead to either buccal fistula or salivary fistula. Eyes are fre-

quently injured leading to corneoscleral injuries, descematocele, panophthalmia etc.

5.24 Surgical Treatment of an Enterolith under Epidural Anaesthesia in a Horse

A.M. Pawde, H.P. Aithal, Amar Pal, P. Kinjavdedar and S.K. Maity

Division of Surgery, Indian Veterinary Research Institute, Izatnagar-243 122, (U.P.)

A five year old stallion was presented with a history of abdominal colic for last three days. Per rectal examination revealed empty rectum with no faeces but dry, scanty mucus shreds and distended loops of intestines. Palliative treatment failed to provide any relief from the colicky pain. Since the animal was dull, depressed, dehydrated and was a poor subject for general anesthesia, regional anesthesia was then induced epidurally using mixture of ketamine HCL @ 1mg/kg and xylazine @ 0.5 mg/kg. The animal was secured in left lateral recumbency and incision was made on lower flank. A hard irregular, stony mass was felt distal to the gas filled bowel loop (right dorsal colon) which was exteriorized and the enterotomy was performed. A gingershaped enterolith was removed from the intestine. The enterotomy and laparotomy incisions were closed in a routine manner. Postoperative treatment was adopted for a week. Animal recovered uneventfully.

5.25 Crop Fistula in Australian Parakeet : A Case Report

Sukhbir Singh, Prem Singh, Kuldip Singh and Ashok Kumar

Department of Veterinary Surgery and Radiology, College of Veterinary Science, CCS HAU, Hisar

A parakeet suffering from crop fistula was admitted to veterinary clinic for treatment. The bird had a history of injury due to beaking by other bird resulting in to crop rupture/fistula. Feed and water was coming through this fistula. Under sedation with xylazine and ketamine, the injured area was repaired. The bird showed an uneventful recovery.

5.26 Ultrasonographic Imaging of Obstetrical Cases in Bitches: A Clinical Report

R.K. Chandolia*, Rishi Tayal, R.A. Luthra* and S.M. Behl****

*Department of Animal Reproduction, Gynaecology and Obstetrics,

** Department of Surgery and Radiology, CCS HAU, Hisar

Prior to treatment, ultrasonographic examination was undertaken on five clinical cases in bitches having the history of dystocia, with the aim to know the livability of pups, number of pups with their presentation/posture. Obstetrical problem, if any, can be tackled successfully thereafter.

5.27 Fabrication of Low Cost Surgical Appliances

B.J. William, S. Dharmaceelan, A. Arun Prasad, L. Nagarajan, S.R. Srinivasan and P. Sadhasivam

Department of Veterinary Clinic, Veterinary College and Research Institute, Namakkal-637 001 (Tamilnadu)

The photographs of newly fabricated surgical appliances/instruments along with their uses will be displayed and discussed.

5.28 Surgical Repair of Inter-Mandibular Fistula with Protrusion of Tongue in a Buffalo

N.S. Saini, A. Anand, P.S. Bansal, S.K. Mahajan and P. Bishnoi

Department of Veterinary Surgery and Radiology, P.A.U., Ludhiana-141 004, Punjab

A buffalo with inter-mandibular fistula after rupture of abscess of tongue was reported. Animal was unable to take feed and water. The tongue was hanging down and lot of saliva was drooling out. Under general anaesthesia using chloral hydrate-serenace-thiopental combination, tongue was reposed and the

inter-mandibular fistula was repaired successfully. Animal started taking water next morning and solid feed three days later. Recovery was uneventful without any postoperative complication.

5.29 Prevalence and Surgical Management of Bovine Teat Affections

M.R. Fazili*, B.A. Moulvi, F. U. Peer* and S.S. Hussain***

* Veterinary Clinical Complex, ** Division of Surgery and Radiology, Shuhama, P.B.No. 580, G.P.O., Srinagar (Kashmir)

Fifty-two dairy cows suffering from various surgical teat affections were treated. Cross-bred jersey cows (59.61%) were affected mostly. Prevalence was higher during summer (42.3%) and spring (32.7%). Teat lacerations (19.23%), fibrosis (15.4%) and fistula (15.4%) were the most common conditions involving mainly the fore teats (66.66%). Most of the cases (82.7%) were of traumatic origin. 75% of the animals recovered completely.

5.30 Affections of Palatine Diverticulum in Camel: A Clinical Report on 36 Cases

N.R. Purohit and S.M. Qureshi

Department of Veterinary Surgery and Radiology, College of Veterinary Science, Bikaner-334 001 (Rajasthan)

Thirty-six male camels suffering from various affections of diverticulum of soft palate (Gulla) were brought to veterinary clinic for the treatment. The animals had clinical signs like dysphagia, dyspnoea and irreversible protrusion of soft palate in 22 cases with loss of swallowing and mastication. In rest of the cases, soft palate was trapped in and a swelling was observed over the throat region. Main affections noticed were injury, haematoma, infection, trapping of food material, abscess and gangrene etc.

5.31 Treatment of Laceration of Tongue in Bovines: A Clinical Report of Four Cases

V.D. Aher, G.U. Yadav, A.U. Bhikane and A.P. Bhokre

Veterinary College, Udgir (M.S.)

A total of four clinical cases (three bullocks and one buffalo) were brought to veterinary clinic with the history of frothy salivation, slow mastication and difficulty in taking feed and water. Surgical repair of tongue laceration were undertaken under sedation and local analgesia. All animals recovered uneventfully.

5.32 Surgical Treatment of Extrathoracic Tumor in a Holstein-Friesian Crossbred Cow

V.D. Aher, G.U. Yadav, S.D. Moregaonkar, A.U. Bhikane and M.A. Khan

Veterinary College, Udgir (M.P.)

A three year old Holstein-Friesian crossbred cow was brought to the veterinary clinic with the history of slow growing swelling on the left thorax region since one and half year. Surgical excision of this growth (fibroma durum) was undertaken under sedation with diazepam @ 0.5 mg/kg IV and local infiltration anaesthesia.

5.33 Surgical Management of Traumatic Pericarditis in Bovine: A Clinical Report on 12 Cases

M.B. Gavali, V.D. Aher and A.U. Bhikane
College of Veterinary and Animal Science,
Parbhani-431 402 (M.S.)

Twelve clinical cases of bovine suffering from traumatic pericarditis were brought for treatment. Ten cases were treated by performing rumenotomy followed by pericardiotomy (six cases) and pericardiostomy (four cases) whereas two cases

were treated by performing rumenotomy and conservative treatment. The results would be discussed.

5.34 Surgical Treatment of Oesophageal Rupture in a Goat: A case Report

Kuldip Singh and Ashok Kumar

Department of Surgery and Radiology, College of Veterinary Science, CCS HAU, Hisar

A goat aged three years was brought to veterinary clinic with the history of swelling over the ventral region of neck and ingesta coming through an opening of the skin. Ruptured oesophagus was repaired in a routine manner. The animal showed uneventful recovery.



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Articles must be received not later than 31st December 2001

PRODUCT INFORMATION



Dedicated to Veterinary Profession and Animal Health Care

PRODUCT INFORMATION

ANTI-INFECTIVES

BRAND NAME	Composition	Major Indications	Dosage	Availability
AC-VET	Each 2.0 gm vial contains : Ampicillin Sodium 1 gm Cloxacillin Sodium 1 gm	Wound infections, Abscesses, Pneumonia, Broncho-pneumonia, Foot Rot, Laminitis and Secondary Bacterial infections.	Livestock : 6-10 mg/kg b.wt. daily for 2-3 days. I/V and I/M route	2.0 gm vial
AC-VET FORTE	Each 3.0 gm vial contains : Ampicillin Sodium 1.5 gm Cloxacillin Sodium 1.5 gm	Wound infections, Abscesses, Pneumonia, Broncho-pneumonia, Foot Rot, Laminitis and Secondary Bacterial infections.	Livestock : 6-10 mg/kg b.wt. daily for 2-3 days. I/V and I/M route	3.0 gm vial
BRANDOCILLIN	Each vial contains : Ampicillin Sodium 2.5 gm	Urinary, biliary and gastro-intestinal infections. Preferred broad-spectrum antibiotic for acute infections.	Livestock : 2-7 mg/kg b.wt. for 3-5 days I/V and I/M route	2.5 gm vial
INTAMYCIN	Each ml contains : Oxytetracycline Dihydrate - 50 mg	Broad-spectrum antibiotic for B.Q, H.S and Clostridial infections.	Livestock : 1 ml / 10kg b.wt. I/V and I/M route	30 ml vial 100 ml vial
INTAMYCIN-LA	Each ml contains : Oxytetracycline Dihydrate-200 mg	Anaplasmosis, Babesiosis, Theileriosis, H.S, B.Q, Pneumonia, Enzootic Abortion, Q Fever and Brucella abortus infection.	Livestock : 1 ml / 10kg b.wt. as a single shot therapy, Poultry: 0.25 ml/kg b.wt. Deep I/M route	30 ml vial 50 ml vial
INTAMOX	Each 500 mg vial contains : Amoxycillin+Cloxacillin 250mg each Each 2 gm vial contains : Amoxycillin+Cloxacillin 1gm each Each 2.5 gm vial contains : Amoxycillin+Cloxacillin 1.25gm each Each 4 gm vial contains : Amoxycillin+Cloxacillin 2 gm each	In Livestock H.S, B.Q, Calf Scours, Mastitis, Metritis, Pyometra, Leptospirosis and Listeriosis. In Canines -Bacterial gastro-enteritis, cystitis, pneumonia, bronchitis, otitis externa and interna, abscesses, as a treatment for wounds and post operative care.	Large animals 6-10 mg/kg b.wt. Dogs : 15-25 mg/kg b.wt. I/V and I/M route	500 mg vial 2 gm vial 2.5 gm vial 4 gm vial
QUININTAS INJ.	Each ml contains : Enrofloxacin - 100 mg	Shipping fever pneumonia (H.S), Pneumonia, Pleuropneumonia, Pseudorinderpest & Urinary infections	1 ml / 20 kg b.wt. I/M route	15 ml vial 30 ml vial 50 ml vial
QUININTAS ORAL SOL.	Each ml contains : Enrofloxacin - 100 mg	Chronic respiratory disease, Infectious coryza, Mycoplasmosis, Fowl cholera, E. coli, Salmonella, Chlamydia and Rickettsia infections	Poultry : Prevention : 1ml/2-4 Ltrs. of drinking water Treatment : 1ml/Ltr. of drinking water	100 ml bottle 1 Ltr. bottle
INTRIM BOLUS	Each 1.5 gm bolus contains: Trimethoprim- 250 mg, Sulphamethoxazole- 1250 mg	Gastroenteritis, Pneumonia and Urogenital Infections	Livestock : 1 bolus/ 50 kg b.wt. Oral and I/U route	Strip of 4's Box of 5 Strips
INTRIM FORTE	Each 2.4 gm tablet contains : Trimethoprim-400 mg. Sulphamethoxazole-2000 mg	Gastroenteritis, Pneumonia and Urogenital Infections	Livestock : 1 bolus/ 80 kg b.wt. Oral and I/U route	Strip of 4's Box of 5 Strips
NEOCYCLIN BOLUS	Each bolus contains: Tetracycline Hydrochloride- 500 mg	Broad-spectrum antibiotic for Intrauterine infections, Mycoplasma, Chlamydia, Rickettsia and Protozoal infections. Also used as co- therapy in other systemic infections.	Livestock: Intrauterine: 2 boluses daily Oral: 4-6 boluses daily Oral and I/U route	Strip of 4's Box of 8 Strips
PABADINE BOLUS	Each bolus contains: Sulphadimidine- 5 gm	Diarrhoea and conditions like H.S, Foot Rot, Calf scours, Calf diphtheria, Bacterial Enteritis, Septicemia, Bacterial pneumonia, Metritis and secondary bacterial complications	Large animals: 1-2 boluses / 50 kg b.wt., followed by half dose. Oral route	Strip of 4's Box of 5 Strips

ANTI-PARASITICS

CYPROL	Each ml contains : Cypermethrin High CIS 100 mg	An ectoparasiticide effective against ticks, flies, lice and mites	Livestock / Sheep / Goats / Dogs / Poultry 1 ml per litre of water, Animal housing 20 ml per litre of water	15 ml Bottle 50 ml Bottle
FENTAS BOLUS	Each bolus contains: Fenbendazole 1.5 gm	Anthelmintic against Nematode, Cestode and Trematode infestations.	Large animals: 1 bolus for every 300 kg b.wt. Oral route	Strip of 4's Box of 5 Strips
FENTAS POWDER	Each gm contains: Fenbendazole 250 mg	Anthelmintic against Nematode, Cestode and Trematode infestations.	Sheep & Goats : 1 gm powder / 50 kg b.wt. Oral route	6 gm pouch 60 gm & 120 gm bottle
FENTAS PLUS	Each tablet contains: Fenbendazole 150 mg Praziquantel 50 mg	An dual anthelmintic against Cestodes, Nematodes and mixed infestations.	For Calves, Sheep, Goats & Pigs: One tablet per 30 kg b.wt. For Dogs and Cats: One tablet per 10 kg b.wt.	Strip of 6's

PRODUCT INFORMATION

ANTI-PARASITICS

BRAND NAME	Composition	Major Indications	Dosage	Availability
NEOMEK	Each ml contains: Ivermectin 10 mg	An endectocide, effective against both endoparasites and ectoparasites like ticks, lice, Demodectic, Otodectic and Notoedric mange. Also indicated in Ancylostoma, Ascarid and Heartworm.	Cattle/Bufalo/Sheep: 1 ml/ 50-kg b.wt. Dog/Horse/Swine : 0.3 mg/kg b.wt. S/C route and I/M	1ml vial 7 ml vial 10 ml vial 20 ml vial
NEOZIDE BOLUS	Each bolus contains: Oxyclozanide 1 gm	Liver flukes, Amphistomes, Moniezia and Nasal Schistosomiasis.	Cattle and Buffalo: 1 bolus/100 kg b.wt. Oral route	Strip of 4's Box of 5's
NEOZIDE SUSPENSION	Suspension contains: Oxyclozanide 3.4% w/v	Liver flukes, Amphistomes, Moniezia and Nasal Schistosomiasis.	Cattle, Buffalo: 90 ml / 300 kg b.wt. Sheep, goat: 5 ml / 15 kg b.wt. Oral route	90 ml bottle 1 litre bottle
NILBERY	Each ml contains: Diminazine Aceturate 70 mg, Phenazone 375 mg, Water for injection q.s.	For the treatment and control of Trypanosomiasis, Babesiosis, Theileriosis, Mixed infection and PUO	3.5-7 mg Diminazene Aceturate per kg bwt or 1 ml per 10-20 kg bwt. Deep IM	30 ml vial

ANTI-MASTITIS

MAMMITE	Each syringe contains: Colistin Sulphate 500, 000 IU, Cloxacillin Sodium 200 mg	Clinical and Sub-clinical Mastitis caused by Staphylococcus, Streptococcus, Corynebacterium, E.coli, Pseudomonas and Klebsiella spp.	1 syringe per affected quarter at 12 hr syringe interval, 3-4 times. Intramammary route	10 gm syringe
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INFUSIONS

INTACAL	Each ml contains: Calcium Gluconate 20.75%, Proportion of Boric acid to Calcium 2.26: 1	Hypocalcemia, non- complicated Milk Fever, Uterine involution and Rumen Atony.	Heavy animals: 450ml Cow, Mare, she buffalo : 200-350 ml, Ewe, Doe, Sow : 25-75 ml , I/V and S/C route	450 ml bottle
LACTOMAG	Each ml contains: Calcium Gluconate 20.75%, Proportion of Boric acid to Calcium 2.26:1, Magnesium Hypophosphite 5.0% w/v, Anhydrous Dextrose- 20% w/v	Hypocalcemia or Milk Fever complicated with Hypomagnesemia, Hypophosphatemia and Hypoglycemia, Bovine Ketosis and Pregnancy toxemia in sheep.	Heavy animals: 450ml Cow, Mare, she buffalo : 200-350 ml, Ewe, Doe, Sow : 60 ml Slow I/V and S/C route	450 ml bottle
INTALYTE	Each 100 ml contains: Dextrose 20 gm, Sodium Chloride 0.6gm, Potassium Chloride 0.04 gm, Calcium Chloride (dihydrate) 0.027 gm, Sodium lactate 0.312 gm water for Inj. i.P. q.s.	Indicated for instant replenishment of electrolytes and energy in conditions associated with fluid and electrolyte loss / imbalance	Cattle / Buffalo / Horse : 500-2000 ml/day. Sheep/Goat: 100-200 ml/day, Calf 100-500 ml / day. Dog: 25-100 ml / day. I/V infusion	500 ml F.F.S Bottle

NSAIDs

3D-VET	Each ml contains: Diclofenac Sodium 25 mg	Inflammation, Prolapse of uterus, Mastitis, Musculoskeletal disorders and Ephemeral Fever.	Livestock : 1 ml/ 25 kg b.wt. I/M route	30 ml vial 100 ml vial
3D-VET PLUS	Each Bolus contains: Diclofenac Sodium 250 mg Paracetamol 1500 mg	High fever, Pyrexia of unknown origin, pain associated with prolapse of uterus, Sprains, Renal and Intestinal Colic, symptomatic treatment in Arthritis, Myositis, Mastitis, Ephemeral Fever and in Musculoskeletal Disorders.	Large animals : 1-2 bolus Small animals : 1/2 -1 bolus Oral route	Strips of 3's Box of 6 strips

OTHER SPECIALITIES

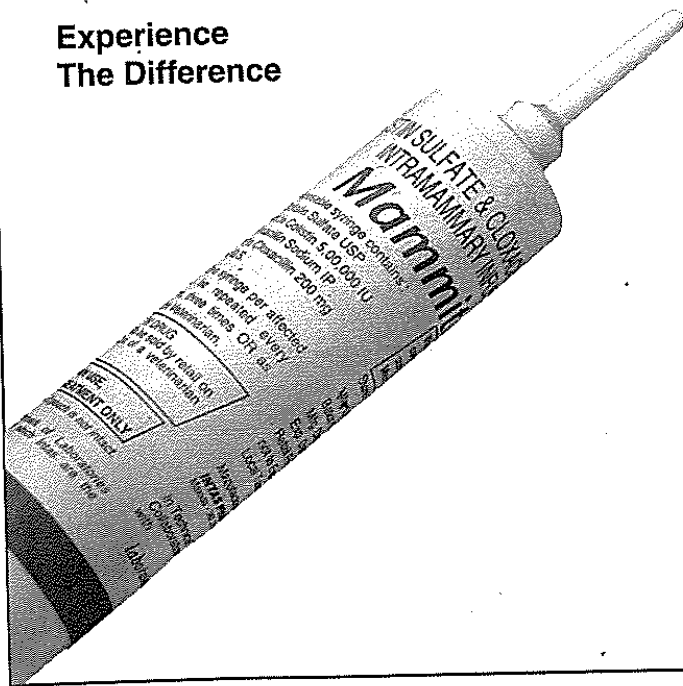
ANICALM	Each ml contains: Trifluorpromazine Hydrochloride 20 mg	Pre-anaesthetic, for restraint of vicious animals, Antistress, Antiemetic, Prolapse of vagina and uterus, Pruritus. Helps in let down of milk and to avoid motion Sickness.	Cattle : (I/M) 20 mg/100 kg b.wt:(I/V) 10mg/100 kg b.wt. Dog: (I/M) 2-4 mg/ kg b.wt. : (I/V) 1-2 mg/ kg b.wt.	5 ml vial
ANISTAMIN	Each ml contains: Chlorpheniramine maleate 10 mg	Allergy, Anaphylactic shock, Dermatitis, Itching, Rhinitis, Laminitis, Pruritus and Urticaria.	Large animals : 3-5 ml , Small animals: 1-2ml Dogs: 0.5-1ml I/M route	10 ml vial 30 ml vial 50 ml vial
KETOCORT	Each ml contains : Dexamethasone Sodium 4mg	Bovine Ketosis, Pregnancy toxemia, Arthritis and other Inflammatory conditions, Life saving drug in Shock and Circulatory Collapse.	Large animals :4-6 ml, Small animals: 0.5-2 ml, Dogs & cats : 0.25- 1 ml I/V and I/M route	5 ml vial 10 ml vial

PRODUCT INFORMATION

OTHER SPECIALITIES

BRAND NAME	Composition	Major Indications	Dosage	Availability
RUMENTAS	Each Bolus contains : Antimony Potassium Tartrate 2 gm Ferrous Sulphate 2 gm Copper Sulphate 50 mg Cobalt Chloride 100 mg	Microfloral rejuvenator and an ideal Rumenotoric. Provides excellent results in Anorexia and Simple Indigestion	Cattle & Buffalo : 2 boluses twice daily for 2-3 days Oral route	Strip of 4's Box of 6 strips
TRIBIVET	Each ml contains: Cyanocobalamin 500 mcg, Thiamine Hydrochloride 50mg, Pyridoxine Hydrochloride 50mg	Anorexia, Liver Distress and Damage, Debility, Anaemia and Convalescence, Adjunct to antibiotic/anthelmintic administration, during Pregnancy, lactation and Nervine disorders	Large animals : 4-5 ml Small animals : 0.5- 1 ml I/M route	10 ml vial 30 ml vial
IZINE	Each ml contains: Xylazine Hydrochloride equivalent to Xylazine 20 mg, Methyl Paraben 0.1% w/v	A Sedative, Analgesic, Anaesthetic and Muscle relaxant for large and small animals	IV : Cattle-0.25-0.75 ml / 100 kg bwt, Sheep & Goat-0.15-0.3 ml / 25 kg bwt, Dogs & Cats-0.125-0.25ml / 5 kg bwt. IM : Cattle-0.5-1.75 ml / 100 Kg bwt, Sheep & Goat-2.5 ml / 50 kg bwt, Dogs & Cats-0.25-0.5 ml / 5kg bwt	10 ml vial
INTAVITA	Each ml contains: Vitamin A (as Palmitate) I.P: 2,50,000 IU Vitamin D3 I.P: 25,000 IU Vitamin E (as a Tocopheryl Acetate) I.P: 100 IU	Infertility, Aspermatogenesis, Night Blindness, Rickets, Osteomalacia, Stress conditions like Pregnancy, Lactation, Climate extremes, Parasitic infestation and Transportation	Calf: 2-4 ml, Cow, Buffalo, Bull: 6-10 ml, Horses: 4 ml, Lamb: 1 ml, Ewe, Ram and Colt: 2 ml, Swine: 1 ml. Deep IM only	10 ml vial

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