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*The
Blue
Cross
Book*

for the Veterinary Profession



Hoechst Roussel Vet

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PREFACE



W.-J. Bader
Managing Director
Hoechst Roussel Vet Pvt. Ltd.

Dear Reader,

While presenting another issue of *"The Blue Cross Book"*, I am pleased to inform you that Intervet and Hoechst Roussel Vet are in the process of combining their businesses on a global level. The name of the new company will be "Intervet". The combination of Intervet and Hoechst Roussel Vet's business activities will create new business opportunities all over the world and the new organization will emerge as one of the largest animal health companies in the world.

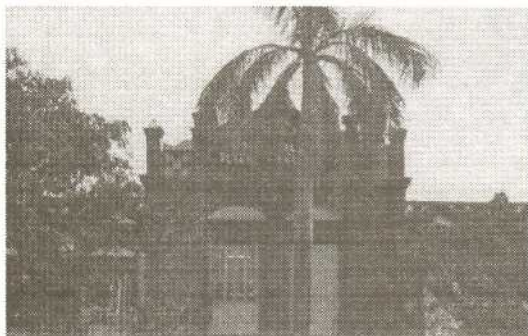
Here in India, Intervet has become a strong player in the poultry vaccine market with an outstanding reputation. With a more balanced product portfolio and combined forces in the areas of marketing and research, we will continue to serve our customers in the best possible way.

I trust, you will find the scientific reports published in this issue interesting and I kindly request you to send us your valuable suggestions.

Best regards,



Jochen Bader



THE PREMIER
VETERINARY
INSTITUTE **4**
IN INDIA

WEST BENGAL UNIVERSITY OF ANIMAL & FISHERY SCIENCES

The 'West Bengal University of Animal & Fishery Sciences' was established on January 2nd, 1995 by a Legislative Act. (West Bengal University of Animal & Fishery Sciences Act. VI, 1995).

Prior to this, veterinary education in the state was imparted by Bengal Veterinary College, a premier institution of the country since 1893. Till 1974, this institution was expanded, enriched and functioned under the University of Calcutta.

In 1974, the college was merged with Bidhan Chandra Krishi Viswavidyalaya, situated at Mohanpur, Nadia. Subsequently, during centenary celebration of Bengal Veterinary College, it was felt necessary to establish a self-sufficient separate Veterinary and Animal Sciences University to fulfil the needs of the state for promoting education, research and extension in the field of Animal & Fishery Sciences independently. Finally, as per recommendation of an expert committee formed by the Government of West Bengal, the 'West Bengal University of Animal & Fishery Sciences' was established in 1995 with its Headquarter at 68, Kshudiram Bose Sarani, Calcutta - 700 037, the previous premises of Bengal Veterinary College.

OBJECTIVES :

1. To impart education in various branches of Veterinary & Animal Sciences,

Dairying Technology and Fishery Sciences.

2. To promote basic and applied research in the fields of Veterinary & Animal Sciences, Dairying Technology and Fishery Sciences for enrichment of knowledge and enhancement of production.
3. To undertake programmes on transfer of advanced technologies to the field to increase animal and fish production.
4. To conserve and develop animal and fishery resources of the state.

Faculty of Veterinary & Animal Sciences

Departments :

1. Veterinary Anatomy, Histology and Embryology.
2. Veterinary Surgery and Radiology
3. Veterinary Gynaecology and Obstetrics
4. Veterinary Medicine and Public Health
5. Veterinary Pathology
6. Veterinary Microbiology
7. Animal Physiology and Biochemistry
8. Veterinary Parasitology
9. Animal Production and Management
10. Animal Nutrition
11. Animal Genetics and Breeding
12. Animal Products Technology and Marketing
13. Veterinary Pharmacology and Toxicology
14. Clinics.

Faculty of Dairying Technology

Departments :

1. Dairy Bacteriology
2. Dairy Technology
3. Dairy Engineering
4. Dairy Chemistry

Faculty of Fishery Sciences

Departments :

1. Fishery Biology
2. Aquaculture
3. Fishery Oceanography and Limnology
4. Fishery Pathology
5. Fish Processing Technology
6. Fishery Engineering
7. Fishery Economics, Statistics and Marketing
8. Fishery Extension and Basic Education

Directorate of Research, Extension & Farms :

Directorate of Research, Extension & Farm is established for monitoring research extension and farm activities in the field of Veterinary & Animal Sciences, Dairy Technology & Fishery Sciences. It comprises of three sections viz., Research, Extension and Farms. The Directorate has planned to undertake the following activities:

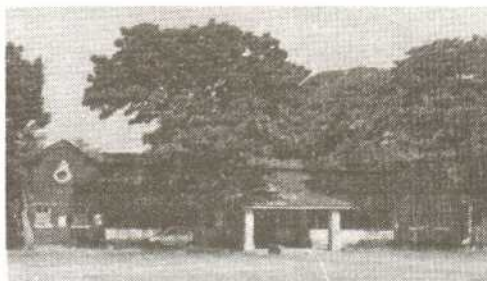
Research :

The main objective is to conduct need-based, applied and basic research in the field of Veterinary & Animal Sciences, Fishery Sciences.

Extension Education :

The main activities of this department are to transfer technologies from the laboratories to the fields and farms for improvement of livestock including avians and fish production.

The same department is also responsible to impart training to extension workers, field officials and farmers for transferring modern and upto date technologies to enhance animal and fish production of the State.



Farm Activities :

It includes the establishment of livestock and fish farms of different species for their research, development, demonstration and conservation.

Livestock / Fishery occupation has immense potential for providing round the year income with employment opportunity for large number of small, marginal farmers and agricultural workers. This sector needs immediate attention for upliftment of socio-economical status of the vast population in rural sector of the country. The University is all set to disseminate the various technological advances in this field to enhance livestock and fish production. Necessary training and know-how is being imparted to the students, field extension workers, farmers, educated unemployed youth for self-employment and guiding the entrepreneurs in achieving desired goals.

Academic Programmes :

West Bengal University of Animal & Fishery Sciences teaches following courses and awards degrees as mentioned below :

A. Faculty of Veterinary & Animal Sciences

B.V.Sc. & A.H. / M.V.Sc. / Ph.D.

B. Faculty of Dairy Technology

B.Tech. (D.T.) / M.Tech. (D.T.) / Ph.D.

C. Faculty of Fishery Sciences

B.F.Sc.

The Origin of Medical / Veterinary Emblem

S. A. Mir and A. Shakoor

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The only true symbol representing medical or veterinary profession is, "The staff, club-like, with a single serpent coiled around it". The staff represents the authority of Asclepius, the god of healing/medicine in Greek mythology. He is also known by the name of Aesculapius in Roman mythology. The symbol of snake is interpreted as the protector of health. Ancient mankind ascribed supernatural attributes to animals :

- Bulls : symbolize power, leadership, fertility and protection of pastures
- Cows : symbolize mothers, nurtures, bestowers of health, and protectors of food and agriculture.
- Snakes & Dogs : symbolize resurrection, after-life protection and preservation of health, ensuring healing and also symbolize warding off death.

Both dogs and snakes were kept in the Greek temples of Asclepius (or temples of healing) and were involved in the healing rite. Asclepius has been portrayed in these temples, in ancient sculpture and on coins with a common attribute of a clublike staff having a single serpent around the staff, and with his hand over the head of the sacred snake and dog beside him. The patients used to sleep in these temples with the hope that the God would effect cures or prescribe remedies to the sick in dreams. The snakes were kept in the temples to lick the sick

patients in a healing ritual that was believed to bring cure to their illness.

According to the legend, Asclepius, the ancient Greek physician, has been the son of Apollo and nymph Coronis. He is supposed to have been taught the art of healing by his foster father, named Chiron/Cheiron who in Greek mythology, has been symbolized as possessing body of horse and head of a man - and possessed considerable medical/veterinary knowledge. The knowledge of Art of healing of Asclepius was thought to be so immense that Zeus got envious of him and slew him by a thunderbolt as Zeus apprehended that of Asclepius. She is Greek Goddess of health who introduced names for diseases like wind, cold and malaria suggesting the theory that diseases were related to environmental factors : air, wind, sun, water etc. The theory was later on replaced by tetrahumoral theory of diseases. Asclepius had to be reared by centaur Chiron because his mother Coronis was slain for being unfaithful to her husband. The Healing Temples of Greece are supposed to have been erected following death of Asclepius. All those patients who were healed in these temples offered sacrifice, especially of a cock.

The retention of the 'Emblem' of the staff and the serpent as representative of medical/veterinary profession since antiquity is in the honour of this legendary physician of our most ancient period - symbolizing the respect and honour, we shall owe to the roots of our professions concerning preservation of human and animal health.

Identifications of Infectious Bronchitis Virus (field isolates) by Agar Gel Immuno-diffusion, Haemagglutination and Specific Haemagglutination Inhibition Tests.

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The application of Agar gel immuno-diffusion (AGID), Haemagglutination (HA) and specific Haemagglutination inhibition (HI) tests have been proved to be sensitive tests for the identification of infectious bronchitis virus (Witter, 1862; Verma and Malik, 1971; Rosenberger *et al.*, 1976; Alexander & Chettle 1977 and Alexander *et al.*, 1983).

The virus isolates (JR1, JR2, JR3, JR4 and JR5) were obtained from field outbreaks in poultry in different districts of Tamilnadu. They were identified as Infectious Bronchitis Virus (IBV) by AGID, HA and specific HI tests.

The virus isolates were concentrated and purified as per Alexander and Chettle, 1977 and subjected to AGID, HA and HI tests.

The AGID was carried out for the 5 virus isolates by 1 per cent agar gel medium. The medium was melted and 4 ml was pipetted on to the surface of glass slide and allowed to solidify at room temperature. Using the appropriate gel cutter, a standard 7 well pattern (4mm diameter with 2mm interspace) was made into the gel on the glass slide. The central well was loaded with reference positive IBV (M41) antigen, uninfected allantoic fluid as negative control and the test antigens (concentrated purified virus isolates). The charged slide was transferred to a humidity box and held at room temperature and examined at 24 and 48 hours under diffuse light.

The positive results were manifested by the

presence of white lines of precipitate between the central and peripheral wells. In this study, all the five virus isolates revealed precipitation property by showing precipitation line against IBV(M41) antiserum at 24 hours of incubation at room temperature. The positive control IBV(M41) virus also showed positive precipitation line, where as the negative control uninfected allantoic fluid did not show any positive precipitation line which confers with the findings of Verma and Malik, (1971).

The virus isolates were further identified as IBV by HA and specific HI tests. The concentrated purified virus isoates were treated with enzyme phospholipase (type-1) by mixing equal parts of the enzyme (1 unit/ml) and virus concentrates and incubating the virus-enzyme mixtures at 37° C for 2 hours. The mixtures were agitated occasionally during incubation and the resultant HA antigen was stored at 4° C.

The micro HA and HI tests were carried out for each virus isolate as described by Alexander *et al.*, (1983). The specific HI by positive antiserum was found out by using reference positive IBV(M41) antiserum and also by their specific homologous antisera.

The HA titres of the isolates were recorded as 128 for isolates JR1, JR2, JR4 and 256 for JR3 and JR5 which confers with the findings of Suryanarayan, (1991).

The HA could be inhibited by specific antisera - (Bingham *et al.*, 1975). In the present study, the agglutination formed by all

the five isolates were inhibited by their specific homologous antisera which corroborated with the findings of Bingham *et al.*, (1975), wherein specific neutralizing antiserum against each strain was found to inhibit the agglutination of their respective strain.

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Study on Therapeutic Evaluation of Some Systemic Antibiotics and Haematobiochemical Profile in Canine Infectious Gastroenteritis

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Introduction :

Infectious gastroenteritis in canine is primarily caused by viral infection and secondly by bacterial infection. The major viral diseases which affect gastrointestinal tract (GIT) are caused by Parvo, Rota and Corona virus etc., whereas bacterial enteritis is commonly caused by *Salmonella* sp. *Echerichia coli*, *Campylobacter jejuni*, *Yersinia* sp. *Bacillus piliformis* and *Clostridium perfringens*. Beside virus and bacteria, infectious gastroenteritis in canine is also caused by various Fungi, Protozoa, Helminths, and Rickettsia (Kirk, 1992). On the basis of origin, bacterial gastroenteritis may be primary or secondary to other above noted infectious agents. Infectious gastroenteritis causes excessive loss of fluid and electrolytes leading to various haematobiochemical changes in blood (Kaneko, 1997). All types of bacterial infectious gastroenteritis are commonly treated by various gut-acting antibiotics viz. Chloramphenicol, Gentamycin, Amikacin, Ampicillin-cloxacillin, Pefloxacin, Norfloxacin etc. Therapeutic efficacy of a particular antibiotic depends upon the type of bacterial infection. The purpose of this study is to find out therapeutic efficacy of some antibiotics, namely Chloramphenicol, Amikacin, Norfloxacin, Ampicillin-cloxacillin and Pefloxacin in bacterial gastroenteritis in canine.

Materials and Methods :

In the present work, 55 dogs of various age groups brought to Clinics of the College of Veterinary Sciences during 1996-97. The dogs were suffering from diarrhoea/dysentery, dehydration, pyrexia, shrunken eyes,

emaciation. Increased thirst were also noticed. Some of the cases were even in coma stage due to severe dehydration. Stool was put on bacterial culture and antibiotic sensitivity test. Among the affected dogs, 35 were found positive for bacterial gastroenteritis. All these dogs were divided in 5 groups, namely A,B,C,D and E and each group was consisted of 7 dogs. Groupwise respectively, they were treated with particular antibiotic as follows :
Group A : Chloramphenicol @ 75 mg/kg bw/day X 3 divided dose orally
Group B : Amikacin @ 15 mg/kg bw/day 2 divided dose intra-muscularly
Group C : Norfloxacin @ 10 mg/kg bw 12 hourly oral route
Group D : Ampicillin-cloxacillin @ 10 mg/kg bw 8 hourly intra-muscular route
Group E : Pefloxacin @ 5 mg/kg bw orally for 5 days

In addition to rational treatment, supportive therapy with DNS-5%/Normal saline, Liver tonic, Lactobacillus spore, Antispasmodic and Proteolytic enzymes were also given as per recommended doses for 5 days or more, till normalization of the symptoms.

Blood samples of all the affected dogs before and after 5 days treatment were collected for examination of haematobiochemical parameters. Blood samples were collected separately for haematological examination, harvesting of serum for biochemical assay. Haematobiochemical values viz. PVC, Hb, TLC, DLC (Jain, 1996), BUN, Creatinine Cholesterol, Glucose, Globulin and Albumin

Table : Showing haematobiochemical value of the different group of animals with different antibiotic treatment

Parameters	Group A Chloramphenicol		Group B Amikacin		Group C Norfloxacin		Group D Ampicillin-cloxacillin		Group E Pefloxacin	
	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
PCV (%)	58.0±2.645 ^{***}	42.0±1.414	49.0±2.516 [*]	44.0±1.732	53.0±1.141 ^{***}	46.0±1.632	52.0±1.412 [*]	47.0±2.160	55.0±2.160 ^{***}	48.0±2.160
Hb (gm %)	14.5±0.432 ^{***}	12.0±1.414	14.5±0.707 ^{***}	11.0±0.731	14.0±0.707 ^{***}	10.5±0.866	13.5±0.866 ^{***}	11.0±0.707	15.5±0.866 ^{***}	12.0±1.354
TLC (10/cm)	10.8±0.759 ^{***}	8.2±0.487	13.4±0.613 ^{***}	11.3±0.580	17.2±0.757 ^{***}	12.5±745	14.5±1.080 ^{***}	12.2±0.432	16.0±10.801 ^{***}	12.5±661
Cholesterol (mg %)	145±9.196 [*]	117±5.477	125±5.213 [*]	117.5±3.679	140±5.715 ^{***}	125±4.795	137±5.446 ^{***}	120±5.819	160±10.801 [*]	125±5.033
BUN (mg %)	12.0±1.414 ^{***}	10.0±1.412	13.25±2.435 ^{***}	11.50±1.332	13.4±2.160 ^{***}	11.0±2.160	22.30±2.612 [†]	13.0±2.16	18.0±2.380 [*]	12.0±2.225
Creatinine (mg %)	1.4±0.264 [*]	0.8±0.141	1.8±0.264 [*]	0.9±0.216	2.5±0.216 [*]	1.3±0.242	1.9±0.408 [*]	1.5±0.216	1.9±0.342 ^{***}	1.5±0.248
Globulin (gm %)	3.25±0.158	3.50±0.327	2.25±0.327 ^{***}	3.4±0.432	2.75±0.334	3.0±0.216	2.35±0.178	3.4±0.306	3.4±0.248	3.75±0.312
Albumin (gm %)	33.0±0.214	3.30±0.248	2.9±0.312 [*]	3.75±0.48	2.75±0.215	3.5±0.325	3.15±0.303	3.75±0.356	3.3±0.256	3.9±0.456
Glucose (mg %)	50±7.13 ^{***}	80±7.820	60±8.530 [*]	90±10.320	65±5.540 [*]	92±9.210	48±6.425 [*]	80±7.582	42±5.425 [*]	75±6.725
DLC : Neutrophils	82±8.416 ^{***}	70±7.425	85±10.652 ^{***}	68±7.252	92±10.432 ^{***}	80±8.743	79±9.315 ^{***}	69±7.516	87±8.517 ^{***}	70±8.210
Lymphocytes	14±3.100 [*]	24±3.720	12±4.315 [*]	25±5.250	7±3.220 [*]	17±4.155	16±4.343 ^{***}	23±5.250	16±3.250 ^{***}	24±6.275
Monocytes	2±1.414	2±1.414	1±1.154	2±2.380	---	---	2±1.921	2±2.80	1±0.816	2±1.414
Eosinophils	2±1.414	4±10.412	2±1.632	4±1.966	1±0.816	3±1.414	3±2.160	5±2.366	2±2.380	3±2.160

BT : Before Treatment AT : After Treatment ** Significant at <5% * Significant at <1%

were analysed by standard methods (Kaneko, 1997).

Results and Discussion :

Pre-treatment and post-treatment haematobiochemical values of various groups of dogs are illustrated in the Table.

There was significant increase in mean values of PCV, Hb, TLC, DLC(Neutrophils), Cholesterol, BUN, Creatinine and Globulin in affected dogs of pre-treatment in comparison to post-treatment values. But there was decrease in the value of Glucose, Albumin and Lymphocytes in various groups of dog pre-treatment as compared to post-treatment values.

Number of dogs belonging to various groups i.e. A,B,C,D and E, responded to Chloramphenicol, Amkacin, Norfloxacin, Ampicillin-cloxacillin and Pefloxacin are 4, 5, 5, 5 and 6 dogs respectively. So therapeutic efficacy of various antibiotics included in this study were 57.14%, 71.41%, 85.70%, 71.42% and 85.70% in respective groups, i.e A to E. This variation of therapeutic efficacy may be due to variable antibiotic sensitivity or may be due to acquired resistance of pathogens during the course of treatment. (Kucers & Bennett, 1988). Significant increase in the value of PCV and haemoglobin may be due to variable degree of dehydration in various

groups of pre-treated dogs (Jain, 1996 and Bichad, 1994). The higher count of TLC, relative increase in Neutrophils and decrease in Lymphocytes are indication of acute bacterial infection (Jain, 1996). Elevation of Cholesterol and decrease in value of Albumin indicate involvement of liver, because both these biochemicals are synthesized in the liver (Kaneko, 1997).

Significant increase in the values of BUN and Creatinine is indication of involvement of kidney which may be attributed due to anuria followed by severe degree of dehydration (Kaneko, 1997 and Kirk, 1992).

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*"Old wood best to burn, old wine to drink,
old friends to trust and old authors to read"*

- Bacon

Parvoviral Infection in Canine : an Overview

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Canine parvovirus (CPV), a highly contagious virus that causes two distinct syndromes, haemorrhagic gastroenteritis and myocarditis, as reported earlier in the U.S.A. (Appel *et al.*, 1978 and 1979) and since then, it has been well established as an enteric pathogen of dog throughout the world (Appel and Parrish, 1987). In India, disease resembling to CPV has been observed since 1980 and proved fatal in many parts of India. There has been consistent increase in its incidence throughout the country (Ramdass and Khader, 1982).

Characteristics of the Virus :

The etiological agent, CPV-2 belongs to the genus Parvovirus of the family Parvoviridae. The virion is a spherical particles approximately 20 nm in diameter without any envelop. The virus is a single stranded DNA virus with icosahedrol symmetry. Mature virions are composed of three viral proteins (VPs) designated as VP-1, VP-2 and VP-3 with molecular weight of about 82,500,67,000 and 63,000KD, respectively (Paradiso *et al.*, 1982).

Pathogenesis :

The age at which a dog is infected, appears to influence the pathogenesis. As the virus replicates only in cells, undergoing active mitosis. The main target tissues are myocardium and intestinal epithelium. In neonatal pups, the virus replicates in rapidly dividing myocytes of the myocardium

causing myocarditis. As the pups grow older, the intestinal crypt epithelium starts to replicate actively, so infection of susceptible pups to CPV at this period results into enteritis.

Clinical Signs :

Parvoviral enteritis :

The incubation period of parvoviral enteritis is usually 4-7 days following oral infection. A sudden onset of vomiting, combined with depression, anorexia, pyrexia usually are the initial signs followed by diarrhoea (Appel & Parrish, 1987 and Mohan *et al.*, 1993). Vomitus may be frothy, watery, yellowish-greenish or blood stained due to regurgitation of haemorrhagic duodenal contents. Diarrhoea is usually haemorrhagic with foul smell or may be non-haemorrhagic. In severe cases, a frank haemorrhage may be seen resulting into dehydration and weight loss. Without fluid therapy, the condition of dog may deteriorate rapidly and death may result within 48-96 hours after the onset of signs. Morbidity and mortality rates of parvoviral enteritis in affected dogs, range from 20 to 100 and 50 to 100 per cent, respectively with the highest values in young weaned pups (Eugster *et al.*, 1978 and Nelson *et al.*, 1979).

Parvoviral myocarditis :

In young puppies, 3-8 weeks of age, usually of non-immune bitches, the parvoviral myocarditis is characterised by the sudden

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death or by dyspnoea, crying, retching and non-productive vomiting (Meunier *et al.*, 1984; Appel & Parrish, 1987). The myocardial form of CPV-2 infection is independent of the enteric form and has a long incubation period (Meunier *et al.*, 1984). Clinical signs of myocarditis have been reported in pups 3-7 weeks after recovery from parvoviral enteritis (Carpenter *et al.*, 1980). As most of the dams are now immune and pups are protected from perinatal CPV-2 infection, parvoviral myocarditis is rarely seen today.

Clinical Pathology :

In parallel with the development of enteritis, leucopenia is usually observed which is a result of neutropenia and lymphopenia (Meunier *et al.*, 1981). Lymphopenia is reported as the most consistent findings in parvoviral enteritis (Glickman *et al.*, 1985) whereas, lymphocytosis is considered as a favourable prognostic sign in parvoviral enteritis (Gherami & Kraft, 1987). Decrease in serum sodium and potassium and increase in SGOT and SGPT level has also been reported in clinical cases of parvoviral gastroenteritis (Mohan *et al.*, 1991).

Diagnosis :

Though typical clinical signs along with haematological findings may provide an indication of the disease, the most convincing laboratory diagnosis of parvoviral infections, especially enteritis, is the demonstration of the virus or viral antigen in faecal sample or isolation of the agent. The various diagnostic tests include, haemagglutination (HA) test, virus isolation using tissue culture, immunofluorescence, AGID, CIEP, ELISA, DOT ELISA, electron microscopy, haemagglutination inhibition (HI), serum neutralization test, latex agglutination test and polymerase chain reaction (PCR). Out of these, faecal HA is still considered to be one

of the quickest, simplest and widely used test for detection of CPV antigen. CIEP and DOT ELISA are also found to be very specific, rapid and sensitive tests (Joshi, 1996).

Prophylaxis and Control :

Sanitary measures, including the avoidance of direct contact between dogs and with potentially contaminated environment may reduce the spread of the disease. However, since the virus is extremely resistant to physical and chemical influences and is excreted with faeces, immunization appears to be the best prophylactic measure.

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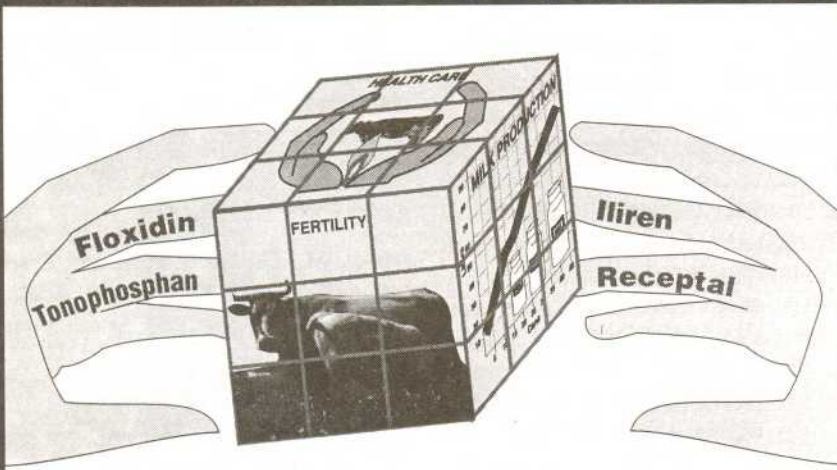
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Isolation of Foot and Mouth Disease Virus Type 'O' from Pigs with Heavy Mortality

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All India Coordinated Research Project on Foot and Mouth Disease, College of Veterinary Science, Khanapara, Guwahati - 781 022

Introduction :

Foot and mouth disease (FMD) is endemic in the North Eastern (NE) States of India. The disease was observed almost throughout the year and in different species of animals. Out of the 4 types of FMD virus reported from the districts of NE States in the last decades, FMD virus type 'O' was most predominant and found to be involved in 81% FMD outbreaks. The present communication reports outbreak of FMD due to virus type 'O', causing heavy mortality in piglets of two organized pig farms at Guwahati, Assam.

Materials and Methods :

Epithelia from the feet lesions of pigs, showing symptoms of FMD, were collected in phosphate buffer saline (PBS) with glycerol (50/50 v/v) and brought to the laboratory. Pieces of heart muscles were also collected in the PBS with glycerol from the piglets which died during the course of the disease. The samples were used for isolation and identification of FMD virus.

A ten percent suspension of the samples was prepared separately by grinding the samples with a pestle and mortar in sterile sand and PBS. The mixture was centrifuged (REMI) at 5000 rpm for 15 minutes and the supernatant was collected as antigen for detection and isolation of FMD virus.

A double sandwich ELISA (Crowther and Abu Elzein, 1979) was performed in 96 well microtitre ELISA plates (Nunc) with slight modification to detect FMD virus type. The reference anti-FMD virus type specific sera against O, A, C and Asia-1 raised in rabbit and guineapig were received from the Central FMD Virus Typing Laboratory, Mukteswar and used as coating and tracing sera respectively.

Isolation of FMD virus from the samples was done in primary pig kidney cell monolayer. Each of the antigen was passed through Millipore sterile 0.22 µm, filter (Millex-GV) before inoculating into the cell cultured flask.

Results and Discussion :

Outbreaks of FMD in two organized pig farms were studied. The number of pigs of different categories affected during the course of the outbreaks and the epidemic curves of the two outbreaks are presented in table I and figures 1 and 2.

Out of the 252 pigs of different categories in the Network project on pigs of the College of Veterinary Science, Assam Agriculture University, Khanapara, Guwahati, 183 (72.6%) were affected. 102 (94.4%) of 108 piglets died within a period of 27 days from the date of start on January 12, 1999. Two pregnant sows were aborted and two still births were also recorded from an affected

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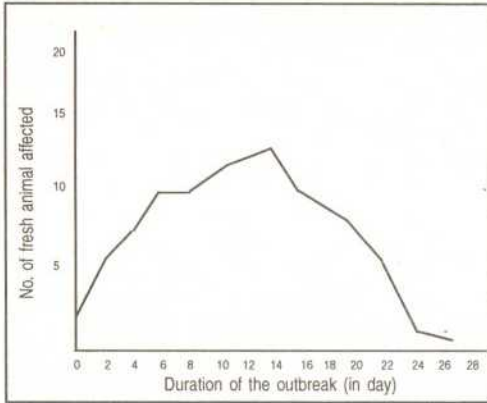


Fig - 1 : Epidemic curve of FMD outbreak in Network project on pigs

sow during the outbreak. The affected pigs were local and hampshire cross.

Out of the 165 pigs of different categories in the base pig breeding farm, Department of Animal Husbandry and Veterinary, Government of Assam, Khanapara, Guwahati, 121 (73.33%) were affected and all 57 (100%) piglets died during the course of 17 days from February 16, 1999. None of the adult pigs however died during the period of the outbreak (Table-I). The pigs of the farm were mostly large black, saddle back and hampshire cross. None of the pigs of both the farms had the history of FMD vaccination before onset of the disease.

Clinically affected adult pigs of both the farms showed lameness and severe feet lesions. The piglets died suddenly without typical symptoms and lesions of FMD. Post-mortem of some of the dead piglets revealed haemorrhagic lesions on myocardium.

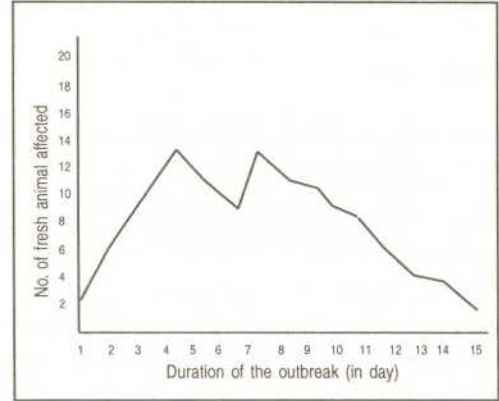


Fig - 2 : Epidemic curve of FMD outbreak in base pig breeding farm

The feet epithelial and heart muscle samples from both the farms were found positive for FMD virus type 'O' by the ELISA. The virus type was confirmed by the central FMD Virus Typing Laboratory, Mukteswar. The virus type could also be isolated from the samples in the primary pig kidney cell culture.

The possible source of infection of the outbreak in the college farm was identified

Table I : No. of pigs affected and died during FMD outbreak in two organized farms

Category of pig	Number of pigs affected/died			
	Network project (Total No. of Pigs 252)		Base pig breeding farm (Total No. of Pigs 165)	
	Affected	Died	Affected	Died
Sow	44	Nil	36	Nil
Boar	17	Nil	8	Nil
Gilt	14	Nil	20	Nil
Piglet	108	102	57	57

as contaminated straw, brought from a cattle farm for use as bedding material of the pregnant sows. The source of infection in the base pig breeding farm was suspected to be human beings.

Outbreaks of FMD in pigs have been reported earlier (Sarma *et al.*, 1988), but an outbreak causing such a high mortality of piglets is a concern. Proper use of available new oil adjuvant FMD vaccine for pigs (e.g. **Clovax®-S**) or any other suitable, may be beneficial to combat infection.

Acknowledgement :

The authors are thankful to authority of the College of Veterinary Science, Assam

Agriculture University and the Director, Animal Husbandry and also to the Government of Assam for providing necessary facilities. The financial assistance received from the Indian Council of Agricultural Research, New Delhi and necessary reagents from the central FMD Virus Typing Laboratory, Mukteswar are thankfully acknowledged.

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Efficacy of Deltamethrin Tablet Against Ectoparasites of Cattle.

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Introduction :

Ectoparasites infestation causes severe economic losses due to serious ill health in animals. Several workers have reported the efficacy of liquid form of 'Deltamethrin' against ectoparasites of domestic animals. (Gupta *et al.*, 1984, Mondal & Singh, 1984; Banerjee & Sangwan, 1990; Avasthi, 1991 and Kulkarni *et al.*, 1991). This study deals with the efficacy of Deltamethrin tablet, a newly formulated ectoparasiticide product, containing 500 mg Deltamethrin as active ingredient in W S (Water Soluble) form.

Materials and Methods :

The study was carried out on cattle, belonging to Cattle Breeding Farm, attached to Nagpur Veterinary College, Nagpur. A total of 20 cattle (1 to 7 years age), naturally

infested with ticks, lice and flies were selected for this experiment. The tick, louse and fly specimens from individual animal were collected and identified as *Rhipicephalus haemaphysaloides* (tick), *Linognathus vituli* (louse) and *Hippobosca maculata* (fly) based on Sen and Fletcher, 1962. All cattle were harboured mixed ectoparasitic infestation. The selected cattle were divided into two groups (I & II) of 10 cattle each. Group I was sprayed with 50 ppm concentration of Deltamethrin tablet, dissolved in 10 litres of water. Group II animals were kept untreated as control. The efficacy of treatment was judged from the reduction in the counts of different ectoparasites and the period of protection from reinfestation. Ticks, lice and flies count was done at 6, 12 and 24 hours intervals to confirm the elimination/ death as well as reinfestation of ectoparasites.

Table : Efficacy of 'decitab' on ectoparasites in naturally infested Cattle.

Types of Ectoparasites	Group I (Treated)			Group II (Control)			
	Pre-treatment count	Post-treatment count at timely intervals			Percent efficacy at timely intervals		
		6hrs.	12hrs.	24hrs.	6hrs.	12hrs.	24hrs.
Tick: <i>Rhipicephalus haemaphysaloides</i>	14.7 (Inguinal region)	14.7	7.3	0.0	50.0	50.0	100
Lice: <i>Linognathus vituli</i>	10.6 (Per 64 Square cm area of neck)	4.8	0.0	---	54.7	100	---
Flies: <i>Hippobosca maculata</i>	8.0 (Inguinal region)	4.4	0.0	---	45.0	100	---

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Results and Discussion :

Observations on treated cattle (Group-I) revealed that a single application of Deltamethrin tablet at 50 ppm concentration was significantly effective in killing all ectoparasites at varying time of intervals (please see Table), while control (group II) cattle were found to harbour all ectoparasites.

There was 50 percent reduction of immature ticks by 12 hours, while cent percent killing of all stages of tick was observed by 24 hours after treatment (Table). The treated ticks of all stages failed to react to entomological pin. Observation on lice and flies revealed that there was cent-percent killing of both parasites by 12 hours. With 50 ppm concentration of Deltamethrin against ticks of cattle with 8 days residual protection has been reported (Banarjee & Sangwan, 1990). There was no adverse drug reaction in any of the cattle. The drug was well tolerated by cattle and safe for handlers.

The present study revealed that newly formulated synthetic ectoparasiticide, Deltamethrin tablet is highly effective against all stages of ticks, lice and flies. In the light of these observations, a single spray of

Deltamethrin tablet, dissolved in water can be recommended for controlling ectoparasitic infestations in the field with advantages like easy to carry, less treatment time, most safe in handling and no side effects on the animals. Of course, it is required to test the drug on large number of animals in order to validate further its efficacy in relation to lower dose of titration and period of protection from different ectoparasites of cattle.

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"You see many stars at night in the sky but find them not when the sun rises; can you say that there are no stars in the heaven of day? So, O man, because you behold not God in the days of your ignorance, say not that there is no God"

- Sri Ramkrishna Paramahansa

Efficacy of Tonophosphan® in Bovine Sub-clinical Hypophosphataemia

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Introduction :

Phosphorus deficiency is a common problem of grazing livestock as well as animals fed on phosphorus deficient fodder and feeds. An acute phosphorus deficiency is clinically manifested by reduced appetite, weight loss, poor milk production and decreased reproduction efficiency / infertility (Smith, 1990). The chronic form of phosphorus deficiency is characterized by pica, unthriftiness, poor body condition, arthritis, lameness and reproductive disorders (Radostits *et al.*, 1994; Brooks *et al.*, 1994; Jubb & Crough, 1988 and Stupe *et al.*, 1988).

Konkan region of Maharashtra state is a high rain fall area and so leaching of soil is common, resulting in depletion of soil phosphorus. The livestock rearing in this region is still traditional/ non-intensive and not commercial, hence balanced feeding of animal is not practiced. Earlier studies indicated a high incidence of hypophosphataemia in bovines of this region (Waghmare, 1997 and Pethe *et al.*, 1998).

The general approach in treatment of hypophosphataemia is supplementation of phosphorus in diet but in severely deficient animals parenteral injections of phosphorus is essential. Apart from inorganic salts, phosphate compound such as sodium salt of 4 - dimethylamino - 2 methylphenyl - phosphinic acid (Tonophosphan®, Hoechst Roussel Vet Pvt. Ltd.) has also been indicated, which is claimed to stimulate

mobilization of phosphorus within the body. The present trial was carried out to study efficacy of Tonophosphan® in bovine sub-clinical hypophosphataemia.

Materials and Methods :

A survey to investigate the blood phosphorus and calcium level in adult cows of Raigad district in Konkan region of Maharashtra state was initially carried out. A total of 200 cows from the revenue talukas of Alibag, Pen, Murud - Janjira and Mangaon were randomly sampled by using stratified sampling technique. Blood from these animals was collected in heparin which was immediately centrifuged for plasma separation. Plasma inorganic phosphorus was estimated by Fiske & Subbarow (1925) method whereas cases were also evaluated with a rapid qualitative Bovet Rapiphos test (Pethe *et al.*). Plasma calcium was estimated by O-CPC method as per the instructions with the kit supplied by Span Diagnostic Pvt. Ltd.

Of the 46 animals diagnosed hypophosphataemic, on blood estimation, eight animals were administered a single dose of 15 ml Tonophosphan® (20% solution) intra-muscularly. Subsequently, blood samples were collected on 3rd and 5th day of Tonophosphan® administration for determination of post-treatment plasma phosphorus. The record of milk production before and after Tonophosphan® treatment in these cows were maintained.

Table I: Showing high plasma phosphorus levels (mg/dl) in hypophosphataemic cows, treated with Tonophosphan®.

Cow No.	Phosphorus Levels		
	Day of Treatment		
	0 th day	3 rd day	5 th day
1	2.95	4.72	4.26
2	3.81	4.40	4.40
3	1.43	4.70	4.52
4	3.92	5.43	5.12
5	1.22	3.68	4.27
6	2.36	4.72	4.39
7	3.14	5.60	5.42
8	3.20	4.50	4.20
Mean ± S.E.	2.75 ± 0.12	4.71 ± 0.07*	4.57 ± 0.05*

* = P < 0.05

Results and Discussion :

The over all prevalence of hypophosphataemia in Raigad district was found to be 23%, which is similar to earlier findings in Sindhudurg and Ratnagiri districts

of the Konkan region (Waghmare, 1997 and Pethe *et al.*, 1998). The mean plasma calcium level however, found to be within normal range. Thus, sub-clinical hypophosphataemia appears to be a major problem in bovines of Konkan region.

Table II: Showing efficacy of Tonophosphan® treatment on high milk yield (litre) of hypophosphataemic cows

Cow No.	Milk yield (litre) before treatment	Milk yield (litre) after treatment	
		3rd day	5th day
1	4.6	6.2	5.9
2	7.0	8.7	8.2
3	5.0	5.5	5.0
4	2.3	3.0	3.0
5	7.3	8.0	7.8
6	3.0	4.2	4.1
Mean ± S.E.	4.86 ± 0.82	5.95 ± 0.88 ^{NS}	5.66 ± 0.83 ^{NS}

NS=Not significant

In order to evaluate efficacy of **Tonophosphan**[®], eight hypophosphataemic cows were selected. The average plasma phosphorus level in these cows was 2.75 ± 0.07 mg/dl which was found to be elevated to 4.71 ± 0.005 mg/dl after the fifth day of treatment (Table 1). The milk yield however did increase marginally (Table II). These results reiterate our earlier observation that sodium salt of 4 – dimethylamino – 2 methylphenyl – phosphinic acid may be exerting its effect by way of either mobilizing the phosphorus from reserve or by stimulating the general metabolic process. Clearly, in depth studies on mechanism of action of this compound is necessary to work out its spectrum of metabolic actions.

Summary :

A survey of the Raigad district of Konkan region was conducted to investigate the status of plasma inorganic phosphorus and calcium in adult cows. The prevalence of hypophosphataemia was around 23% in 200 cows sampled.

Field trials to study the efficacy of Bovet Rapihos test revealed that the test was effective in diagnosing the cases of hypophosphataemia. **Tonophosphan**[®] (Hoechst Roussel Vet Pvt. Ltd) was found to be effective in treating sub-clinical hypophosphataemia. In all the eight cows, plasma phosphorus level remained elevated upto five days post-treatment period. There was increase in milk production in the treated cases.

Acknowledgements :

The authors are thankful to Regional joint Director, Animal Husbandry, Konkan regions, Government of Maharashtra and all the staff of the Department of Animal Husbandry, Raigad district for providing co-operation and facilities. Thanks are also due to M/s Hoechst Roussel Vet Pvt. Ltd., and specially to Dr. A.K.Datta, Head, R & D and Regulatory Affairs department for providing financial assistance and adequate samples of **Tonophosphan**[®] to carry out the research project of the first author.

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"Clever men are good but they are not the best"

- Carlyle

Treatment of Tick Infestation in Cattle with Taktic® 12.5% EC.

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Introduction :

Tick-born diseases like Babesiosis, Theileriosis, Anaplasmosis, are increasing day-by-day and thereby causing serious health hazards and production losses in dairy animals. Amongst ectoparasiticides, Taktic® (amitraz-12.5% EC) is a new highly potent broad spectrum ectoparasiticide agents and is known to be a better and safe compound in controlling the ectoparasites of domestic animals (Maske *et al.*, 1994). It was, therefore decided to assess the efficacy of Taktic® 12.5% EC in cattle, naturally infested with ticks under field conditions.

Materials and Methods :

The trial was carried out at Cattle Breeding Farm of Veterinary College, Nagpur. A total of twenty two cattle of either sex, ranging from 4 to 10 years of age, naturally infested with ticks, were selected for this study. Tick species were identified as *Rhipicephalus haemaphysaloides* and *Boophilus microplus*. Tick infestation was either of single tick or mixed with two species. The cattle were divided into two groups (A & B). Group A, consisted of

twelve infested cattle, were treated (external application) with Taktic® 12.5% EC (Hoechst Roussel Vet Pvt. Ltd.) @ 2 ml per litre of water dilution on inguinal and neck region. Group B, consisted of eight animals, were kept as infested untreated control. Tick counts were made in both the groups as per unit area before treatment and subsequently for 3 days post-treatment to find out elimination/reduction of tick. Afterwards tick count was made at 4 days intervals to note the reinfestation.

Results and Discussion :

About 70% of cattle in the farm were found to be infested with ticks. 22 animals, with moderate infestation, selected for this study. The number of ticks present per unit area in the inguinal and neck region were ranging 58-64. Comparing the number of ticks per unit area in the treated and untreated animals at 24, 48 and 72 hours post-application of Taktic® 12.5% EC, it was found that 63% of ticks were practically killed by 24 hours, 78% by 48 hours and 94% by 72 hours (Table). It was also found that quick lethal action was there on larvae and nymphs (6-12 hours) followed by adult ticks (24 hours).

Table : Showing efficacy of Taktic® 12.5% EC against tick infestation in Cattle.

Sr. No.	Group	No. of Cattle	No. of ticks (average) before Treatment per cattle	No. of ticks (average) (dead) hourly post-treatment			Percentage of efficacy at timely interval		
				24hrs.	48hrs.	72hrs.	24hrs.	48hrs.	72hrs.
1.	A (Treated)	12	64	40	50	60	63%	78%	94%
2.	B (Untreated)	10	58	0.0	0.0	0.0	—	—	—

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A continuous observations up to 20 days post-treatment, revealed that there was not a single case of reinfestation with adult or nymph tick in the treated animals. This finding is in agreement with Allan & Palmer, (1976), claiming remarkable acaricidal efficacy of Amitraz against *B. microplus* in cattle infestation in the UK. Their observation was scheduled for 14 days post-treatment with nil reinfestation. Further studies in this regard are required on larger number of animals.

It is, therefore concluded that in cattle, a single external application (inguinal and neck

region) of 0.25% solution of **Taktic**[®] is almost cent percent effective in eliminating the ticks from the body in 72 hours. The drug has its advantages of less treatment time, easy application and no side effects on the treated animals.

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Case Report : Clinical Case of “Surra” in a She-buffalo Associated with Sub-clinical Mastitis and Ketosis

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In cattle and buffalo, *Trypanosoma evansi* infection is generally persistent as latent or sub-clinical condition and both serve as reservoirs without showing any clinical sign but when the animals are exposed to adverse climatic conditions like stress, viral vaccination programme or the presence of intercurrent diseases (bacterial), the parasite multiplies and exhibits clinical symptoms (Sastry, 1979). Higher incidence of ‘Surra’ has also been reported in buffaloes by Chand, (1967), Galhotra & Chandiramani, (1981) and Shastri *et al.*, (1985). Rajgopalan, (1937) stated that buffaloes harbour ‘Surra’ parasites for longer period without showing any grave symptom. The present communication deals with a clinical case of ‘Surra’ in a she- buffalo associated with affected mammary gland (mastitis) and ketosis.

An eight year old, high yielding Jafferabadi she-buffalo, was brought for treatment on 4-4-1999 at Veterinary Polyclinic, MAU, Parbhani. She calved 2 months back. She had history of progressive loss of body weight since calving and severe weakness since last 15 days and with sudden drop in milk yield last 2 days. Complete physical examination revealed that the animal had a temperature of 103°F, the udder was hot and painful and mild swelling over the gland, with discolouration of milk that had flakes. Other signs noted were off-feed, rumen stasis, mild salivation, lacrimation, profuse mucopurulent nasal discharges, mild enlargement of pre-scapular lymph nodes, increased heart and respiration rates. The haematological observations were Hb 6.8 gm/dl, DLC :

Neutrophils 58%, Lymphocytes 37%, Monocytes 3%, Eosinophils 2% and Basophils 0%. The serum glucose levels was measured and noted as 25.22 mg/dl. The milk was subjected to Modified California Mastitis Test (MCMT) and also by Bromothymol Blue test (BTB) method (Sastry, 1979) and found positive for mastitis. Urine sample was similarly tested by Rothera’s test and showed positive reaction indicating ketosis. The wet blood film was examined and found positive for teeming trypanosomes. Thick and thin Giemsa’s stained blood smears confirmed presence of typical *Trypanosoma evansi* parasites. The she- buffalo was treated with injection of **Berenil**® (Hoechst Roussel Vet) @ 10-15 mg/kg body weight intra-muscularly as treated by Galhotra and Chandiramani, (1981). In addition to trypanocidal drug, she-buffalo was treated with injections of Dextrose 20% and B Complex.

To treat the sub-clinical mastitis, she- buffalo was administered with injection **Flovidin**® 10% followed by **Avil**® (Hoechst Roussel Vet) @ 15ml and 10ml intra-muscularly respectively for 5 consecutive days. After completion of treatment there was marked improvement in clinical signs and restoration of milk along with increased haematological values and serum glucose level.

Observation and Conclusion :

The intercurrent condition associated with *T. evansi* infection in present study are in agreement with the previous workers that the same plays an important role in flaring the

latent infection (Soulsby, 1976; Sastry, 1979 and Singh *et al.*, 1981). The haematological observations recorded in this study, were similar to those recorded earlier by Verma and Gautam (1978). It was observed that during the disease process, the average values of serum glucose decreased significantly from 63.49 ± 5.53 to 25.22 mg/dl, which however increased to 48.28 mg/dl after treatment with injection of **Berenil**[®] and other drugs. The decrease in serum glucose level during the disease had been attributed to rapid consumption of blood glucose by trypanosomes. Hypoglycemia, as a constant findings, has been reported by several workers, Gill, (1991), Sastry (1979) and Mallick & Diwivedi (1981). The development of secondary ketosis with clinical trypanosomiasis might be due to rapid consumption of blood glucose by the trypanosomes. Further investigation is required to draw a conclusion in this regard.

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"If you have faith in the cause and the means and in God, the hot sun will be cool for you"

- Mahatma Gandhi

" No work is secular, all work is adoration and worship"

- Swami Vivekananda

Case Report : Post-partum Total Uterine Prolapse in a Goat

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and S. Balasubramanian

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Prolapse of the uterus is common complication of third stage of labour in cow and ewe (Arthur, 1996) but occurs infrequently after parturition in goats (Braun, 1997). The prognosis is good, even in cases of 24 hours of duration, if the exposed tissue is not badly in traumatic condition. The present case deals with total uterine prolapse and its correction in a goat.

History and Clinical Examination :

A two and half year old pluripara goat with post-parturient total uterine prolapse (Fig. 1) was presented to the obstetrics ward of Madras Veterinary College hospital with the history that animal had delivered two live kids and shed placenta normally. Clinical examination revealed



Fig. 1 Showing total post-partum uterine prolapse in pluripara goat

presence of freshly everted uterine mass and there was no evidence of laceration. The particular area was swollen and edematous but the animal was active and alert.

Treatment :

Prolapsed mass was washed with povidone iodine solution and

common salt applied over the mass to reduce edema and washed with warm saline solution. To assist replacement, the everted uterus and hind quarters of the goat was elevated with the hind limbs spread apart by an assistant. After thorough lubrication the uterus was then replaced by applying diffuse uniform pressure on the organ by the operator's hand. The tips of the uterine horns were completely returned to their normal position. Since, the replacement was complete and the doe was able to get up easily, suturing of vulva was not done. Subsequently the animal was treated with 20 I.U. of oxytocin, 1g of procain penicillin and 3 ml of antihistamine.

In the present case, uterus was repositioned through relaxed cervix. Manipulation with fingers held together was continued until the very tip of uterine horn was replaced. Some authors advised suturing of vulva (Braun, 1997 and Smith & Sherman, 1994) but this is not necessary if replacement is complete and the doe can get up easily. Post-operative care should include tetanus prophylaxis. Oxytocin is given to contract the uterus and thus to prevent recurrence of prolapse. Course of systemic antibiotics and antihistamine may be administered.

Acknowledgement :

The authors thank the Director of Clinics, TANUVAS and the Dean, Madras Veterinary College for the facilities provided.

¹ Ph.D. Scholar; ^{2,3,4} M.V.Sc. Students

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Neeta Park, Building No. 1, Air Port Road, Yerwada, Pune 411006

Hoechst

Case Report: Trypanosomiasis in a pup and successful treatment with Berenil®

S. B. Chandra Paul and B.Sree Lakshmi,
Veterinary Poly Clinic, Animal Health Centre, Kurnool - 518001

A mongrel male pup, two and half months old, was brought to Veterinary Poly Clinic at Kurnool on 24-11-98 from Pullar village. The dog was unable to see properly for last five days (by birth it had normal vision) and was dashing against the walls and objects while walking. On clinical examination, it revealed that the male mongrel pup had corneal opacity (Fig.1). A continuous watery discharge was also noticed and both the eyes were kept closed for most of the time. Faecal sample was negative for any helminth



Fig. 1 : Showing corneal opacity in both eyes of mongrel male pup.

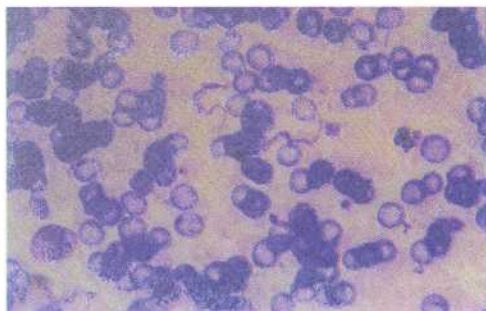


Fig. 2 : Giemsa's stained blood smear showing Trypanosome parasites

parasite but Giemsa's stained blood smear examination was positive for *Trypanosoma* sp. (Fig.2). The dog (weight 5kg) was given **Berenil®** (HR Vet) @ 50 mg in 2 ml sterile distilled water intra-muscularly at 2 sites (1 ml each) and the same dose was repeated on day three. As a supportive treatment - **Avil®** (HR Vet) was injected @ 1 ml intra-muscularly for three consecutive days. **Prednisolone acetate** (HR Vet) @ 0.25 ml was given as sub-conjunctival injection in both the eyes and was repeated on day three. Neosporin ointment was advised to apply in the both eyes.

*"So long as ever a single dog in my country is
without food, my whole religion will be to feed it"*

- Swami Vivekananda

Book Review :

'Veterinary Practitioner's & Pet Lover's Hand Book for Dogs and Cats'

By

Prof. D. N. Pandey

B. V. Sc. & A. H., M. V. Sc., Ph.D.

Publisher :

International Book Distributing Co., Charbag, Lucknow - 226 004

Price :

Rs. 85/-

Rightly preventive vaccination has been dealt in the beginning of the book. It is in line with the present day thinking of "prevention is better than cure". The diseases of the dogs and cats have been described in simple language. The book will be very useful for young fresh vets who are graduating from the Veterinary Colleges all over the country.

The drug directory section gives exhaustive list of medicines but such a list is never complete, because of newer drugs being continuously introduced into the market. "Drugs at a glance chapter" has been efficiently dealt with the list of trade names of the products, classified as per activity. This will be really useful as a ready reference for the practicing vets.

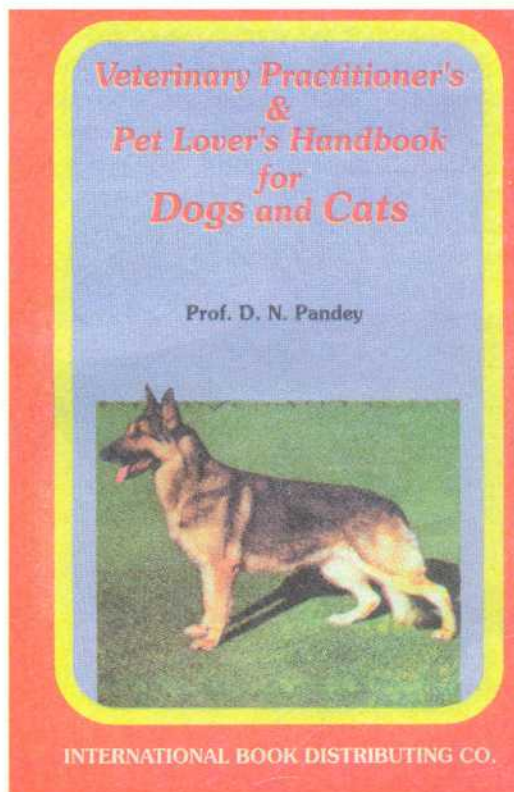
In chapter 46, the common items, which are mentioned will be of use for vets attached to institutions. Some of the discontinued medicines as mentioned in the list of chapter 44, may be deleted.

All in all a good attempt to provide a ready to use hand-book for the fresh pet practitioners.

Reviewed By :

Dr. A. Madhusudan

Senior Manager, Hoechst Roussel Vet Pvt. Ltd., Neeta Park, Airport Road, Yerwada.
Pune - 411 006



Canine Seizures and its Management

J. P. Varshney and S. L. Ali

Division of Veterinary Medicine, Indian Veterinary Research Institute (IVRI), Izatnagar - 243 122

Seizures in canines are well known devastating neurological disorders, commonly noticed in canine practice. Because of unpredictable occurrence and lack of specific prophylaxis and therapy, seizures have been the cause of great concern to pet owners.

Incidence :

In India, no systematic epidemiological studies on the incidence of canine seizures has been done so far. However, earlier reports informed that syndrome is of frequent occurrence in canine population (Jadav *et al.*, 1996 and Rao & Pandey, 1997). Data available abroad indicated high incidence of seizures from 1% to 3% (Bunch, 1983; Knoeckle, 1990 and Fenner, 1994). All canine breeds seem to have hereditary predisposition for seizures but mechanism of inheritance is yet not understood (Cunningham & Farnback, 1988). Seizures occur in all age group but generally more common in dogs of 9 to 36 months of age.

Causes :

Seizures may be due to extra-cranial, intra-cranial and idiopathic reasons.

The extra-cranial causes include, toxicosis such as strychnine, cyanide (Bradley *et al.*, 1988), chlorinated hydrocarbons, organophosphorus compounds and lead; metabolic diseases such as hypocalcemia, hyperglycemia (Levy, 1994), hepatic insufficiency, uremia, multiple myeloma, polycythaemia and heat stroke.

Intra-cranial causes are congenital malformation, neoplasia (Wheeler, 1990).

Inflammatory diseases, vascular diseases, deficiency diseases are also responsible for the syndrome. Seizures due to *Ehrlichia canis* (Meinkhot *et al.*, 1989), *Babesia gibsoni* (Varshney *et al.*, 1997) infections have also been reported. Idiopathic epilepsy is due to inherited functional abnormalities of brain, and acquired one is due to cerebral insult and is associated with seizures.

Symptoms :

There is change in consciousness and manifestation of tonic-clonic muscular spasm, limb paddling, trismus, licking and lip smacking, frequent pawing, tail chasing etc. A few dogs may become hyperaesthetic and there may be salivation, defecation during the episode.

Types of Seizures :

Seizures have been classified in various ways. On clinical appearance, these have been classified as partial and generalized seizures.

Partial seizures :

These are determined by the region of cortex and are asymmetrical and may progress to generalized seizures. Key feature is preservation of consciousness. Electroencephalogram (EEG) shows localised dysrhythmia. Simple partial seizures are manifested with loss of consciousness whereas complex partial seizures are a psychomotor and characterized by impaired consciousness that lasts for 30 seconds to 2 minutes without abnormal complex behaviour.

Generalized seizures :

These are symmetrical and synchronous throughout the body. EEG shows generalized asymmetrical dysrhythmia.

Diagnosis :

There are several clinical conditions associated with seizures which needs differentiation. The history of the patient should be evaluated thoroughly such as current medication, recent illness, trauma or possible exposure to toxins. The physical and neurological examination should be performed thoroughly. An acute onset of seizures, with or without neurological deficit is suggestive of toxic, vascular infections, metabolic or neoplastic etiology; whereas chronic intermittent seizures, without neurological abnormalities is indicative of acquired or idiopathic seizures.

Complete haematology, serum chemistry, liver function indices, CSF (Cerebro Spinal Fluid) analysis and toxicological analysis facilitate the diagnosis of the seizures. Skull radiography, EEG, computerized tomography (CT) and magnetic resonance imaging (MRI) are recent diagnostic tools in the evaluation of intra-cranial disorders.

Clinical Management :

The aim of the treatment is to reduce the frequency of seizures and to increase the inter-seizure period with lowest toxicity. The anti-convulsants are the drug of choice used as single drug or combined drug therapy. In most instances medication is initiated with a single drug. If a single drug fails to provide adequate response, another drug should be substituted. Withdrawal of anti-seizure drug is advisable only when the patient is seizure-free for more than 6-8 months, and withdrawal should be done gradually over a period of month. Anti-convulsants of different groups are available for seizures management.

Barbiturates :

Phenobarbital is more commonly used drug of this group. It is used @ 1.0-6.0 mg/kg, twice or thrice in divided doses. On prolong use it may cause megaloblastic anaemia and osteomalacia.

Deoxybarbiturates :

Primidone is only the drug belongs to this group. The usual dose is 10.0 mg/kg, orally every 8 hours. The drug can be used in higher doses upto 20 mg/kg daily in dogs (Cardini *et al.*, 1987). Its toxic effects include liver disfunction, ataxia, vomition, nystagmus etc.

Benzodiazepine :

Diazepam, clorazepam and chlorazepet dipotassuim are drugs of this group. Diazepam is used @ 0.5 – 1.0 mg/kg intravenously. Because of short half-life and development of tolerance, its usefulness in canines is limited. Clorazepam is used @ 0.1 to 0.5 mg/kg twice or thrice daiy. The half-life and effect of drug is dose dependent (Al – Tahan *et al.*, 1984). Chlorazepet dipotassium is used @ 2.0 mg/kg twice daily but is very expensive. The side effects are noticed as cardiovascular and respiratory depression and also muscular incoordination.

Imminostilbenes :

Carbamazepine belongs to this group. It may be of great value in the treatment of psychomotor seizures in dogs (Holland, 1988). In man, it is used @ 100-200 mg/kg twice daily. Drowsiness, ataxia, vomition and aplastic anaemia are observed on its prolonged use.

Valproic acid :

This drug is used in canines @ 60-80 mg/kg orally in divided doses at 8 hourly interval. The half-life of drug is short i.e 1.5-2.8 hours (Loscher, 1981). Anorexia, vomition, ataxia and tremors etc, are the side effects of the drug.

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Succinimides :

Ethosuximide is one of the drugs in this group. Others are Phensuximide and Methsuximide, but these are not widely used in animals. In man, it is used in the management of epilepsy. The existence of such conditions are doubtful in dogs.

Oxazolidinediones :

Trimethadiones of this group is used in dogs @ 22-64mg/kg once daily orally. The drug has a half-life of 8 hours (Frey & Schultz, 1970). The most common undesired effects are sedation and hemeralopia, exfoliative dermatitis, hepatitis and nephrosis.

Bromides :

Potassium bromide has been advocated in the therapy of canine seizures @ 20-30mg/kg once orally. It is a good adjunct to phenobarbital in dogs (Pearce, 1990). Signs of toxicity includes anorexia, vomiting, constipation, incoordination and sedation.

Hydantoin :

Phenytoin of hydantoin group is a promising drug in veterinary practice for its efficacy in controlling seizures and is given @60-100 mg/kg thrice daily. Its prolonged use may cause behavioural changes, gingival hyperplasia, osteomalacia, megaloblastic anaemia etc.

Supportive therapy :

All the anti-convulsants have in common their ability to lower the blood folate. Restoration of its concentration potentiate their therapeutic effect.

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Liver Disorders – a Common Disease Syndrome in Debilitated Bullocks (Abattoir Survey).

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Introduction :

Liver is one of the vital organs of the body which plays an important role in nutrient metabolism, so also in excretion of endogenous and exogenous toxins. Any affection in liver, particularly of chronic nature, disturbs liver function and thereby reduces nutrient metabolism and excretion of waste materials. This ultimately results into loss of productivity of animals. The diagnosis of liver disorders is based mainly on the laboratory investigation which many times is not practicable under field conditions. The common observation is that most of the deaths resulted from chronic debilitated condition. The post-mortem diagnosis indicated affections of the liver which were responsible for chronic debility. The precise study, however, is lacking regarding the presence of various liver disorders and their relation to debilitated conditions, commonly observed in ruminants. The present study was therefore, undertaken to correlate these two factors, based on abattoir observations.

Materials and Methods :

One hundred debilitated and unhealthy looking bullocks (above 10 years of age) brought to Akola abattoir, were selected for this study. The clinical condition of each animal was noted and subsequent to slaughter, the livers were examined for gross abnormalities. Liver pieces (1.5 - 2.5 cm) were collected from all animals for histopathological examination.

Results and Discussion :

Table 1 indicates liver affections of 100 animals. It was observed that 26% of the animals were found to be suffering from gross lesions, whereas 100% of the animals were found to have one or more causes, directly responsible for the liver disfunction. Among the gross lesions, presence of hydatid cyst was most common (24%) followed by visible liver abscess (2%). It has been shown in many studies that in almost 40-50% of the slaughtered bullocks, hydatid cysts were present (Sundaram & Natarajan 1960 and Hedge *et al.*, 1974). The presence of cysts of bigger size are known to induce pressure atrophy on the liver, resulting into liver disfunction and debilitated condition of the animal.

Among the histopathological abnormalities, chronic hepatitis alone (34%) and chronic hepatitis in association with hydatid cysts (40%) was the major one, followed by hepatic degenerations, microabscesses and hepatitis with bile duct hyperplasia. The major functional disturbance caused by the chronic hepatitis has been shown to be reduction in the anabolism of amino acids and protein synthesis, which is indicated clinically by tissue wasting and biochemically by fall in plasma proteins. Chronic hepatitis in ruminants grown under village conditions is attributable mainly to the low level of nutrition and constant exposure to sub-acute infections and low grade toxicosis of environmental origin. Considering the incidence of chronic hepatitis to the extent of more than 70% in the present study, it is suggested that

Case Report : Observations on Tetanus in Camels

A. K. Gahlot, R. K. Tanwar, A. P. Singh, N. K. Tinna and S. N. Sharma

Department of Medicine, College of Veterinary & Animal Science, Bikaner-334001

Tetanus is a highly fatal infectious disease, caused by the toxins of *Clostridium tetani* affecting all species of domestic animals including camels. It occurs in all parts of the world as individual, sporadic cases. The mortality in young ruminants is over 80% whereas, the recovery rate is high in adult cattle (Radostits *et al.*, 1994). Tetanus is infrequent in camels, but few cases have been reported from Egypt, East Africa and Dubai (Manefield & Tinson, 1997). The present report describes five cases of tetanus in camels, hitherto, unreported from India.

Case report :

Five adult camels of 8-12 years of age were brought during 1997-98 to the clinic, Department of Medicine, College of Veterinary & Animal Science, Bikaner for treatment with the complaint of off-feed and water, stiff neck and legs since last 4 days. On examination, temperature, pulse and respiration rate were found within normal range. General rigidity of muscles of neck and legs were observed. Examination of mouth revealed lock jaw condition. Three camels had a history of deep punctured foot wound about 8-10 days back, where as, remaining two camels were purchased from the local market about one month back and did not have any history of punctured wound.

Based on clinical signs, tentative diagnosis of tetanus was made in all five camels. Haematological examination revealed no abnormality. All the animals were treated with procaine penicillin 40 lac I.U. twice a day, chlorpromazine hydrochloride 400 mg

twice a day intra-muscularly, 10 litre of 5% dextrose saline solution intra-venously and Tetaglobulin injection. (Antitetanus immunoglobulin purified from human volunteers) 500 I.U. intra-theccally.

On 2nd day, prolapse of third eyelid was observed in all camels on percussion of head region. Ears were erected. Camels showed disinclination towards walking and couching. Tail also become stiff and was slightly elevated and deviation was observed when tail was raised to horizontal position, it dropped very slowly due to rigidity of muscles of tail which was regarded as characteristic differentiating clinical findings. Animals held their head and neck high during standing position indicative of mild opisthotonos condition. In sitting posture, the hind legs were extended sideways and animal adopted 'Frog-sitting' posture. Animal preferred to stand in shady area. On 3rd day, respiratory rate and body temperature were markedly increased (20-28 / minute and 101°F – 102.8°F, respectively). Camels were hyperaesthetic to touch. Constipation and anuria were also noticed. On 4th day, camels adopted sternal recumbency with characteristic 'Frog-sitting' posture.

Treatment was continued for 4 days. In spite of treatment, all five camels died within 9-10 days. No characteristic post-mortem findings was recorded.

Discussion :

In the present study, clinical signs of tetanus, observed in the camels were similar to those for other species, like stiff neck, body and

tail, lock-jaw condition and prolapse of third eyelid except, the 'Frog-sitting' posture.

As response to treatment of tetanus has been reported poor in animals, none of the camels responded to treatment during the present study also. Schwartz & Dioli, (1922) reported that in severe cases, fatal out-come is common in camels. Wernery & Ruger-kaader, (1995) however, recommended intensive therapeutic measures to have recovery from tetanus in dromedary with 3 weeks.

The ineffectiveness of the treatment can possibly be attributed to late presentation of the animals for the standard medication schedule.

Summary :

Five cases of tetanus were recorded in camels. Three camels had history of punctured wound, whereas two camels were without any wound. Lock-jaw, stiff gait in the initial stage followed by stiffness of extremities and neck, erected ears, stiff and elevated tail with characteristic steady lowering of tail when raised to horizontal level, prolapse of third eyelid right from the

initial stage, sternal recumbency between days 5 to 7 from the day of onset of signs and characteristic deviation of knee and stiff joints, an appearance of 'Frog sitting posture', appreciable hyperaesthesia to sound and touch were important differentiating clinical manifestations. None of the animals responded to the standard line of treatment for tetanus and eventually died within 9-10 days. No characteristic post-mortem finding was observed.

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*"Wings are God's gift to birds,
Their joy blooms out in line and colour;*

*These travellers, many coloured,
Are companions of the cloud;*

*They come from the same race
As the blue sky's wind."*

- Rabindra Nath Tagore

Case Report : Vaginal Rupture and its Surgical Correction in a She-buffalo

Cecilea Joseph, S. Balasubramanian, T. Gnashubramanian, D. Kathiresan and S. R. Pattabiraman

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Rupture of the uterus may occur spontaneously but faulty obstetrical technique is a more frequent cause (Arthur *et al.*, 1996). Balasubramanian *et al.*, (1991) have reported a case of dystocia along with a vaginal rupture and its successful surgical management following delivery of a live calf per vaginam. The present paper reports a case of vaginal rupture, caused during the faulty reduction of post-partum vaginal prolapse and its successful correction.

Case History and Observation :

A grade murrha buffalo reported to have calved normally four days ago, was presented at Madras Veterinary College hospital with a history of intermittent straining and tendency for prolapse since 24 hours following improper reduction of vaginal prolapse, practiced by the animal owner. On clinical examination the animal was straining frequently with bloody genital discharge. Vaginal examination revealed a longitudinal tear in left lateral wall of the vagina for about 15 cm length and 4 cm depth and a transverse tear of 7 cm in length in dorsal aspect of anterior vagina. It was diagnosed as a case of vaginal rupture due to a faulty manipulation.

Surgical Technique :

Epidural anaesthesia was given with 2% lignocaine hcl and the vulva and perineum were prepared for the surgical correction. At first the anterior end of longitudinal tear was

located and both lips of the tear were grasped with one hand to approximate the edges. A curved traumatic needle with size # 2 chromic catgut was inserted with the same hand and the tear was sutured by inverted continuous blanket suture techniques. Similarly the transverse tear was also sutured. Antibiotics (Injection Ampicillin and Cloxacillin), analgesic and antihistamine were given for 5 days as post-operative supportive therapy. The animal made an uneventful recovery.

Discussion :

In general, surgical correction of the rupture of genital tract in large animals include suturing through laparotomy, prolapsing the vagina by pulling it through the birth canal and then suturing the vent, and also by working through the birth canal (Roberts, 1971). Based on the merits of each surgical intervention, laparotomy approach is more suitable for uterine rupture.

Prolapsing the genitalia for surgical intervention is not an apt approach for vaginal rupture since it requires forceful traction which may lead to further damage. Also during prolapsing the vagina, a fold may be present which may interfere with efficient suturing. Hence, per vaginal approach is the most ideal, depending on whether the condition is fresh or delayed (couple of days). In fresh case, the working space is more due to the highly dilated vaginal passage permitting both hands for

suturing (Balasubramanian *et al.*, 1991), whereas in delayed condition as in the present case, due to the restricted working space the obstetrician has to operate with only one hand, which requires much more expertise than the other approaches.

Simple rupture of vagina especially of the lateral or dorsal wall need not be sutured unless the operator desires to do so (Roberts, 1971). Rupture of the vagina is usually not as serious as uterine rupture and the prognosis is much better unless it extends into the peritoneal cavity (Roberts, 1971). In the present case, though the rupture was deep about 4cm in depth, it did not extend into the peritoneal cavity. Hence, the prognosis of this

case was better and led to the successful recovery following surgical intervention.

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Case Report : Therapeutic Efficacy of Butox® (Deltamethrin) Against Ticks Infestations in Goats (*Capra hircus*)

D. N. Rajguru, Mohd. Saleem, S. A. Joshi, and S. B. Swami.

College of Veterinary & Animal Sciences, MAU, Parbhani - 431 401

Tick infestation is common in goats. Besides causing physical damage to skin and general health, it is also responsible for transmission of infectious diseases. The effective control of ticks is mainly by the use of chemicals. Organophosphorus compounds have been used extremely. However, these are not always found safe and may induce toxicity (Gupta *et al.*, 1981 and Rao & Yethiraj, 1989). Of the known acaricide, Pyrethroids are the least toxic to mammals (Bhatia, 1970) and are reported effective even against the acaricide cross resistant strains of ticks with long term protective effect against reinfestation (Stubbas *et al.*, 1982). **Butox**® (Hoechst Roussel Vet Pvt. Ltd.) containing Deltamethrin .1.25% EC, is a synthetic pyrethroid which has been found effective in the treatment of ectoparasite infestation in goats (Sharma *et al.*, 1991). No side effects of this compound have been reported so far by other workers. In the present study, efficacy of **Butox**® as topical application against ticks infestations in goats, has been assessed in three private farms, located outside of the Parbhani city.

Three flocks of Osmanabadi goats of total 190 numbers, severely infested with ticks and maintained in a semi-intensive system, were selected for this trial in June 1999. The goats showed symptoms of pruritis, irritation, rough hair coat, loss of hair and presence of ticks all over the body. In most of the cases, the lesions were confined to the neck areas, around the ear, inner surface of thigh and perineal region. The ticks were collected for parasitological examination as

per the method of Soulsby, 1975. The animals were found infested with the species *Rhipicephalus haemphysaloides*. The particular species transmits tick born fever, caused by *Rickettsia* species, is reported prevalent in this country (Radostits *et al.*, 1994). **Butox**® diluted in water (@2ml/ litre) for topical application, was sprayed all over the body with the help of hand sprayer. The goats were daily observed for presence of ticks and skin lesions, if any. The efficacy of the **Butox**® was evaluated on the basis of clinical study and disappearance of ticks from body surface.

All 190 treated goats showed complete (100%) clinical and parasitological recovery on day 5th following a single application of **Butox**® (at 25 ppm dilution).

The drug Deltamethrin acts on the parasites by contact and has strong lipophilic action. The compound ingested by parasites binds with peripheral nerve ganglion and induce neurotoxic effects leading to death. Deltamethrin compound has been used for treatment of ectoparasitic infestation in goats with efficient results (Sharma *et al.*, 1991). The high efficacy of **Butox**® against all types of ectoparasites was well documented (Sharma *et al.*, 1991; Jani *et al.*, 1991; Rao & Yethiraj 1989 and Mukharjee *et al.*, 1995).

Acknowledgement :

The authors are grateful to Dr. Narladker and Dr. Jayrao, Department of Veterinary Parasitology, College of Veterinary & Animal

Sciences MAU, Parbhani for the facilities for identification of ticks and to Dr. K. S. Deshpande, Dean, College of Veterinary & Animal Sciences MAU, Parbhani for his constant encouragement.

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Case Report : Repeated Berenil® treatment in Canine Babesiosis

S. C. Pathak

Department of Surgery & Radiology, College of Veterinary Sciences,
Assam Agriculture University, Khanapara, Guwahati - 781 002

The brown dog tick (*Rhipicephalus sanguineus*) is very common in this part of the country. It has been incriminated as an intermediate host in the transmission of Babesiosis. Relapses are common unless the protozoa are totally eliminated from the host.

Clinically two suggestive cases of Babesiosis in dogs (German Shepherd and spitz) were treated with **Berenil**® (Hoechst Roussel Vet Pvt. Ltd.). Weakness, anaemia, dehydration and off-feed were the main symptoms. Urine was highly coloured. Earlier they were prescribed fluid, antibiotics and B-complex but without any response. The German Shepherd dog was reported to have suffering from similar ailment about 7 months ago. The present case could not be confirmed by laboratory test, but were treated for

Babesiosis based on the previous symptoms. The details of treatment schedule were as follows :

1. **Berenil**® Vet (Diminazene Accturate compound) @ 3 mg/kg daily was given intra-muscularly, for 8 days (German Shepherd Dog) and on alternate days (spitz) total – six injections.
2. Ringer's Lactate was administered intravenously for first, four days in addition to Haemoferon – 5, intra-muscularly on alternate days (5 injections).

Both the dogs were recovered and have been maintaining excellent health for the last 13 and 8 months respectively. Repeated administration of **Berenil**® did not produce any ill effect and no relapse of symptoms have been observed so far.

"No man is rich whose expenditure exceeds his means; and no one is poor whose incomings exceed his outgoings"

- Haliburton

Case Report : Efficacy of Taktic® (amitraz 5% EC) against Demodectic Mange and Non-specific Dermatitis in Dogs

V. P. Chandrapuria, R. K. Sharma and S. K. Srivastava*

College of Veterinary Science & A.H., Jabalpur - 482 001

A trial was undertaken to evaluate the efficacy on external application of **Taktic®** (amitraz 5% EC, Hoechst Roussel Vet Pvt. Ltd.) in demodectic mange infection and non-specific dermatitis in dogs.

Group A :

10 dogs, found positive (on microscopical examination) for *Demodex canis* after deep skin scrapping from different sites, were selected for this study. They were treated with 10ml of **Taktic®** solution per litre of water.

Group B :

This group of 25 dogs, apparently suffering from dermatitis but found negative (skin scrapping) on microscopic examination, were treated with 6ml of **Taktic®** solution per litre of water.

Treatment Schedule :

The schedule of applications were varied from 0 day (I application), 8-10 day (II application), 16 - 20 day (III application), 23-24 day (IV application), depending on the clinical response and laboratory report on skin scrappings (microscopical examination).

Observations :

Among the 10 dogs of Group A (2 Great Dane, 3 Pomeranian, 1 Apso, 1 German Spitz, 1 German Shepherd and 2 Mongrel), 6 dogs had clinical recovery and were negative for skin scrapping examination on 10th day after I application. Rest 4 dogs were treated with II application and on 16th day

they were found negative on skin scrapping (microscopical examination). The rest one did not respond after II application.

Among the 25 dogs of Group B (1 Dachshund, 1 Dobermann, 3 Labrador, 2 German spitz, 2 German Shepherd, 1 Great Dane, 1 Collie, 3 Pomeranian, 2 Apso and 9 Mongrels), only 3 dogs showed clinical recovery after II application. Remaining 22 dogs were further treated with III and IV application of **Taktic®** along with supportive therapies, the details are as under -

- 14 dogs were cured after III application of **Taktic®** along with antifungal treatment.
- Remaining 8 dogs showed marked improvement after IV application of **Taktic®** along with antifungal, antibacterial and steroid treatment.

The above observations suggest that **Taktic®** EC in 10ml /litre of concentration was found to be 90% effective against canine demodexosis.

A concentration of 6 ml/ litre of **Taktic®** 5% EC solution also proved to be promising along with supportive antifungal, antibacterial and steroid therapy, against non-specific dermatitis in dogs.

Acknowledgement :

The authors are thankful to F. D. Daniel, Sales Executive, HR Vet, H.Q. Jabalpur for samples arrangement and to Dr. V. S. Narsapur and Dr. A. K. Datta, Editorial Board Members, 'The Blue Cross Book' for data documentation support.

* Jabalpur Pet Hospital, Jabalpur - 482 001

Case Report : Medical Management of Ascites in Dog

N. P. Dakshinkar and D. B. Sarode

Department of Medicine, Nagpur Veterinary College, Nagpur - 440 006

Ascites is the abnormal accumulation of extra-cellular fluid in the peritoneal cavity and may be of cardiac or renal, origin. (Hunt *et al.*, 1993). The condition is frequently observed in dogs and various attempts to treat this condition were met with variable success.

Case History and Clinical Findings :

A Great Dane female, aged about 3 years was presented at Veterinary College hospital with a complaint of bilateral abdominal distension in the absence of pregnancy. History revealed gradual distension of abdomen over a period of 15 days. Appetite of the animal was decreased. The animal appeared dull, distinct bilateral distension of abdomen and there was muscle wasting. Faeces were constipated, offensive smelling and the animal used to defecate once in 3 days but was negative for helminth infection.

Clinical examination revealed body temperature within normal physiological limit, moderate pallor of conjunctival mucous membrane, tactile percussion revealed fluid thrill. These clinical observations are in agreement with earlier reports of Kirk & Biester, (1975) and Ettinger, (1983).

Blood smears were negative for any haemoprotzoan infection but showed hypochromic anaemia. Serum Biochemistry revealed total Protein 4 gm/dl, Albumin; Globulin 1.8, 1.2, total Bilirubin 0.6 mg/dl, Alkaline phosphatase 7.5 KA units, SGOT 25 I.U./l, SGPT 9 I.U./l, total Cholesterol 168 mg/dl, Blood Urea 33 mg/dl, Serum Creatinine 1.3 mg/dl, Serum Sodium 140

mmol/l, Serum Potassium 37 mmol/l. Electrocardiogram did not reveal any specific cardiac abnormality.

Based on the clinical findings and haematobiochemical profile, a diagnosis of ascites was made.

Therapeutic Management :

Treatment was initiated with 200ml intra-venous administration of Fructose preparation. One of the advantages of Fructose is its rapid removal from extra-cellular space and therefore, urinary excretion is minimised. Astymin -3, 20ml intra-venously once a week for two weeks was given as a replacement of protein loss. Administration of liver extracts, furosemide at the dose rate of 2 mg/kg bw for 5 days and subsequently as per the abdominal distension. Similar findings were also reported by Rajan *et al.*, (1991). Syrup Liv-52 (vet) one tea spoon full twice daily, capsule Astymin forte twice daily for 15 days and continuous feeding of egg-white were recommended to provide protein of high biological value. During the course of treatment, the animal showed gradual improvement and no further fluid accumulation was noticed.

It is well known fact that several conditions including injury to the liver markedly increase the hepatic fat content. Although the means of preventing cirrhosis are obscure, special attention should be given to methionine and choline (Goodman and Gillman, 1975). Hence, syrup Sorbiline, one

tea spoon full twice daily, was recommended for 15 days, because as constituent of phospholipid, lecithin choline is essential for enhancing transport of fat from liver to tissue. The dog showed complete clinical recovery by 30 days.

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NEWS : On dairy herd improvement action in Banaskantha district

The Banaskantha district has 12.7 thousands square kilometers of area and comprises of 1359 villages. The district has about 4 lacks of breedable buffaloes, 1.6 lakhs local breedable cows and 0.13 lakh of crossbreed cows. Approximately 37% of the buffaloes are Mehsana, 57% are Murrah type and the remaining are nondescript. The average milk production per buffalo is about 3.5 litres.

The present project was undertaken with the following objectives :

- 1) To improve productivity of buffaloes in selected 160 villages.
- 2) To substantiate, how productivity of buffaloes can be improved in the field.
- 3) Regular technical campaigns - to show the farmers, how scientific measures can lead to enhancement of productivity in buffaloes.

Action Plan :

A five year composite action plan was drawn and details yearly coverage of villages are as under :

Ist and IInd year	: 40 (20 villages each year)
IIIrd year	: 30 villages
IVth year	: 40 villages
Vth year	: 50 villages
Total	: 160 villages

Progeny testing programme was arranged for all breedable buffaloes in the villages. After testing animals were ear tagged and data are preserved properly. For insemination, required semen were arranged from Mehsana Union. As an additional efforts, ten buffalo

bulls were kept for semen testing under this programme.

Selected buffaloes (ear tagged) after calving were kept under observation and data in regard to milk yield and other health records were maintained properly.

Data recorded from the ten bull buffalo experiment, top bull buffalo's semen will be used for next AI programme.

Farmers were advised to give balanced cattle feed to daughter progeny for about a period of eighteen months and monthly growth record was maintained separately by heart girth method. A special programme of deworming with **Panacur**[®] (HR Vet) to all calves followed by major vaccination schedule were maintained.

Separate meeting and camps were conducted with the farmers from time to time. With the help of the above mentioned strict feeding schedule and continuous evaluation of project, the programme leader can demonstrate that female calves born out of this intensive AI Programme :

- will mature and come to heat early
- will conceive early and conception rate will be increased
- will be capable to produce more number of lactations

Benefits for the Farmers :

The programme will directly benefit the farmers as follows :

- Cost reduction benefit to AI insemination cost

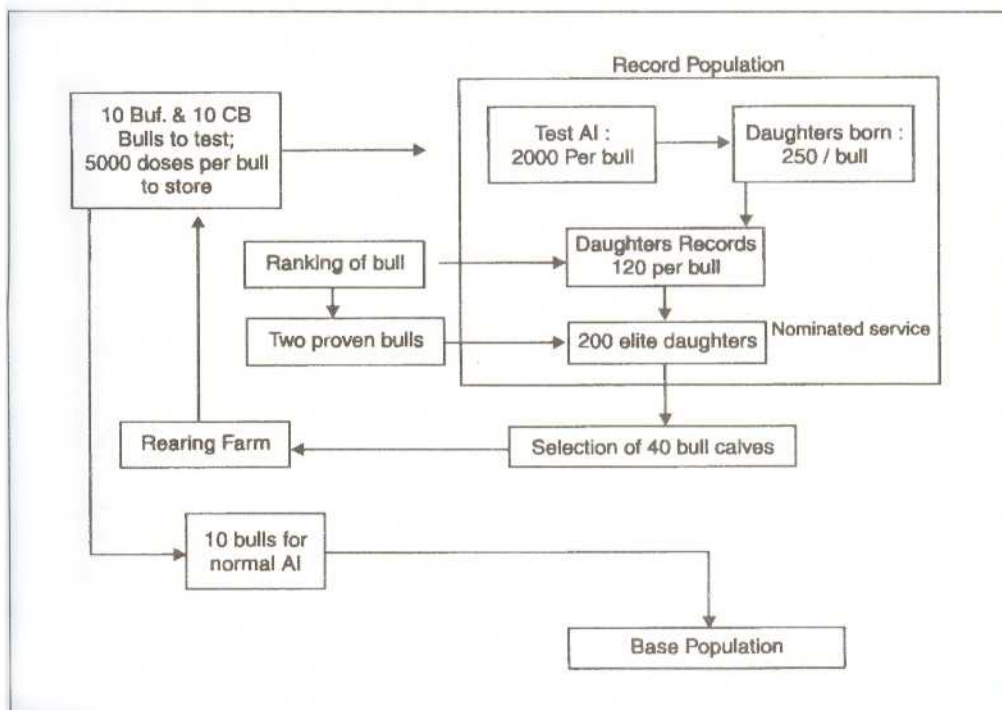


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Figure 1 : Schematic Presentation of a DIPA Programme



- Enhancement of lactation period in buffaloes will generate more income
- Participation in village co-operative programme

controlled dairy development programme like Banaskantha region, milk yield will be increased and better progeny will be evolved for future white revolution.

Conclusion :

With selective breeding, improved management and establishment of more

- Z. D. Rathod

Dear Reader,
If you would like to have more information on this subject, kindly contact Mr. Rathod directly at Banaskantha District Co-op Milk Producer Union Limited, Banas Dairy, P. B. No. 20, Palanpur - 385 001.

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Abstracts and sub-headings are not necessary for clinical articles and short communications. These should not exceed three typed pages. For case reports, history, observation, tentative and confirmatory diagnosis, line of treatment and follow up on the case should be given.

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Comments / Suggestion on 'The Blue Cross Book - 13'

17. **Dr. A. Rai**, Veterinary Officer,

Khujhimore, CK 63/1 A. Chhoty Peary, Varanasi - 221 001

"I liked this issue because it is updated, informative and refreshing for the vets who are generally deprived of recent information on technical and clinical advancement. I like the article entitled, 'Bovine Herpes Virus Infections in Cattle : Economic Significance and Control Measures.' I want to send article on clinical efficacy of **Floxidin**[®] with **Amnovit**[®] to control sterility and repeat breeding problems in cross breed cows."

18. **Dr. Dharendra Nath Sabharwal**, Veterinary Officer (Retd.)

112/354 Vimal Niwas, Kanpur - 208 002

"I liked this issue which includes valuable practical articles on canine treatment that help us (field veterinarians) to keep knowledge updated. I will try to send my article related to treatment of zoo animals. Thanks to Dr. A. K. Datta (Editor) for his continuous efforts to improve the quality of the journal. I am happy to note that your next issue will have article on 'Parvoviral Infection in Canine'."

*"The ship of democracy,
which has weathered all storms,
may sink through the mutiny of those on board"*

- Cleveland

NEXT ISSUE : Expected Articles

Expected Articles for 'The Blue Cross Book - 14'

- **Dr. Dharendra Nath Sabharwal**
112 / 354 Vimal Niwas, Swarup Nagar, Kanpur - 208 002
'Treatment of zoo animals'
- **Dr. P. R. Pandey**
'Rameshwaram', H. B. Park Society, Sashtri Road, Bardoli - 394 601
1. 'Increase of conception rate by efficient treatment of Receptal in delayed ovulation'. 2. 'An unusual ascitis in dog'
- **Dr. S. K. Agarwal**
Veterinary Hospital Jagdalpur - 494 001
'Tumor in bitch : a surgical intervention'
- **Dr. D. N. Garg**
HN 8 / 30, New Campus, Hissar - 125 004
'Mastitogenic bovine *Mycoplasma* spp.'
- **Dr. M. H. Mir**, Technical Officer,
Directorate of Animal Husbandry, Kashmir
'Role of antibiotics in poultry rearing and hazards to human thereof'
- **Dr. N. K. Rakha**
Department of Veterinary Medicine, HAU, Hissar - 125 001
'What is the latest concept in targeting parasites ?'
- **Dr. T. Gaur**
Medicine Division, IVRI, Izatnagar - 243 122
'Routine drug disorders in feline therapy'
- **Prof. S. S. Misra**
Department of Surgery & Radiology, Veterinary College, Mathura
'Prolapse of uterus in bovines'
- **Dr. Ashok Kumar**
Animal Welfare Education Officer, P. O. Ramana, Muzaffarpur - 842 002
'A trial report on **Berenil**[®]
- **Prof. Dr. Suryanarayana**
College of Veterinary Science, Rajendranagar, Hyderabad - 500 030
'Therapeutic evaluation of **Taktic**[®] against scabies in dogs'
- **Dr. S. Kalimuthu**
Srinivasa Hatchery Ltd., Akkivaram - 535 216
'Fertility maintenance in chicken'

NEXT ISSUE : Expected Articles

Expected Articles for 'The Blue Cross Book - 14'

- **Dr. Placid E. D'Souza**, Associated Professor,
Department of Parasitology, Bangalore - 560 024
'Diagnosis of worm infestation in dogs in Bangalore'
- **Dr. P. K. Das**, Assistant Professor & Head,
Department of Medicine, Bhubaneswar - 751 003
'Stephanofilarial dermatitis in bovine'
- **Dr. M. Hanmanth Rao**
Veterinary Dispensary Mandal, Zaherabad, Medak - 502 220
'Enzymes in poultry feeds'
- **Dr. S. A. Mir**
Faculty of Veterinary Sciences, Shubama, P.O. Box No. 1310,
G.P.O. Srinagar, Kashmir
'Acquired metabolic disorders in lactating cattle and their rational management'
- **Dr. Abinash Prasad**
Chailital, Gulzarbag (Patna) - 800 007
1. G.I.T worm infestation and their effects on the tract'
2. 'Repeat breeders remedy in cattle'
- **Dr. Chand Gopal Dutta**
C/o - Gautam Dutta, Kharagpur - 721 305
'Theileriosis - its recent epidemiological data, diagnosis (serological),
photographs of different developmental stages, treatment and control'
- **Dr. A. Rai**, Veterinary Officer,
Khujhimor, CK 63/1A Chotty Peary, Varanasi
'Clinical efficacy of **Floxidin**[®] with **Amnovit**[®] to control fertility and
repeat breeding problems in cross breed cows'.
- **Dr. B. Bandopadhyay**, Trainee Veterinary Officer,
Institute of Animal Health & Veterinary Biology, 37 Belgachia Road,
Calcutta - 700 037
'Cryptosporidiosis, an emerging zoonotic disease'
- **Dr. Arvind Kumar Singh**, Veterinary Officer,
Azamgarh District, Uttar Pradesh
'Role of enrofloxacin in wound healing'

The Blue Cross Book

for the Veterinary Profession

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