

EDITOR :

Dr. A.K. Datta

M.Sc., Ph.D., D.M.L.T.(JU)
Head, Regulatory Affairs
Intervet India Pvt. Ltd.

PATRON :

Victor Van Solinge

Managing Director
Intervet India Pvt. Ltd.

EDITORIAL BOARD :

Dr. P. D. Sardeshpande

M.V.Sc. Ph.D., F.R.V.C.S.
Dean (Retd.)
Bombay Veterinary College,
Mumbai

Dr. S. R. Pattabiraman

M.V.Sc., Ph.D.
Professor & Head (Retd.)
Obstetrics & Gynaecology,
Madras Veterinary College,
Chennai

Dr. K. R. Krishnan

M.V.Sc., Ph. D.
Professor & Head (Retd.)
Veterinary University Training &
Research Centre,
TANUVAS, Madurai, Tamil Nadu

*"More than any time in history mankind faces a crossroads.
One path leads to despair and other hopelessness, the other to total extinction.
Let us pray that we have the wisdom to choose correctly"*

- Woody Allen

"You can build a throne with bayonets, but you can't sit on it for long."

- Boris Yeltsin

*"The opposite of a correct statement is a false statement. But the opposite of a
profound truth may well be another profound truth."*

- Niels Bohr

*"Feel like Christ and you will be a Christ; feel like Buddha and you will be a
Buddha. It is feeling that is the life, the strength, the vitality, without which no
amount of intellectual activity can reach God."*

- Swami Vivekananda

Preface :

Victor van Solinge 2

Veterinary College in India :

The College of Veterinary Sciences & Animal Husbandry, JNKVV, Jabalpur 3

Review Articles :

Bovine Citrullinaemia..... 5

R.K. Patel and K.M. Singh

Blood Transfusion 8

Rajesh Garg

Iron Deficiency in Ruminants and its Management 11

Pankaj Kumar, M.C.Sharma, K.Hussain and C.Joshi

Contagious Caprine Pleuro-pneumonia: A Problem of Concern in India 14

Rakesh Ranjan and Puneet Kumar

Clinical Articles :

A Short Method of Haematoxylin and Eosin (H&E) Staining Using Acetone..... 17

Neelu Gupta and Madhu Swamy

Efficacy of Chlorasol™ in Controlling Bacterial Diseases in Aquaculture Ponds 19

A. Pardhasaradhi

Outbreak of Foot and Mouth Disease due to Virus Type 'A' and Loss of Milk Production..... 21

D.K.Sarma, K.K.Kalita and Sutopa Das

Effect of Levamisol on Endo-parasitic Infestation of Fowls in Kashmir Valley..... 24

N.A.Ganaie, A.A.Khan, M.S.Mir and G.A.Bhat

Sero-prevalence of *Salmonella choleraesuis* in Slaughtered Pigs..... 26

P.N. Rathod , A.M. Das,A.A. Sherikar and S.B. Majee

Case Reports :

Successful Treatment of Hydrallantosis in a Murrah Buffalo 29

S.P.Mouli and S.Nagarjuna Babu

Mandibular Osteosarcoma in a Dog..... 31

A.K.Gangwar and R.Ranjan

Paraphimosis Associated with Priapism in a Dog 33

T.Madhava Rao and S.Bharathi

Importance of Trace Minerals in Livestock and Pet Production..... 35

Sandeep Banerjee and Soma Banerjee

Foreign Body Syndrome in Cattle..... 37

J.D.Parra, B.A. Buchoo, B.A.Molvi and M.Z.Khan

Carpal Hygroma in a Jersey Crossbred Bull 39

S. Bharathi, T. Madhava Rao and K. Satish Kumar

Ocular Neoplasm in a Nagpuri Buffalo 41

B.N.Meshram and M.V.Kamble

Others :

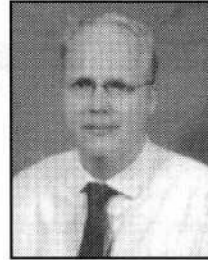
Short Communications..... 43

News & Abstracts 45

Veterinary Publications 48

Readers' Column: Comments / Suggestions 50

PREFACE



Victor van Solinge
Managing Director
Intervet India Pvt. Ltd.

Dear Readers,

It is an immense pleasure to hand over a new edition of "*The Blue Cross Book*".

The recent developments in Asia with regards to Animal and Human Diseases, as well as Food Safety concerns have shown that India is indeed part of the Asian Region. The spread of diseases does not stop at country borders and the same holds true for consumer concerns and questions.

We believe that the role of the animal health companies is also to provide and support accurate information and tools to the farmers, public health organizations, veterinarians and governmental institutes so that they can take the right decisions and provide the right solutions when consulted.

Let us all, the scientists, academicians, practitioners, NGO's, industry and public sector join hands to define a common goal in defending and developing the livestock sector in India. There are major challenges and opportunities ahead like *Salmonella* Control in the Poultry Industry and the Implementation of Clean Milk for the Dairy Sector.

Trust on Intervet's support !!

Yours sincerely,

A handwritten signature in black ink, appearing to be 'V. van Solinge'.

Victor van Solinge



THE VETERINARY COLLEGE IN INDIA

THE COLLEGE OF VETERINARY SCIENCES & ANIMAL HUSBANDRY, JNKVV, JABALPUR

The college of veterinary sciences of Jabalpur was inaugurated on July 8, 1948 by Shri Jairamdas Doulatram, the then Food and Agriculture Minister of India to cater the needs of animal care and livestock development of central India, encompassing erstwhile Madhya Bharat, Bundelkhand, Vidarbha, Vindhya Pradesh, Malwa, Chattisgarh, Mahakaushal and adjoining areas. The veterinary college was started in the building of the ordinance hospital at Khamaria, Jabalpur with 55 students and 8 staff members. Initially, affiliated to the university of Saugar (later 1956 onwards to the university of Jabalpur), the college became a constituent unit of Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV) in 1964. The present premises, spread over 27 acres of land in the prime locality of south civil lines near railway station, is being used for various academic and extra-curricular activities and has well equipped laboratories, library with some rare collections of books & journals, hostel facilities for boys and girls separately, a beautiful auditorium hall, play ground, gymnasium, a veterinary hospital and other modern facilities to cope with the changes in the veterinary profession of the present day. The college initiated M.V.Sc. programme in the year 1961 and doctoral programme in the year 1970. The first Alumni association of JNKVV has been started by the Jabalpur veterinary college from February 18, 1999.

The college being the constituent unit of JNKVV, the Vice Chancellor is the Chief

Executive of the organization. The college is also responsible for its various activities to the Directors of Research, Extension and Instruction of JNKVV. This is done through the Dean of the Faculty and Dean of the college.

Mission:

1. To arrange training of veterinarians for the rural and urban animal health, production and specialized research work.
2. The JNKVV to continue applied research and extension for enhancing livestock health and their productivity.
3. To serve as a centre for teaching of veterinary and animal sciences and to carry out research on domestic and wildlife.
4. To disseminate new technologies to the farmers through extension programmes.

Accomplishments:

Since 1995, the college is following the veterinary council of India (VCI) system of education. Beside degree programme, it is imparting master degrees in 13 disciplines and doctorate in 10 disciplines. The college is also conducting refresher courses and short term training programmes for the field veterinarians.

The college has a well established RVC unit with horse line, where students are trained in NCC and horse riding. This wing has won several national awards, year after year for excellent performance in the Republic day celebrations. For overall development of the students, extra-curricular activities viz. debate,

gymnasium, games, sports and cultural programmes are arranged by the college.

For welfare of the society and animal lovers, the college is participating in activities like dog show, animal health camp, *kisan mela*, etc.

Our post-graduate scholars have fetched coveted Jawaharlal Nehru Award and Young Scientist Awards. The faculty has published text books in animal breeding, pathology, biochemistry, monographs in surgery, pharmacology, nutrition, practical manuals in microbiology, physiology, animal breeding and genetics, review research papers and book chapters on schistosomiasis, stephanofilariasis, sarcocystosis, inflammation, epidemiology of fluke infections, anaesthesia, buffalo hematology and technical bulletins on Nimari and Malvi cattle breeds.

Research :

Research by the experienced as well as talented young scientists are solving the state and national problems pertaining to animal health and production. Scientists are engaged in curricular research, target oriented research, sponsored by ICAR, NATP, ICMR, CSIR, MP, COST. Every department is handling one or more research projects with a budget out lay ranging from 2 lacs to 46 lacs. Presently, the college is handling projects worth about Rs. 7 crores till receipt of the communication for publication.

The scientists have been felicitated with prestigious national awards like Rafi Ahmad Kidwai Award, Hari Om Ashram Award, Fakhruddin Ali Ahmad Award and many best research paper awards.

The first ICAR national fellowship in JNKVV also went to the faculty of veterinary science and animal husbandry. Scientists are fellows of national academy of veterinary science or scientific societies.

The faculty is invited as resource person by many scientific organizations and research institutes to seek expert advice, to write books or to deliver lectures and lead papers. Scientists are in editorial boards of scientific journals and are members of different scientific panels of national scientific organizations including ICAR.

Glimpses of Achievements

- A poly-valent vaccine to control pirochaetosis in poultry
- Preservation of live *Borellia anserina*
- Metabolic studies and deep freezing of buffalo semen
- Lentogenic RD strain (CDF-66) for better immunity in Ranikhet disease
- LDPE polythene bag technique for faecal examination
- Techniques for infecting and recovering blood flukes from the animals
- Feline pan leukopenia as cause of death in the tigers
- Successful research on the mysteries of Avian inflammation, specially cellular components
- A warning of clinical ketosis in buffaloes if blood ketosis exceed from 12.0 mg%
- Protection from toxic effects of pesticides by high protein diet
- Replacement of maize, ground nut cake with non-conventional feeds
- Developmental studies on goat foetus
- Application of herbs as anti-inflammatory products
- Distribution of advance major carp fingerlings to the farmers.

Courtesy : Prof. Dr. H.C. Agarwal, Dean, The The College of Veterinary Sciences & AH, Jabalpur.

" What we need today is to know that there is a God, and that we can see and feel Him here and now."

- Swami Vivekananda

Bovine Citrullinaemia

R. K. Patel and K. M. Singh

Genetics Laboratory (Bio-technology), National Dairy Development Board (NDDB), Anand - 388 001, GS

Abstract:

A survey report on bovine citrullinaemia revealed that about 17% of the embryos were carriers for the disease. As far as the Indian animal population is concerned, it has become important for a routine screening of all Holstein-Friesian (HF) and other crossbred animals to prevent spread of this disease.

Introduction:

Bovine citrullinaemia is a genetic disease, which has only been reported in Holstein - Friesian cattle (Fesus *et al.*, 1999). In a survey, it was found that 17% of the embryos screened, were carriers for the citrullinaemia. However, no carriers was found throughout all of the three black and white breeds in Germany (Grupe *et al.*, 1996). Many carriers were detected in Hungary (Fesus *et al.*, 1999), Australia (Healy *et al.*, 1991), USA (Robinson *et al.*, 1993) and India (Muraleedharan *et al.*, 1999). With the wide use of artificial insemination (AI) and international trading of semen and breeding bulls, this genetic disease can spread to the large population as carrier animals look normal and hence, remain undiagnosed. In India, where HF animals are extensively used for crossbreeding programmes, it has become necessary to screen all HF and their crossbreds to minimize the risk of spreading of citrullinaemia among future bulls and bull mothers.

Effect on Health:

Calves affected with the disease appear normal immediately after birth. However, by the second day of life, they become depressed and feed poorly. By the third day, they are often seen aimlessly wandering about their enclosure or

standing with their head pressed against a fence or wall. Between day 3 and 5, the disease progresses rapidly. The calves appear to be blind and then they collapse. Death usually occurs within 12 hours of on set of these clinical signs (Healy *et al.*, 1990).

Effect on Breeding:

Citrullinaemia is a genetic autosomal recessive disease. If a calf carrying one copy of mutant gene- a heterozygote- is mated with an unaffected cow, there is a 50% chance that the calf will be a heterozygous or carrier for the mutation (Fig .1) but will not exhibit the symptoms of citrullinaemia.

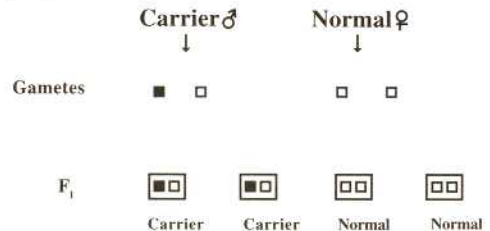


Fig 1: Showing heterozygous or carrier and normal for mutation

If two heterozygous carriers are mated, there is a 25% chance that the calf will be affected with citrullinaemia, 50% chance that calf will be carrier and 25% chance that the calf would be normal as shown in the Fig. 2.

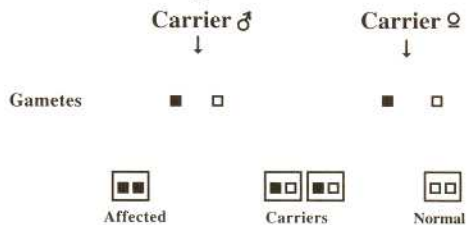


Fig. 2: Showing two heterozygous or carrier for mutation

Bio-chemistry Aspect of the Disease:

The clinical signs of citrullinaemia are believed to be a consequence of an accumulation of ammonia in the brain of the affected calves. Citrulline concentration in blood cerebrospinal fluid, eye fluid and cerebral tissue was greatly elevated. Ammonia, a toxic by-product of protein metabolism, is normally removed by the urea cycle. It has been established that bovine citrullinaemia is a consequence of a deficiency of argininosuccinate synthetase (ASS), one of the enzymes of the urea cycle. The deficiency of ASS occurs when a calf inherits a copy of the mutant ASS gene from each parent. The urea cycle involves a series of bio-chemical steps in which nitrogen, a waste product of protein metabolism, is removed from the blood and converted to urea (Fig.3) Normally, the urea is transported into the urine and removed from the body. Otherwise, ammonia then reaches the brain through the blood, where it causes irreversible brain damage and death. The out line of urea cycle is mentioned (Fig.3).

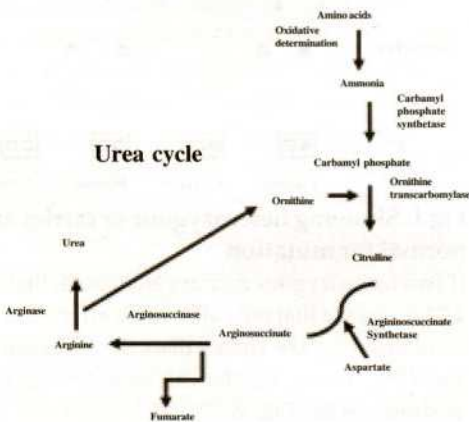


Fig.3. Showing urea cycle

Molecular Genetic Aspect of the Citrullinaemia:

The earlier research established that the citrullinaemia mutation involved one of the 1500 bases that make up the genetic code for argininosuccinate synthetase (ASS). The mutation occurs almost in the center of a particular segment of ASS DNA that is

approximately 185 bps long. The mutation is caused by a transition of cytosine (CGA/ arginine) to thymine (TGA/stop codon) at codon 86 within exon 5 in the gene coding for ASS leading to impaired enzyme, which cannot participate in urea cycle.

Diagnosis of Bovine Citrullinaemia by Polymerase Chain Reaction (PCR) -RFLP:

Affected animals (mutation in both copies of ASS gene) do not survive for long time and can also be diagnosed by their symptoms. However, the mutation in single copy of ASS gene (carrier) can be detected by PCR-RFLP. The 185bps DNA fragment can be amplified by Polymerase Chain Reaction (PCR), which can be set by adding 20 pmoles of sense primer (5' GGC CAG GGA CCG TGT TCA TTG AGG ACA TC 3') and anti-sense primer (5' TTC CTG GGA CCC CGT GAG ACA CAT ACT TG 3'), PCR buffer dNTPS and Taq DNA polymerase. Taq DNA polymerase will start replication of DNA fragment by taking nucleotide bases from dNTP mixture (A,G,C,Ts). The PCR thermal conditions are as follows:

Denaturation of DNA 94 °C for 3 minutes

Replication of DNA (40 cycles)

94 °C for 30 seconds

55 °C for 30 seconds

72 °C for 30 seconds

Step to use extra dNTPs

72 °C for 10 minutes

PCR will take almost two hours to complete. The PCR product of 185bps can be seen on 4% agarose gel. The amplified or PCR products can be digested by Ava II (restriction enzyme) in RFLP pattern of the citrullinaemia presence of C 10X reaction buffer at 37 °C for over night.

REL P pattern of the citrullinaemia

Bps	PCR product	Normal	Carrier	Affected
185 bps	██████████	██████████	██████████	██████████
103 bps		██████████	██████████	
82 bps		██████████	██████████	

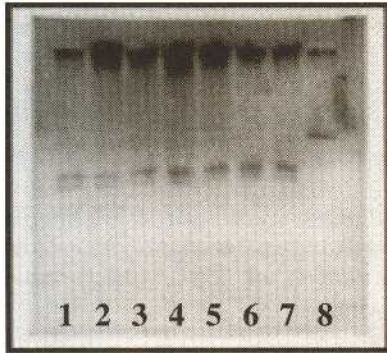


Fig.4. Diagnosis of citrullinaemia
Electrophoretogram of ava II digested PCR
product generated by amplification of Genomic
DNA using CT specific primers. Lane # 1-7;
103 and 82 bps bands of normal animal, lane#
8; PCR product, 185 bps band as a control

The digested product can be visualized on 4% agarose gel. Restriction endonuclease recognize only 6-nucleotide bases site in DNA. If both copies of DNA are normal, it will give two bands of 103 bps and 82 bps (Fig.4). If one copy is mutant then there would be three bands of

185bps (un cleaved fragment), 103bps and 82bps (cleaved fragments). If animal is affected, two overlapped bands (un cleaved fragment of both copies) of 185 bps can be visualized on gel.

References:

Fesus, L., I.Anton, A. Zsolnai, (1999). *Allattenyesztese Takarmanyozas*, **48**(2), pp.: 193-203.

Grupe, S., G. Dietl, M. Schwerin, (1996). *Livestock Prod.Sci.*, **45**(1), pp.: 35-38.

Healy, P J., J.A.Dennis, L.M.Camilleri, J.L.Robinson, A.L.Stell, R.D.Shanks, (1991). *ifuly.*, **68**, p.: 4

Healy, P.J., P.A.W. Harper, J.A.Dennis, (1990). *ifuly.*, **67**(7), pp.: 255-258.

Muraleedharan, P., V.K. Khoda, S. Grupe, P.N. Mukhopadhyaya, M. Schwerin and H.K. Mehta, (1999). *Archiv fur Tierzucht*, **42**(4), pp.: 347-352.

Robinson, J L., J.L. Burns, C.E.Magura, R.D. Shanks, (1993). *J.Dairy Sci.*, **76**(3), pp.: 853-858.

The advertisement is enclosed in a rectangular border. On the left, there is a photograph of a small chick standing on top of a white plastic container labeled 'CHLORAMINE-T Chlorasol'. To the right of the container is another smaller container. Below the containers, the text reads: 'starts Bio-security with Chlorasol and ends Bio-security with Chlorasol'. Underneath this, it says 'Research makes the difference'. To the right of the containers, under the heading 'Presentations:', it lists '100 g : Pre-printed PP Container' and '1kg : Pre-printed PP Container'. At the bottom left, the contact information for Intervet India Pvt. Ltd. is provided, including the address in Pune and a telephone number. At the bottom right, the 'Intervet' logo is displayed.

Blood Transfusion

Rajesh Garg

Department of Pharmacology and Toxicology, College of Veterinary and Animal Science, Bikaner-334401, RS

Introduction :

Blood is a fragile suspension of living cells in the most complex fluid medium, plasma and is regarded as fluid of infinite complexity, the very essence of life. Blood transfusion is the transfer of homologous blood from one individual (donor) to another (recipient) of same species. Blood transfusion plays a life saving role during severe blood loss conditions, arising due to accidents, major surgery, haemoprotozoan diseases, etc.

Donor - Recipient Matching :

There are currently two methods of ensuring that canine donors and recipient are compatible; normally cross matching and biological screening tests are used.

Cross Matching : It is one of the compulsory practical method carried out during blood transfusion. There are two methods for cross matching.

- A. Direct/Tridrop method: Place 3 drops of sodium citrate solution on a drop of recipient blood to the second drop and one drop of both donor and recipient blood to the third drop and mix thoroughly. Agglutination of third drop indicates incompatibility and the transfusion of such blood should not be carried.
- B. Indirect/ Cross reaction method - Collect sera and RBC from both donor and recipient and suspend the cells in normal saline.
 - (i) Minor match : Add 2 drops of recipient cells to 2 drops of donor serum in a test tube.
 - (ii) Major match : Add two drop of donor cells to two drops of recipient serum in another test tube.

After incubating the tubes at 37°C for half an hour, centrifuge and examine for haemolysis or agglutination of RBC which indicates incompatibility.

Biological Screening Test : A small amount of blood is infused intra-venously in the recipient animal and is observed for 10 minutes for any untoward reaction.

Oehlecker's biological test : This test is carried out under field condition, where cross matching is not possible. Inject a small amount of blood (5-10 ml) by intra-venously route and observe for signs of incompatibility in recipient which is characterized by dyspnoea, increased pulse, shivering, perspiration, excitation, defaecation, urination followed by weak pulse, haemoglobinuria and collapse.

Blood Infusion: The blood should be infused slowly (80-100 drops per minute) intra-venously with a sterile hypodermic needle of 20 gauge in dogs and 18 gauge in cattle and horse. In un-cooperative animals, infusion can also be carried out through intra-peritoneal route (Satish *et al.*, 1999), though the rate of absorption is slower compared to intra-venous route.

Before administration, stored blood should be warmed slowly to body temperature. The bag should be inverted gently several times to resuspend the red cells but do not be shaken violently. Active heating of the bag of blood should be avoided because temperature above 45°C induce clotting but if the blood is required quickly it may be warmed as passing it through the coiled tubing immersed in a warm water bath (38-40°C). Cold blood should not be infused because it is more viscous and therefore, takes longer time to transfuse. It provides vaso

constriction, lowers body temperature and may also produce cardiac arrhythmias. The viscosity of the blood can be reduced by mixing with normal saline solution (NSS) so there is free flow of blood through fine catheters hence, facilitate its infusion in young puppies and kittens too. Initially, the infusion should be slow and the patient to be watched carefully half an hour for any unwanted transfusion reaction.

In dogs, blood is infused into jugular or cephalic vein via intra-venous catheter but in severe hypo-tensive or pediatric patients, proximal femur is convenient site using 18-20 gauge of intra-venous needle or spinal needle placed in the trochanteric fossa. Extraction of blood from the narrow cavity into the blood stream is highly efficient and narrow transfusion is, therefore, almost effective as direct intra-venous infusion. Blood is transfusion absorbed from the narrow at the rate of one drop per minute, but may be administered at a faster rate by using an infusion pump (Ramprabhu *et al.*, 1999).

Dosage: The dose is calculated on the basis of percentage of haemoglobin present to which it is increased (atleast 75% of the normal level). Since an animal contains 40ml of blood per pound of body weight, the formula used is ml of blood required to raise the haemoglobin level

$$= \frac{40 \times \text{wt. (lb)}}{100}$$

(According to Pradhan *et al.*, 1991)

Total blood volume present x % of haemoglobin

Dose for Blood Transfusion =

$$\frac{\text{in the body of recipient desired to increase}}{100}$$

- Total blood volume is calculated at the rate of 60ml/kg
- Desired level haemoglobin is calculated by subtraction the percentage of haemoglobin present (taking 12 g/dl) from normal

haemoglobin, supposed to flow in blood stream.

If PCV is less than 20% the blood transfusion is advisable at the dose of =

$$\frac{\text{b.wt. (kg) x Desired PCV - PCV of patient}}{\text{Normal PCV}} \times K$$

- K - Constant i.e. For dog = 90 and For cat = 66

Ramin *et al.* (2000) found that the infusion of one unit of blood increases PCV approximately one unit thus, the level of PCV is the most important aspect in total amount of blood transfusion.

Transfusion Reaction: After all precautionary measures, transfusion reaction is rare. However, patient should be monitored closely. Repeated blood transfusion between same donor and recipient may produce reactions. The potential blood transfusion reactions are characterized by hiccups, dyspnoea, weak pulse, shivering, sweating, increase salivation, frequent micturition and defaecation, urticaria, erythema or pruritis, vomiting, vocalisation, pyrexia, tachypnoea, coughing, tachycardia or bradycardia, tremors or convulsions, shock cardio pulmonary arrest, anorexia and jaundice.

Transfusion of large volume of blood may cause citrate toxicity resulting in hypo-calaemia which can be treated by administering calcium borogluconate. Similarly, blood transfusion at a faster rate may cause acute heart failure. These reactions respond well to an early attempt and large doses of following drugs are given:

1. Adrenaline (1:1000) at the rate of 5-8ml intra-muscularly
2. Corticosteroids at the rate of 3-5 ml intra-venously
3. Chlorpheniramine maleate at the rate of 5-10 ml intra-muscularly

Use of Blood Products: Separating blood into its various components is widely practiced in human medicine, because it makes the most

efficient use of the blood, but in veterinary field it is not widely used mainly because of the need to access of blood bank.

1. Plasma : Plasma may be decanted from sedimented blood and stored in sterile containers. It may be stored for up to one year at very low temperature or about 3 months in household freezer compartment. It is given by slow intravenous route at the dose rate of 15-20 ml per kg body weight. It can also be administered sub-cutaneous or intramuscularly for the supply of antibodies for passive immunity against infectious diseases.
2. Packed Red cells (Plasma reduced blood): Plasma and anti-coagulant are removed from the collected blood by centrifuging gently or by allowing the cells to settle over several hours. This leaves a suspension having a haematocrit of about 70% which is called plasma reduced blood.
3. Platelets : Low speed centrifugation of fresh blood produces plasma rich in platelets and is indicated in case of severe thrombocytopenia as well as disseminated intra-vascular coagulation.
4. Serum : Slow intra-venous infusion for immunological purposes.
5. Blood plasma expanders (Plasma expanders) : It consists of artificial fluids used to increase the volume of extra-

cellular fluids.

- 6(a). Dextran 40 (a low molecular weight polysaccharide) is administered as 6% solution in normal saline at the rate of 10 ml per minute up to 20 ml per kg body weight in a day.
- 5(b). Acacia solution as 6% solution in 0.9% saline.
- 6(c). Special gelatin solution as 6% solution in 0.85% saline.
- 6(d). De-speciated bovine serum is obtained from the slaughter house. The bovine serum is collected and pasteurised resulting in removal of species characters (Precipitation of globulins agglutinins and haemolysins).

References:

1. Pradhan, R.E., S.B.Tripathy and S.K.Ray, (1991). Recent advances in the control of diseases and companion animals - Compendium, Abst., 4, p.:17.
2. Ramin,A., E.Mortaz and N.Harighi (2000). *J. Facutly Vety. Med. Tehran Univ.*, 55(3), pp.: 43-47.
3. Ramprabhu, R., A.P.Nambi, B.Nagarajan and P.Dhanapalan (1999). *Intas Polivet*, 2, pp.: 110-116.
4. Satish Kumar, M.P.Reddy and P.C. Chowdhuri (1999). *Intas Polivet*, 2, pp.: 117-120.

" Spiritual progress becomes easier if husband and wife agree in their views regarding spiritual practices."

- The Holy Mother - Saradamani

Iron Deficiency in Ruminants and its Management

Pankaj Kumar, M.C. Sharma, K.Hussain and C.Joshi

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

Introduction:

Iron requirement for domestic animals are influenced by age, growth rate, availability of a dietary iron source and the criteria of adequacy (NRC, 1978). Estimated dietary iron requirement for adult cattle is 50 ppm and for calf is 100 ppm (NRC, 1978). Three categories of iron deficiency exists in animals i.e. iron deficiency, iron-deficient erythropoiesis and iron deficiency anaemia. In domestic animal iron-deficiency anaemia is most common form (Kaneko *et al.*, 1997). Iron deficiency results in anaemia with small RBCs but generally these have normal haemoglobin content (Dutt, 1972). Clinically, iron deprivation is preceded by depletion of stored iron (Planas & deCastro, 1960). Iron deficiency is preceded by depletion is marked by reduction in serum iron, haemoglobin and myoglobin (Bassert *et al.*, 1995). Classical laboratory findings are microcytic, hypo-chromic anaemia with normal or increased reticulocyte count. Serum iron is decreased below 50 ug/dl, serum ferritin is decreased and erythrocyte protophyrin is increased (Kaneko *et al.*, 1997). In iron deficient calves, growth rate is depressed (Hosteller-Allen *et al.*, 1993). Prolonged iron deprivation is characterized clinically by loss of appetite, poor growth, lethargy, blanching of mucous membrane, polypnoea and high mortality, Under experimental study in rats, iron deficiency is marked by hypo-thyroidism with fall in haematocrit from 41% (normal) to 16% (Beard *et al.*, 1989). The haemoglobin values reduced earlier than muscle myoglobin or liver cytochrome or succinate dehydrogenase enzymes (Davis *et al.*, 1962). Transient mild anaemia in young rapidly growing suckling calves have been reported in the naturally reared

calves (Hibbs *et al.*, 1963, Ullrey *et al.*, 1965 and Green *et al.*, 1993). Twin calves are more prone to develop anaemia than singlet (Kume & Tanabe, 1994).

Decreased resistance to infection in iron deprivation has been reported by Strauss (1978) and Weinberg (1984). During infection iron is distributed by the host to counter act pathogen (Weinberg, 1984 and Confer *et al.*, 1995). Parasitic infestations involving severe blood loss can also produce secondary iron deficiency anaemia e.g., *Bunostomum* sp. and *Trichostrongylus* sp. (Kolb, 1963). Iron deficiency is associated with impaired cellular mediated immunity and ability of polymorphonuclear (PMN) granulocytes to kill ingested bacteria. Abnormality resulting from defective DNA synthesis and decreased activity of ribonucleotide reductase, which contain iron (Kaneko *et al.*, 1997).

Lower levels of iron in infertile heifer have been reported by some workers (Sharma *et al.*, 1988). However, Hidiroglou (1979) found no differences in circulatory iron levels in fertile/infertile animals. But its deficiency results in normochromic anaemia, which in turn affects the response of ovarian receptors to estrogen hormone (Mgongo *et al.*, 1953).

Diagnosis:

Diagnosis of iron deficiency mostly depends upon haemoglobin (Hb) determinations to administration of iron. Iron deficiency anaemia is manifested by hypo-chromic and microcytic anaemia. Hematology has been used to test biological availability of iron in diets or to determine the iron requirements of various species (Kaneko *et al.*, 1997). Serum iron can be

measured to assess the transport compartment. Serum iron may be elevated in haemolytic anaemia, refractory anaemia, iron overload and liver disease and declined in severe iron deficiency, acute phase inflammatory reactions, renal diseases, hypo-proteinaemia, hypothyroidism and chronic inflammation (Kaneko, 1980). Reduction in serum iron and increase in total iron binding capacity (TIBC) is the clinical sign of developing anaemia. Serum iron can be expressed as a percentage of TIBC and reported as the percent saturation (Henry *et al.*, 1974). Cattle serum iron is 17.4±5.2. umol/lit, TIBC 40.8±10.0 umol with WBC 57%. The values of 25% or more below the normal range clearly indicate anaemia (Green *et al.*, 1993). Serum ferritin is of limited diagnostic value in anaemia. Anaemia with higher copper values coupled with coccidial oocyst in faeces is suggestive of infection in the lamb anaemia (Green *et al.*, 1993). Variation in Hb values in cattle may not indicate iron deficiency (Jain, 1986). During severe iron deficiency, haemoglobin synthesis in immature erythrocytes is slowed and nucleated erythrocytes continue to divide. Erythrocytes released in circulation are small, contain occasional nuclei (Kaneko *et al.*, 1997).

Therapeutic Management:

Iron deficiency anaemia can be prevented by iron supplementation (Carleson *et al.*, 1961 and Ullrey *et al.*, 1965). Intra-muscular injection of 200 mg iron (Green *et al.*, 1993) and daily oral supplementation with 20-40 mg iron as ferrous sulfate is also effective in newborn calves (Kume & Tanabe, 1994).

The most inexpensive method of supplying iron is to use ferrous orally at a dose of 2-4 g daily for 2 week to adult cattle with iron-deficiency anaemia. The NRC recommends that milk replacers fed to herd replacements or dairy beef should contain 100 mg/kg of dry matter, with an upper limit of 1000 mg/kg (Dry Matter). Oral haematinics containing ferrous sulfate (10 g), copper sulfate (200 ng) and cobalt sulfate (40

mg) daily and injection intra-muscular with iron sorbital containing folic acid and vitamin B₁₂ (10 ml) twice a week improved the haemogram value and iron concentration of the anaemic and healthy dairy cattle, comparatively supplementing the oral haematinic together with *Sesbania grandiflora* leaf powder (200 g) daily, for one month gave significantly higher values of mean serum total protein and iron (Samuel & Srinivasan, 2001).

Sajadianfard *et al.* (1999) found no difference among various routes of administration of retinol with ferrous sulfate, including several alternates of oral and intra-muscular injection for 28 days in iron deficient anaemia in rats. The ferric oxide used, as a colouring agent in mineral mixture is among the poorest of inorganic sources, capable of impairing copper absorption, thus should not be used (Suttle & Peter, 1985). Finding of the study on the effect of different formulae by oral and parenteral administration of iron in piglets indicate that oral treatment with iron ions can be as effective as parenteral treatment provided that intestinal functions are normal.

References:

- Bassett, J.M., R.A.Burret, C. Hanson, R. Parson and S.E. Wolfensohn (1995). *Vet. Rec.*, **136**, pp.: 137-140.
- Beard, J., B.Tobin and W. Green (1989). *J. of Nutr.*, **119**, pp.:772-778.
- Carleson, R.H., M.J.Swenson, G.M.Ward and N.H. Booth, (1961). *J. Amer. Vet. Med. Assoc.*, **139**, pp.:457-461.
- Confer, A.W., R.D.McGrawn, J.A. Dierham, R.J. Morton and R.J. Panciera (1995). *Vet. Immunol. Immunopathol.*, **47**, pp.:101-110.
- Davis, P.N., L.C.Norris and F.H.Kratzer (1962). *J.Nutr.*, **78**, pp.:445-453.
- Dutt, B.(1972). *Deficiency diseases of livestock*. 1st Edn., ICAR Tech. Bull.(Anim.Husb.), No.12, New Delhi.

- be Green, L.E., E.Berriatua and K.L.Morgan (1993). *Res. Vet. Sci.*, **54**, pp.:306-311.
- Henry, R.J., D.C. Cannon and J.W.Winkelman (1974). In "Clinical Chemistry : *Principles and Techniques*", pp.: 687-695, ifale, New York.
- Hibbs, J.R., H.R.Conrad, J.H.Vandersall and C. Gale (1963). *J.Dairy Sci.*, **46**, pp.: 1118-1124.
- Hidiroglou, M.(1979). *J.Dairy Sci.*, **62**, pp.: 1195-1206.
- Hostettler-Allen, R., L.Tappy and J.W.Blum (1993). *J.Nutr.*, **123**, pp.: 1656-1667.
- Jain, N.C (1986). *Scham's Veterinary Haematology*. **4th Edn.**, Lea & Febiger, Philadelphia.
- Kaneko, J.J.(1980). In: J.J. Kaneko (ed.). "Clinical Biochemistry of Domestic Animals", pp.: 649-669, *Academic Press*, New York, the USA.
- Kaneko, J.J., J.W.Harvey and M.Z.Bruss (1997) in *Bio Chemistry of Domestic animals*, **5th Edn.**,
- Kolb, E. (1963). *Adv. Vet. Sci. Comp. Med.*, **8**, pp.:49-114.
- Kume, S.E. and S.Tanabe (1994). *J. Dairy Sci.*, **77**, pp.: 3118-3123.
- Mgongo, F.O.K., S.P. Gombe and J.S.Ogaa, (1953). *Ind. J.Anim. Sci.*, **5**, p.:16.
- NRC (1978). "*Nutrient Requirement of Dairy Cattle*". *National Academy of Sciences*, Washington, D.C.
- Planas, J.and S. de Castro (1960). *Nature*, UK, **187**, pp.: 1126-1127.
- Sajadianfard, J., H.M.Boroujeni, F. Habibzadeh (1999). *J. Nutr. Sci. Vitaminology*, **45**, pp.:31-37.
- Samuel, S.J. and S.R. Srinivasan (2001). *Cheiron*, **30**, pp.: 112-113.
- Sharma, V.K., V.P. Vadodaria, F.S. Kavani and G.M. Siddiquee. (1988). *Ind. Vet. J.*, **65**, pp.:332-335.
- Strauss, R.G. (1978). *Amer. J. Clin. Nutr.*, **31**, pp.:660-666.
- Suttle, N.F. and D.W. Peter. (1985). Rumen sulphide metabolism as a majao determinant of copper availability in the diets of sheep. In: Mill, C.F., Bremner, I. and Chesters, J.K. (eds.). *Proc. Of the Fifth International Symposium on Trace Elements in Man and Animals*. Commonwealth Agricultural Bureaux, Farnham Royal, U.K., pp: 367-307.
- Thomas, J.W.(1970). *J.Dairy Sci.*, **53**, p.:1107.
- Ullrey, D.E., E.R.Miller, C.H.Long and B.H.Vincent (1965). *J.Anim. Sci.*, **24**, pp.: 141-145.
- Weinberg, E.D. (1984). *Physiol. Rev.*, **64**, pp.: 65-102.

" Those who give themselves up to the Lord do more for the world than all the so-called workers."

- Swami Vivekananda

" In the beginning, to be sure, this world was water, nothing but a sea of water. The waters desired, "How can we be propagated?" They kindled their own ardour, performing this very act with fervour. While summoning their creative energy they warmed up and a golden egg was produced."

- Satapatha Brahmana

Contagious Caprine Pleuro-pneumonia: A Problem of Concern in India

Rakesh Ranjan and Puneet Kumar

Division of Medicine, Indian Veterinary Research Institute (IVRI), Izatnagar - 243122, UP

Abstract:

Pneumonia is the most important single cause of death in goats. Contagious caprine pleuropneumonia (CCPP) is acute in goats, caused by *Mycoplasma* spp. This is characterized by inflammation of upper respiratory tract and lung parenchyma. The disease has been reported from many parts of our country, to cause high mortality in kids below 6 month of age. The present review aims to discuss its etiology, pathogenesis, clinical findings, diagnosis, treatment, and prevention and control measures in brief of CCPP in goats.

Introduction:

The contagious caprine pleuro-pneumonia (CCPP) is a disease causing heavy mortality in kids below six months of age (Sreeramulu, 1988). The disease resembles clinically and at necropsy to contagious bovine pleuropneumonia (CBPP), but is not transmissible to cattle or sheep (Litamoi *et al.*, 1990).

The CCPP has been reported to occur from atleast 30 countries in Asia and Africa (Jones, 1989). In our country, the disease is endemic in Andhra Pradesh, West Bengal, Bihar, Madhya Pradesh, Himachal Pradesh, Rajasthan, Punjab and Uttar Pradesh (Gupta & Verma, 1984 and Singh *et al.*, 1999).

Etiology:

The classical CCPP is caused by *Mycoplasma capricolum* sub-species *capripneumoniae* (previously known as *Mycoplasma* Strain (F-38), while *Mycoplasma mycoides* of sub-species *capri* and *mycoides* causes CCPP like disease (Jones, 1989). In India, important isolates from

clinical cases include *Mycoplasma mycoides* of sub-species *capri* and *mycoides* followed by *M.agalactiae*, *M.arginini*, *M.capricolum* and *M.ovipneumoniae* (Gupta *et al.*, 1984). Although, there is no report of any isolation of *M.capricolum* sub-species. *capri pneumoniae* strain (F-38) from goats, Kumar & Garg (1991) have isolated this organism from a case of bovine mastitis.

Pathogenesis:

The causative organism is readily transmitted by inhalation (through droplet infection). Infected or carrier animals act as a source of infection to susceptible hosts. As the organism can not survive for long outside the host body, close contact between infected and susceptible host is essential for transmission. After an incubation period of 6 to 10 days, organism causes inflammation of upper respiratory tract, bronchiolar wall and alveoli, resulting into development of catarrhal rhinitis, fibrinous pleuro-pneumonia and red & grey hepatization of lung. Blood coagulability increases and thrombosis in pulmonary vessels result into ischemia and necrosis of lung. In cases of CBPP, characteristic necrotic areas are well demarcated and circumscribed by fibrinous tissues (called as "sequestrum") giving the lung, marble like appearance. But such sequestra are not formed in CCPP, probably because of acute nature of the disease. Organism also secretes toxins. Death occurs due to anoxia and/or toxemia.

Histo-pathologically, the classical CCPP is characterized by interstitial intra-lobular edema of lung, while thickening of the inter-lobular septa is present in pneumonia caused by *M.m.mycoides* and *M.m. capri* (Nicholas, 2002)

Clinical Findings:

The morbidity is very high and may reach upto 100%. The case fatality rate also varies from 60 to 100%. The clinical findings include, fever (104.5 - 106°F), anorexia, dullness, dyspnea and dry painful cough, which becomes more evident when animal is forced to walk. Nasal discharges, which are watery in early stages, later become thick and mucopurulent in advanced case. In terminal stages, laboured breathing and tongue protrusion with froathy salivation can be seen and animal may die within 2 or 3 days. In septicemic form, the animal may die without showing any clinical symptom, with little or no pathological changes in lungs, evident in post-mortem examination (PME).

Diagnosis:

The tentative diagnosis can be done on the basis of history, epidemiological data, clinical and post-mortem examination findings. The PME reveals rhinitis and catarrhal inflammation of upper respiratory tract. There may be unilateral or bilateral fibrinous pleuro pneumonia. Bronchial and mediastinal lymph nodes are congested and oedematous.

Several serological tests have been developed for confirmatory diagnosis. They include Complement fixation, ELISA, Latex agglutination and Immuno-peroxidase test. The indirect immuno-binding assay to detect mycoplasmal antigens directly in pleural fluids is a rapid method of diagnosis, which can be used in field cases (Guerin *et al.*, 1993). A commercial kit for diagnosis of CCPP under field conditions, using whole blood or serum as test sample is available Kenya (Rurangirwa *et al.*, 1987). The OIE has also developed field kits for diagnosis of CCPP (Lefer *et al.*, 1993).

Treatment:

The CCPP is generally refractory to commonly used antibiotics like penicillin and streptomycin. Only a few drugs are effective and if only, they are administered in early stages of infection.

Rolitetracycline at the dose rate of 10 mg/kg body weight., parentally daily for 5 days have been found very effective (Konsam, 1989). Tylosin (10 mg/kg body weight) through intra muscular route for 5 to 7 days along with Sulfamethoxazole –trimethoprim combination orally for 5 days have also been tried successfully (Gupta *et al.*, 1980). Other drugs, which give favorable response, include oxytetracycline, kanamycin, erythromycin and chloramphenicol.

Prevention and Control:

Like other *Mycoplasma* diseases, eradication of CCPP can be best achieved by slaughtering of affected and contact animals (Nicholas, 2002). Isolation and treatment of affected animals is essential for control. Killed vaccines are useful, but immunity is generally short lived. Vaccination using single dose (0.15 mg) of lyophilized saponin killed *Mycoplasma* strain F-38 has given good results (Rurangirwa & Mc. Guire, 1991). Vaccines consisting of sonicated antigens of F-38 strains in incomplete Freund's adjuvant can also be used. Maternal antibodies may interfere, if vaccination is done before 8 weeks of age. Therefore, first vaccination should be done at 10 weeks of age (King., 1998). Animal should be revaccinated after an interval of 6 months.

References:

- Guerin, C., F.Thiaucourt, V. Mady, A. Breard and P.C. Lefevre (1993). *Small Rumi. Res.*, **12**, pp.:193-200.
- Gupta, M. M., B.B. Verma and H.V.S. Chauhan (1980). *Ind. Vet. J.*, **61**, pp.: 733-737.
- Gupta, M.M. and B.B. Verma (1984). *Ind. J. Anim. Sci.*, **54**, pp.:58-62.
- Jones, G.E. (1989). *Technical series, O.I.E.*, **9**, p.:63.
- King, G.J. (1998). *Vet. Rec.*, **123**, pp.:572-573.
- Konsam, G.S. (1989). *Ind. Vet. J.*, **66**, pp.:770-773.

Kumar, A. and D.N. Garg, (1991). *Vet. Rec.*, **128**, p.:429.

Lefer, P.C., J. Blancou, L. Dedieu, A. Diallo, G. Libeau and F. Thiaucourt, (1993). *Revue-Scientifique-et-Technique, O.I.E.*, **12**, pp.:45-460.

Litamoi, J.K., S.W. Wanyangu and P.K. Simam, (1990). *Trop. Health. Prod.*, **22**, pp.: 260-262.

Nicholas, R.A.J. (2002). *Small Ruminant Res.*, **45**, pp.:145-149.

Rurangirwa, F.R. and T.C. Mc Guire, (1991).

Res. Vet. Sci., **50**, pp.:240-241.

Rurangirwa, F.R., Te. Mc. Guire, A.J. Musoke and A. Kibor, (1987). *Infect. Immun.*, **55**, pp.: 3219-3220.

Singh, R.K., N.C. Srivastava, V.P. Singh and V.P. Singh, (1999). *Ind. J. Anim. Sci.*, **69**, pp.: 999-1001.

Sreeramula, P. (1988). *Livestock Adviser*, **13**, pp.: 31-34.

The early bird catches less ND

Nobilis[®] ND Clone 30

Maximum protection, minimum stress

Intervet India Pvt. Ltd., 'Intervet House', 33, Pune - Nagar Road, (Behind Eden Gardens)
Pune - 411 014 Tel. No.: +91-20-4050400/01 (Board Lines)

intervet

A Short Method of Haematoxylin and Eosin (H&E) Staining using Acetone

Neelu Gupta and Madhu Swamy

Department of Pathology, College of Veterinary Science and Animal Husbandry, Anjora, Drug, CG

Abstract:

Haematoxylin & Eosin (H&E) staining with conventional process is laborious and time consuming. To overcome this, an alternative procedure is attempted for fixation and staining, using acetone. The details of this economical method is described in this article.

Introduction:

Histo-pathological techniques are labourious difficult and generally takes a lot of time, particularly when proper automation devices are not available. However, their use in disease diagnosis is unequivocal (Chauhan, 1995). In routine process of haematoxylin and eosin (H&E) staining, various conventionally descending and ascending grades of alcohol are used for rehydration and dehydration of tissue, respectively (Lille & fullmer, 1976). However, some times availability of proper grade of alcohol, cost efficiency and above all lengthy procedure are the major constrains for staining. To overcome these problems, an alternative method of fixation and staining was attempted. The present process described here seems to be easy, quick and more economical process compared to conventional method of staining.

Materials and Methods:

Materials required to conduct the experiment are listed here in detail: Formalin, Acetone, Haematoxyline, Eosin, Hydrochloric acid, Ammonia solution and DPX.

For a quick fixation of the tissues, hot formalin is used. This is obtained by keeping the jar containing tissues immersed in formalin

in a paraffin over a period of one and half to two hours (Chauhan, 1996). The total fixation time may vary with the thickness of the issue. The routinely used procedures (Gridley, 1960 and Lille & Fullmer, 1976) used are followed for dehydration, clearing and embedding of tissue. After blocking and section cutting the tissue sections are ready for staining.

Staining set is prepared by keeping the fluids in coupling jars in the series given below:

Xylene pure - I, Xylene pure -II, Acetone pure - I, Acetone pure - II, Tap water, Haematoxylin stain, Tap water, Eosin stain, Acetone pure-III, Acetone pure-IV, Xylene pure III, Xylene pure-IV. The Acid acetone is prepared by putting 7 – 8 drops of concentrated hydrochloric acid in 50 ml of acetone. Ammonia water is prepared by putting four drops of concentrated solution in 50ml of water. The details of procedure are described below-

- Tissue section is fixed by melting the wax on gentle heating.
- Dip the section in Xylene - I and Xylene - II for 2 minutes each for clearing.
- After clearing, the section is kept in pure Acetone - I and - II for one minute each.
- On removal from Acetone - I and - II, the sections are given 3-4 dips in Tap water and then transferred to jar containing Haematoxylin for 5-7 minutes.
- After washing it again in Tap water (20 seconds), it is dipped in Acid acetone for 30 minutes. Wash with Tap water.
- Dip it in Ammonia water for 30 seconds.

Wash with tap water.

- The section is transferred to jar containing Eosin for four minutes.
- Pass the section through two changes of Acetone - III & - IV for one minute each.
- Press the slide in between two filter papers to soak the remaining water.
- The slides are then transferred to jars containing Xylene - III and - IV for two minutes each.
- Finally, the slide is mounted with DPX.

Results and Discussion:

Tissues are routinely fixed in 10 % formalin for 24-48 hours or longer (Gridley, 1960) .

Use of hot formalin reduced the time required for fixation to two hours . Moreover, results revealed that the tissues were adequately fixed which saves considerable amount of time.

The stained section revealed that there is no difference in staining visibility and clarity when compared with the routinely used procedure. Acetone is a cheaper and more easily available as a substitute of alcohol. Furthermore, no

gradation of acetone is required as in the case of alcohol . This again saves much time and labour .To conclude, the described staining procedure is quick, economical and results are at par with the routinely used staining procedure.

Acknowledgement:

The authors are thankful to the Principal, College of Veterinary Science & A.H., Anjora, Durg (Chhatisgarh), India, for providing necessary facilities to carry out this work.

References :

Chauhan, R.S. (1995). Veterinary Clinical and Laboratory Diagnosis, **1st. Edn.**, Jaypee Brothers Medical Publishers (p) Ltd., pp.: 251-264.

Gridley, Mary Francis (1960): Manual of Histology and Special Staining Techniques, **2nd. Edn.**, McGraw Hill Book Company Inc., New York , Toronto , London.

Lille, R.D. and H.M.Fullmer (1976): Histopathological Technique and Practical Histochemistry, **4th Edn.**, McGraw Hill Book Company inc., New york, Toronto, London

" One should be extremely careful about making His service perfectly flawless. But the truth is, God knows our foolishness, and therefore, He forgives us."

- The Holy Mother - Saradamani

*" The earth is a garden, The Lord its gardener,
Cherishing all, none neglected."*

- Adi Granth

" This life is short, the vanities of the world are transient, but they alone live who live for others, the rest are more dead than alive."

- Swami Vivekananda

Efficacy of Chlorasol™ in Controlling Bacterial Diseases in Aquaculture Ponds

A. Pardhasaradhi

178-1, 205 & 206, Sai Sudha Apartment, Eluru Road, Gudivada – 521 301, District-Krishna, AP

Abstract:

Efficacy trials on **Chlorasol™** (from Intervet) were conducted in the aquaculture ponds of coastal districts of Andhra Pradesh in controlling bacterial diseases. Application of **Chlorasol™** was found effective (at the dose rate of 75 g/acre-foot of shrimp pond and 25 g/acre-foot of fish pond) in controlling several diseases in aquaculture ponds.

Introduction:

Aquaculture ponds in the Eastern districts of Andhra Pradesh, are generally found to be affected with many protozoal, bacterial, fungal and viral diseases. Of these, Vibro (bacterial) and White spot (viral) diseases are the most damaging factors as far as farm out put is concerned.

Chlorasol™ is an effective drug contains Chloramine-T (n-chloro-para-toluene sulphonamide sodium salt) for controlling fish mortality. Chloramine-T is widely used as chemo-therapeutic agent for the treatment of bacterial gill disease in fish water aquaculture industry (Menertz *et al.*, 1999 & 2001; Burka *et al.*, 1997; Sanchez *et al.*, 1998 and Bullock *et al.*, 1991). Cardio-respiratory effects of **Chlorasol™** exposure in rainbow trout was discussed in details by Powell & Perry, 1999. Chloramine-T as a commercial formulation was also tested directly under field conditions, confirming its high effectiveness (Gutierrez *et al.*, 1995).

Several studies demonstrated that Chloramine-T exposure induces acute respiratory and acid-base disturbances in rainbow trout blood (Powell & Perry, 1998 and Powell *et al.*, 1998) that are believed to be a consequence of increased mucus secretion owing to the irritant effects of hypochlorite on the gill. Cusack *et al.*, (2001) first reported efficacy of Chloramine-T in combination with oxytetracycline in

controlling the mortality rate and pathology associated with an aqua virus in captive Atlantic halibut, *Hippoglossus hippoglossus* and concurrent bacterial infection. Chloramine-T (n-chloro-para-toluene sulfonamide sodium salt) was investigated in the search for an effective and safe flukicide for goldfish and koi (Spangenberg, 2002).

In India, it is generally found that *Vibrio* spp. infect the shrimp, prawn and fish in various farms causing total mortality, leading to heavy loss and damage to the farmers. Some protozoan parasites, especially *Zoothamnium* sp. and *Episyrilis* sp. are also found to cause damage to the shrimp/prawn culture.

Halogen compounds like chlorine, bromine and iodine have extensively been used in various farms but found difficult in total control of the diseases. The present study is conducted to evaluate the efficacy of **Chlorasol™** (from Intervet) in controlling bacterial diseases in aquaculture ponds in Andhra Pradesh.

Field Area:

One tiger shrimp farm, measuring 6.5 acres in Ogirala (18 km from Gudivada) in Krishna district and three fish ponds, each measuring 20 acres and 30 acres village Ponangi (5 km from Eluru) and 20 acres in Veerammakunta (15 km from Eluru) in West Godavari district, were selected for this trial. In Ponangi fish farm, fishes weighing 1 kg (*Rohu* sp.) and 2.25 kg (*Catla* sp.) were affected by *Vibrio* spp. causing heavy lesions with red blotches, all over the body, whereas in Veerammakunta farm, only *Catla* sp. were with the same disease.

Results and Discussion:

Both the areas were having heavy mortalities in their surrounding fish tanks. **Chlorasol™** was applied at the dose rate of 25g/acre-foot (average 5.5 ft depth) during early hours (before 8 AM)

Table: Showing details of trial fields and Chlorasol™ dosage used

Sr. No	Name of the Farmer	Type of Culture	Name of the Village	District	Area (Acres)	Depth of the Pond	Dosage of Chlorasol™	Total Quantity used
1	Kodali Subba Rao	Fish (Catla sp. & Rohu sp.)	Ponangi	West Godavari	20	5'.6"	25g/acre-foot	4.0 kg
2	Kodali Subba Rao		Ponangi	West Godavari	30	5'.3"	25g/acre-foot	6.0 kg
3	J. Venugopal		Veeram-akunta	West Godavari	20	6'.0"	25g/acre-foot	4.0 kg
4	S.V.Rama Rao	Tiger Prawn	Ogirala	Krishna	6.5	3'.8"	75g/acre-foot	3.9 kg

of the day. The product was mixed thoroughly with sand and broadcasted uniformly throughout the ponds. The mortalities stopped after the application of **Chlorasol™** though the disease persisted in the surrounding fish tanks. After examination of fish and water samples, it was found that the bacterial loads were reduced drastically and there were no recurrence, till the harvest in all fish farms.

In Ogirala shrimp farm, **Chlorasol™** was applied at the rate of 75g/acre - foot (4 feet depth) before stocking the post-larval and the same treatment was repeated after every 30 days till the harvest. Total harvested yield was 3.36 ton of 30 grams of shrimp weight.

Both trials revealed that **Chlorasol™** (Chloramine-T) is efficacious in controlling bacterial diseases in aquaculture ponds (Shrimp & Fish).

Acknowledgement:

Chlorasol™ samples used for the trial was received from M/s Intervet India Pvt Ltd., Pune is gratefully acknowledged. The author is also thankful to Dr. Anup K Datta (Intervet) for his technical guidance and manuscript compliation.

References:

Bullock. G.L., R.L. Hermann, and C.waggy (1991). *J. Aquat. Anim. Health*, **3**, pp.: 48 – 50.
 Burka, J.F, K.L. Hammall, T.E. Hoesberg, (G.R. Johnson, D.J. Reainnine and D.J. Speare (1997), *J.Vety, Pharmacol. Therapeutics*, **20**(5), pp.: 337 – 349.

Cusack, R.R., D.B. Groman, A.M. Mackinnon, F.S. Kibenge, Wadowska and N. Brown (2001). *Dis. Aquat Organisms*, **44**(1), pp.: 7-16.
 Gutierrez, B. Cesar and O .R Gonzalez (1995). *Amer. J. Vet. Res.*, **56** (8), pp.: 1025-1029.
 Powell, M.D. and S.F. Perry (1999). *Expt. Biol. Online*, **4** (5), pp.: 48-59.
 Powell, M.D. and S.F. Perry (1998). *Aquat Toxicol.*, **43** (1), pp.: 13-24.
 Powell, M.D., F. Haman, G.M. Wright and S.F. Perry (1998). *Aquaculture*, **165** (1-2), pp.: 27-39.
 Gutierrez, C.B., J.I. Rodriguez Barbosa, J. Sudrez, O.R. Ganzalez, R.I. Tascon and E.F. Rodri gue Ferri (1995). *Amer. J. Vet. Res.*, **56** (8), pp.: 1025-1029.
 Meinertz, J.R., L.J. Schmidt, G.R. Sterly and W.H.Gingerich (1999). *J. AOAC International*, **82** (5), pp.: 1064-1070.
 Meinertz, J.R., G.R. Sterly, W.H. Gingerich and S.L. Gresill (2001). *J. AOAC International*, **84** (5), pp.: 1332-1336
 Sanchez, J.G., D.J. Speare, D.E. Sims and G.J. Johnson (1998). *Jcomp.pathol.*, **118**(1), pp.: 81-87.
 Burka, J.F, K.L. Hammell, T.E. Horsberg, G.R. Johnson, D.J. Rainnie and D.J. Speare (1997). *J. Vety Pharma.*, **20** (5), pp.: 333-349.
 Spangenberg, J.V.2002). Investigation of the safety and Efficacy of Chloramine-T in the Treatment of External Fluke Infestations, www.koiret.com/chloramint.htm

Outbreak of Foot and Mouth Disease due to Virus Type 'A' and Loss of Milk Production

D.K. Sarma, K. Kalita and Sutopa Das

All Indian Coordinated Research Project on FMD, Regional Research Centre, AAU, Khanapara, Guwahati-781022, Assam

Abstract:

An outbreak of Foot and Mouth Disease (FMD) affecting cattle of different categories in five villages of a locality of Kamrup and Ribhoi districts, Assam and Meghalaya respectively, during October and November '02 was studied. FMD virus sero-type 'A' was detected in the clinical samples of the affected animals of the villages. Random serum samples of unaffected cattle having the history of FMD vaccination revealed lower antibody titre against the virus sero-type. The reduction of milk due to the outbreak was recorded and estimated a substantial loss to the farmers.

Introduction:

The foot and mouth disease (FMD) is endemic in Assam and occurs almost throughout the year. The disease causes significant economic loss. The loss due to reduction of milk yield after the occurrence of the disease in milking herds is well realized by the milk producers and is one of the main reasons to consider the disease as the biggest threat for the dairy animals. A study was undertaken on a FMD outbreak in stall fed cross bred cattle herds in five villages of a particular locality of Kamrup and Ribhoi districts of Assam and Meghalaya respectively, during October and November

Table: FMD outbreak due to virus type 'A' and loss of milk production

Location of the villages	Date of first onset of the disease	No. of cattle affected/ at risk	No. of animal died	Milk production before the onset of the disease per day (lit)	Milk production after the disease per day (lit)	Loss of milk due to the outbreak per day (lit).
Athmile, Dist.-Kamrup, Assam	24.10.02	886/1106 (80.10%)	25	3165	1765	1369
Ganeshmandir Basti, Dist.-Kamrup, Assm	26.10.02	192/323	2	466	338	128
Egharamile, Dist.-Ribhoi, Meghalaya	29.10.02	2518/2995 (84.07%)	15	7340	3237	4103
Jorabat, Dist.-Kamrup, Assam	1.11.02	615/962 (63.93%)	3	2010	795	1215
Ghanashyam Basti, Dist.-Kamrup, Assam	5.11.02	413/466 (88.63%)	5	1114	476	638
Total		4624/5852	50	14095	6642	7453

2002. The study includes the daily record on the number of animal affected, milk yield, identification of virus type in clinical samples and FMD virus types specific antibodies in serum samples collected at random from cattle having the history of FMD vaccination and not showing the clinical symptoms of the disease.

Materials and Methods:

The clinical samples in the form of tongue and feet epithelia from the affected cattle of each of the villages were collected in 50% phosphate buffer glycerol (pH 7.4) for typing of FMD virus sero-type. Serum sample from the cattle which have the history of FMD vaccination and not showed the clinical symptoms were collected at random on the day of occurrence of the disease in the villages.

A double sandwich ELISA was performed using the method of Crowther & Abu Elzein (1974) to detect FMD virus sero-type. A liquid phase blocking ELISA (LPBE) as per method of Hamblin *et al.* (1986) and modified by the central FMD virus typing laboratory, IVRI, Mukteswar was followed to detect the FMD virus specific antibodies. Each of the serum samples was tested in three dilutions viz. Log_{10} 1.5 to Log_{10} 2.1 against the virus sero types O, A, C and Asia-1.

Daily record on the number of animals affected and death of the affected cows in each of the villages for a period of 7 days, and the milk yield loss before the onset of the disease and after the diseases were taken. The per day loss in terms of rupees due to the reduction of milk yield was calculated by multiplying the total litres of milk loss with the market price of milk per litre. The loss due to death of the affected animals during the period of the disease was also calculated.

Results and Discussion:

The occurrence of FMD in the village Athmile was first noticed on 24th October '02 and within 10 days, the disease spread to the adjacent villages of the locality which are contiguous and others are separated by small hillocks. All

the animals of the villages are crossbred and reared under stall fed condition. The locality is one of the high milk producing areas of the Kamrup district, Assam. The number of animals affected and risk in each of the villages are shown in the Table. The morbidity due to the disease in the villages ranged from 59.44 to 88.63 per cent. Mortality of affected animals was noticed in all the villages. High morbidity and mortality in animals of some of the villages are possible due to entry of the virus into the animals, which have low immunity. Vaccination against FMD is normally carried out in the locality but the proper schedule for vaccination was not followed and some of the cattle rearers of the locality do not allow to vaccinate their animals as reported by the local veterinarian.

Twenty clinical samples, collected from the affected animals of the villages, were tested by the ELISA and all the samples were found to be positive for FMD virus 'A'. The occurrence of FMD in some of the villages of the locality had earlier recorded and the virus sero-type involved in those outbreaks was reported as sero-type 'O'. The virus type-A was also not recorded in FMD outbreak in Assam during 2001 (Anon, 2002). The source of the virus sero-type in the present outbreak was suspected to be the migratory animals brought to the cattle market of the locality.

Serum sample collected at random from the cattle of the villages which have the history of FMD vaccination were tested by the LPBE. None of the serum sample showed antibody titre Log_{10} ^{2.1} against the virus sero-type 'A' and 'C', but 18(45%) and 25(62.5%) serum samples showed antibody titre of Log_{10} ^{2.1} against the FMD virus sero types 'O' and Asia-1, respectively. The serum samples showed antibody titre Log_{10} ^{2.1} or above in LPBE against FMD virus sero-type was reported to be 100 per cent protective (Hamblin *et al.*, 1986). The low level of antibody and spread of the disease sero-type 'A' even in the vaccinated animals also suggested for the rapid spread of the

disease and high morbidity in affected animals. The total milk yield before the onset of the disease and after the disease in each of the village was recorded. The per day milk yield loss in the villages ranged from 27.47 per cent to 60.45 per cent and the total loss of milk per day due to the outbreak was recorded 7453 litres(52.88%). The reduction of milk yield was observed on an average for 7 days. Therefore, the milk yield loss and the loss in terms of rupees are about seven times more of the per day loss. Besides the milk yield loss, there was mortality of affected animals and loss due to death of the animals estimated was substantial.

Economic loss due to FMD is enormous and in India, the direct loss due to the disease was reported to be about Rs.4300 crores

(Anon,1991). The loss due the milk yield and mortality of affected animal during the outbreak was also considered to be high because of the economic condition of the cattle rearers. The better health coverage, good management and timely reporting of the disease have impact on reducing the economic loss.

References:

- Anon (1991). Report, Institute of Rural Management, Anand, India.
- Anon (2002). Annual Report AICRP on FMD, Guwahati Centre, A.A.U., Khanapara, Assam
- Crowther, J.R. and EME Abu Elzein (1979). *J.Hyg. Camb.*, pp.: 513-519.
- Hamblin, C., I.T.R. Barnett and J.R. Crowther (1986). *J. Immunol, Methods*, pp.: 115-121.

" Life is the unfoldment and development of a being under circumstances tending to press it down."

- Swami Vivekananda

" Follow the wisdom provided by nature. Everything in moderation - sunlight, water, nutrients. Too much of a good thing will topple your structure. You can't harvest what you don't sow. So plant your desires, gently nurture them, and they will be rewarded with abundance."

- Vivian E Glyck

" I believe in God, only I spell it N-a-t-u-r-e."

- Frank L Wright

" Gardening is an active participation in the deepest mysteries of the universe."

- Thomas Berry

Effect of Levamisol on Endo-parasitic Infestation of Fowls in Kashmir Valley

N.A.Ganaie, A.A.Khan, M.S.Mir and G.A.Bhat

Faculty of Veterinary Sciences and Animal Husbandry, SK University of Agricultural Sciences and Technology, P.O. Box 135, GPO, Srinagar 190001, J&K

Abstract :

Levamisol has been reported to be a broad-spectrum endo-parasiticidal drug having potent action against all types of round worms and lung worms of livestock and poultry (Robertson, 1988). The present study was carried out to assess the prevalence of endo-parasites in indigenous fowls of Kashmir valley and efficacy of levamisol against such natural parasitic infestations.

Introduction:

The free-range poultry continues to be infested with large variety of internal parasites inflicting heavy losses in terms of mortality, depressed growth and decreased production. The prevalence of parasites in a particular area is determined by a number of climatic and ecological factors and therefore, the study on the prevalence of parasitic infestation in particular area is of immense value. The great deal of work has been done in Assam (Chaudhury *et al.*, 1995) but in Kashmir valley, no systematic study has so far been attempted, barring a solitary report on prevalence of helminth parasites in indigenous fowls of Kashmir Valley (Pandit *et al.*, 1991) and occasional report an parasitic species from different poultry species, Dhar & Ahmed (1992), Mir *et al.* (1996), Dhar & Kharov (1991) and Chisti & Tanveer (1993).

Material and Methods:

About 100 adult birds of both sexes were collected from different parts of the valley and housed at the experimental poultry farm in individual cages, The fecal samples were collected twice daily from the fecal trays and collection from all the birds was mixed together to prepare a homogenous mixture. About 20 g of sample was drawn and stored in self-sealing

polythene packs. The collection continued for six days and in this manner 12 samples were collected for analysis.

On the 6th day, a single dose of levamisol power (10%w/w) was administered to all the birds at the dose rate of 200 mg/kg per body weight through the drinking water. The water was withdrawn 12 hours prior to administration of drug to ensure optimum intake of medicated water.

The collection of fecal samples was repeated five days post-treatment and eight composite sample over four days of collection period were obtained.

All the sample were examined for the presence of parasitic eggs by floatation method and eggs per gram (EPG) of faeces calculated.

Results and Discussion:

The Table I depicts the eggs per gram faeces (EPG) in the examined samples prior to treatment with levamisol and the Table II depicts the same in post-treatment samples.

All the pre-treatment samples were heavily positive for varying types of helminth ova with quantity ranging from 50-900 eggs per gram. The order of prevalence was *Ascaridia* Sp., *Capillaria* Sp., *Raillietina* Sp., *Strongyloides* Sp., *Davainea* Sp., *Syngamus* Sp., *Hetrakis* Sp., *Prosthogonimus Tetrameres* Sp., and *Choanotaenia* Sp., Pandit *et al.* (1991) also reported the prevalence of *Ascaridia*, *Hetrakis*, *Syngamous*, *Capillaria*, *Raillietina*, *Choanotaenia* species with varying intensity.

The post-treatment examination revealed that none of the samples was positive for species of *Ascaridia*, *Strongyloides*, *Davainea*, *Syngamus*, *Prosthogonimus Tetrameres* and *Choanotaenia* while only four samples were

Table I.: Egg per gram values of faeces pre-treatment of the birds

Parasites	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
<i>Ascaridia</i> Sp.	500	600	200	400	400	350	-	400	600	450	600	450
<i>Heterakis</i> Sp.	-	-	200	-	-	-	-	50	-	-	-	-
<i>Strongyloides</i> Sp.	-	-	-	-	-	150	-	-	150	300	150	-
<i>Syngamus</i> Sp.	-	-	-	100	-	-	150	150	-	-	-	-
<i>Capillaria</i> Sp.	400	700	-	-	150	50	200	-	450	750	900	600
<i>Raillietina</i> Sp.	-	100	100	-	350	400	200	250	-	-	-	-
<i>Choanotaenia</i> Sp.	100	-	-	-	-	-	-	-	-	-	-	-
<i>Davainea</i> Sp.	-	-	-	300	50	100	-	100	-	-	-	-
<i>Tetrameres</i> Sp.	-	-	-	-	-	-	-	-	-	-	-	150
<i>Prosthogonimus</i> Sp.	100	-	-	-	50	-	-	100	-	-	-	-

Table II.: Egg per gram (EPG) values of faeces post-treatment with levamisol

Parasites	I	II	III	IV	V	VI	VII	VIII
<i>Ascaridia</i> Sp.	-	-	-	-	-	-	-	-
<i>Heterakis</i> Sp.	-	-	-	10	-	-	-	10
<i>Strongyloides</i> Sp.	-	-	-	-	-	-	-	-
<i>Syngamus</i> Sp.	-	-	-	20	-	-	-	-
<i>Capillaria</i> Sp.	20	-	-	10	-	-	-	-
<i>Raillietina</i> Sp.	-	-	10	-	-	-	-	-
<i>Choanotaenia</i> Sp.	-	-	-	-	-	-	-	-
<i>Davainea</i> Sp.	-	-	-	-	-	-	-	-
<i>Tetrameres</i> Sp.	-	-	-	-	-	-	-	-
<i>Prosthogonimus</i> Sp.	-	-	-	-	-	-	-	-

positive for *Hetrakis*, *Capillaria*, *Syngamus* and *Raillietina* with a concentrations ranging of 10-20 eggs per gram (Table II) , thereby indicating that levamisol has a good efficacy against mixed parasitic infestations under field conditions.

References :

Chaudhury, S, A.R.Gogia and M.R.Das (1998). *Ind. Vet. J.*, **72** (5), pp.: 519-520.

Chisti, M.Z and F. Ahmad (1992) *J. Helminth.*, **44** (2) pp.: 101-104.

Chisti, M.Z and Tanveer Syed (1993) *Ind. J Helminth.*, **45** (1/2), pp.: 132-156.

Dhar, R.L and F. Ahmed (1992). *Ind. J. Helminth.*, **44** (2), pp.: 105-108.

Dhar, R.L and K. Kharow (1991). *Trudy Gel 'mintologischeski laborationil*, **38**, pp.:28-32.

Mir, A.S, R.A. Shahardar, B.A. Pandit and M.A. Ahmed (1996). *Ind. Vet. J.*, **73** (1), pp.: 98-99.

Panda, N.K, D.N. Panda, S.C. Misra, and M.R. Panda, *J.Vet. Parasitol.*, **10** (1), pp.: 69-73.

Pandit, B.A, A.S. Mir, M.A.A.Banday (1991). *Poult. Adv.*, **24** (10), pp.: 37-39.

Robertson, E.L. (1988). *Veterinary Pharmacology and Therapeutics*, **6th Edn.**, p.: 900.

Sero-prevalence of *Salmonella choleraesuis* in Slaughtered Pigs

P. N. Rathod *, A.M. Das, A.A. Sherikar and S.B. Majee

Department of Microbiology, Bombay Veterinary College, Parel, Mumbai-400 012, MS

Abstract:

The evidence of sero-prevalance of *Salmonella choleraesuis* in healthy pigs was indentified, which is very important in regards to zoonosis. The overall sero-previdence of *S.choleraesuis* was recorded in slaughtered pigs at vadodara (11%), Chalisgaon (8%) and Aurangabad (4%).

Introduction:

Amongst domestic animals, pigs are the most prolific and fast growing animal. Also their calorific value of production from low quality ration is much more than any other class of animals. Poor sanitation and hygiene allow many bacterial diseases grip pig population. *Salmonella choleraesuis* has been considered the most comman cause of clinical and sub-clinical salmonellosis in pigs. The disease has assumed increasing importance in the recent years because of much more frequent occurrence of human salmonellosis through this serotype. In India, *S.choleraesuis* has been recovered from diarrhoeic stools and meat of pigs (Nath *et al.*, 1970 and Dasgupta, 1975) and outbreaks of this disease in pigs are also on record (Murty & Kaushik, 1964 and Ghosh & Verma, 1987). The serological evidence of salmonellosis was observed among slaughtered pigs at Deonar abattoir, Mumbai.

Materials and Methods:

Sampling Technique:

This study was undertaken at the pig unit of Deonar abattoir, Govandi, Mumbai. Mostly pigs, coming for slaughter, were from three different regions viz. Vadodara, Chalisgaon and Aurangabad. A total of 300 blood samples (100 from each region) were collected. Serum

samples were stored at -20°C until tested. Region and sex-wise records of all serum samples were maintained.

Serological Investigation:

Preparation of Antigen:

The *S.choleraesuis* strain was procured from the department of Food Hygiene and Public Health, Bombay Veterinary College, Parel, Mumbai.

Somatic (O) agglutinable alcoholised suspension was prepared as per the protocol of Cruickshank (1965). The culture suspension was matched with Brown's tube No.3 corresponding to 3×10^8 organisms / ml. Chloroform (1 %) was added to the antigen suspension as a preservative.

Tube Agglutination Test (TAT):

The TAT was preformed as described by Ghosh *et al.* (1988). Two fold doubling dilution of serum in 0.5 % carbol saline solution (CSS) containing 0.5 ml each of diluted serum (1:5, 1:10, etc.) and 0.5 ml of *S.choleraesuis* antigen was mixed thoroughly in agglutination tubes and incubated at 37° C for 24 hours. Tubes were read for 50 % visible agglutination in the tube containing highest dilution of serum by matching with the control tube containing 1.5 ml of CSS+0.5 ml of antigen (simulating 50% clearing).

Interpretation:

A reciprocal titre of 1:40 and above was considered positive (Buxton, 1958).

Results and Discussion:

It is evident from the data presented in the table that the sum of total number of sera showing the presence agglutinins against *S.*

* Present Address: Intervet India Pvt. Ltd., Briahngar, Off : Pune-Nayar Road, Wagholi- 412207, Dist - Pune, Maharashtra

choleraesuis at any range of titre were 35 and the titres ranged between 1:10 to 1:160. The results of any serological parameter linked to enterobacteria group need to be interpreted with a caution because of inter-genus /-species antigenic relatedness That is why a reciprocal titre of 1:40 and above for *S. choleraesuis* was taken as positive (Table), based on the observations of Buxton (1958). Whilst titres below this level could normally be considered negative because of the possible presence of agglutinins against other closely related *Salmonella* Sp. to other bacteria. A few might have exhibited rising trends, had paired sera been tested with an interval of at least two weeks. This was not possible because of abattoir regulations recommend of short holding period (1 or 2 days) for pigs (Newell & Williams, 1971).

Based on the set cut off value, the overall sero-prevalence of *S. choleraesuis* infection was 7.66% (23/300). Ghosh *et al.* (1988) observed a wide range of sero-prevalence (8.69-62.9%) within organized pig farms of North -Eastern hill region (Nagaland). The overall positive reactors were 33.19% which was much higher as compared to the present figure. The place Nagaland belongs to an endemic area for *S. choleraesuis* infection and therefore, experiencing such a high sero-prevalence which was not unusual.

The region-wise sero-prevalence of *S. choleraesuis* was 11 % at Vadodara 8 % at Chalisgaon and 4 % at Aurangabad (Table) .

The sex-wise sero-prevalence was 12.82 % (5/39) in sows and 6.89 (18/261) in boars. The larger number of low residual titres (1:10 & 1:20) against *S. choleraesuis* were observed among boars (11) as compared to sow (1).

Conclusion:

The overall sero-prevalence of *S. choleraesuis* by TAT was 7.66%. The region wise break up revealed the sero-prevalence of 11% at Vadodara (Gujarat state), 8% at Chalisgaon and 4% at Aurangabad. The overall sex-wise sero-prevalence of *S. choleraesuis* was 12.82 % in sows and 6.89 % in boars.

The evidence of sero-prevalence of *S. choleraesuis* among apparently healthy slaughtered pigs were identified . These pigs act as carriers of a disease of zoonotic importance.

Acknowledgement:

Authors are thankful to Dr. V.N. Vishnupurikar, (General Manager, Deonar abattoir) for facilities provided for collection of the sera samples for this study.

References:

Buxton, A. (1958). *Veterinary Record*, **70**, pp.: 1044-50.
 Cruickshank, R. (1965). A Guide to the Laboratory Diagnosis Control of Infection, Medical Microbiology , **11th Edn.**, *The English Language Book Society and E. and S. Livingstone Ltd.*, London, p.: 609.
 Dasgupta, P.(1975). *Ind. J. Anim Health*, **1**, pp.:

Table: Region- wise occurrence of *Salmonella choleraesuis* based on TAT titres in sera of pigs

Region	Tube Agglutination Test (TAT) titres					Total	Interpretative Result (%)
	1:10	1:20	1:40	1:80	1:160		
Vadodara	1	NIL	4	4	3	12	11
Chalisgaon	2	3	2	2	4	13	8
Aurangabad	1	5	2	1	1	10	4

Interpretation: TAT titre :- 1:40 and above -positive.

63-65.

Ghosh, S.S., B.R. Gupta and J.C. Verma (1988). *Ind. J. Comp. Microbiol, Immunol. Infec. Dis.*, **9**, pp.: 87-88.

Ghosh S.S. and N.D. Verma (1987). *Ind. J. Anim. Sci.*, **57**, pp.: 194-196.

Murty, D.K. and R.K. Kaushik (1964). *Ind. Vet.*

J., **41**, pp.: 569-576.

Nath M.L., J. Singh and S.K. Bhandari (1970). *Ind. J. Med. Res.*, **58**, pp.: 1563-1568.

Newell K.W. and L.P. Williams (1971). *J. Amer. Vet. Med. Assoc.*, **158**, pp.: 158:89:98.

An
Outstanding
Performance

With *Intervet's* Reproductive *Hormones*

- Correct anoestrus
- Cure cystic ovary
- Reduce inter calving period
- Increase conception rate
- Program calf a year
- Synchronise production
- Ensure higher milk yield

* **Receptal®** - GnRH analogue * **Iliren®** - PGF₂ α analogue
* **Folligon®** - PMSG * **Chorulon®** - hCG
* **Crestar®** - Implant of Norgestoment & Injection of Norgestoment and Oestradiol

Research makes the difference

Intervet India Pvt. Ltd.,
"Intervet House" 33, Pune-Nagar Road, (Behind Eden Gardens) Pune - 411014.
Tel: + 91 - 20 - 4050 400/01, Fax: + 91 - 20 - 4050 404, E-mail: info@intervetindia.com

Case Report : Successful Treatment of Hydrallantois in a Murrah Buffalo

S.P.Mouli and S. Nagarjuna Babu

Veterinary Clinic, Guntur - 522 001, AP

Abstract:

A rare case of hydrallantois in a murrah buffalo heifer was reported and successfully treated during its first gestation with a course of antibiotic, milk fever formula, B-complex vitamins and continuous use of mineral mixture, containing vitamin A with plenty of dextrose and electrolytes. These routine nourishment resulted in a successful conception and normal parturition at the next gestation.

Introduction:

Hydrallantois is seen sporadically in dairy and beef cattle (Roberts, 1971). Reports on murrah buffalo, suffered from hydrallantois and conceived after successful treatment, are not plenty available. In the present study, a case of



Fig.1: A Murrah buffalo suffering from Hydrallantois at 9th month of pregnancy.

hydrallantois in a murrah buffalo and its successful treatment to next gestation is reported.

Case History and Clinical Observations:

A murrah buffalo heifer about 5 years old was admitted to the clinic with the history of pregnancy about 9 months and showing oedema at the umbilicus and fore quarters from

the 6th month of pregnancy onwards with often inappetance. Physical examination revealed enlarged abdomen which was round and tense. The gait was stiff, slow and cautious and exhibiting anxiety, restlessness and expiratory grunt when made to move. The temperature was recorded 39.5^o C. Rectal examination revealed that was 9 months of pregnant but with distended uterus and foetus could not be felt (Fig.1). The uterine arteries were “whirring” indicating that the foetus was alive. The blood and dung were negative for protozoal and gastro-intestinal parasites, respectively. It was



Fig.2: The same buffalo after treatment conceived again and after parturition.

diagnosed as hydrallantois and decided to wait till its term with the following treatment.

Therapy:

To avoid retention of placenta and later septic metritis and to cause easy delivery, the owner was advised to give the animal daily 30g of mineral mixture till it delivered. It was also given an intra-muscular route of Enrofloxacin (Floxicin® Vet from Intervet) at the dose rate of 15 ml, Vitamin B complex for five days and a dose of anthelmintic orally. Its temperature came to normal by the 3rd day and started taking feed, water and passing dung normally. She was

discharged. The owner was advised to come after completion of gestation . After completion of gestation it was admitted again to the clinic and was examined per vagium. The cervix was yet to open. The animal was showing expiratory grunt. Dexamethazone at the dose rate of 25 mg was given intra-muscularly daily for three days for opening of the cervix. By the 4th day, there was slight opening of cervix allowing 3 fingers. Then valetamate bromide and oxytocin at the dose rate of 100 mg and 30 mg respectively were administered intra-muscularly to cause still wider opening of the cervix. By evening, the cervical opening was allowing all the fingers. Placentitis was done by a trocar and the allantoic like fluid was allowed slowly to come out to avoid shock. Simultaneously, plenty of dextrose with electrolytes milk fever formula, containing (Ca + Ma + P) at the dose rate of 450 ml was given intra-venously. Hydrallantois fluid was coming out for a period of several hours and finally subsided . The buffalo delivered normal female dead foetus after few hours. The placenta shed off normally. It did not give expected quantity of milk during its lactation. However, it conceived again after 3 months by a murrhah bull. The owner was advised to give

mineral mixture throughout its gestation period and it delivered normally a male calf at the end of gestation, (Fig.2.).

Discussion :

Roberts (1971) stated that this condition appeared to be more prevalent in seasons, when forage has been damaged with a possible loss of Vitamin 'A' resulting in a lowered resistance of the endometrium to disease. Roberts (1971) also stated that the condition may be seen rarely in heifer as observed in the present case. In the present case, dystocia retention of placenta, septic metritis; uterine inertia were not noticed. It could be possible only because of several precautions such as using a course of antibiotics, milk fever formula, parental fluids, B.complex vitamin injections and continuous use of mineral mixture containing vitamin A and use of oxytocin during and after parturition.

References :

- Arthur, G.H. (1975). Veterinary Reproduction and Obstetrics **4th Edn.**, *ELBS and Bailliere Tindall*, London
- Roberts, S.J. (1971). Veterinary Obstetrics and Genital diseases **2nd Edn.**, *The Author Ithaca*, New York.

" These prophets were not unique; they were men you or I. They were great Yogis. They had gained this superconsciousness, and you and I can get the same. The very fact that one man ever reached that state, proves that it is possible for every man to do so. Not only is it possible, but every man must, eventually, get to that state, and that is religion."

- Swami Vivekananda

" The human teacher utters the Mantra into the ear ; but God breathes the spirit into the soul."

- The Holy Mother - Saradamani

Case Report: Mandibular Osteosarcoma in a Dog

A.K. Gangwar and R. Ranjan

Department of Surgery and Radiology, College of Veterinary Sciences and Animal Husbandry, N.D.U.A. & T., Kumarganj, Faizabad - 224 229, UP

Abstract :

Mandibular osteosarcoma is a malignant bone tumor, which in advanced stages, may result into death due to pulmonary metastasis. The present communication describes successful surgical management of mandibular osteosarcoma in a German Shepherd dog.

Introduction :

Oral tumors in dog are frequently associated with neoplastic cells in the bone. Mandibular osteosarcoma is a malignant bone tumor occurring commonly in middle aged and older dogs (Ginel *et al.*, 1996). Although more than 75 per cent of primary osteosarcoma occur in long bones of appendicular skeleton (Gibbs *et al.*, 1984), mandible and maxilla are the most common sites of axial skeleton affected with osteosarcoma (Heyman *et al.*, 1992).

Case History and Clinical Examination :

A six years old male German Shepherd dog weighing 18 kg was presented to the clinic with one month old history of painful swelling of lower jaw, gradual loss of appetite and body condition. There was no history of trauma. Initially, small area of painful swelling in left mandible was noticed. The condition was treated with cefotaxime 250 mg and diclofenac sodium 25 mg once intra-muscularly for seven days, with no improvement. Rapid increase in size of the swollen mass was observed, next week of post-treatment.

Clinical examination revealed presence of swollen, painful bleeding mass covered with muco-purulent exudate in the left mandible. Radiograph of the head region showed some opacity around the horizontal ramus of left

mandible starting from first pre-molar to last pre-molar and a tentative diagnosis of osteoma or osteosarcoma was made. Regional lymph nodes were found normal on palpation. Thoracic radiograph excluded evidence of tumor metastasis. Thus, it was decided to remove the tumor surgically.

Surgical Treatment :

Atropine sulphate at the dose rate of 0.04 mg/kg body weight and buprenorphine at the dose rate of 0.015 mg/kg body weight, were administered intra-muscularly as pre-anaesthetic medication.



Fig. Showing mandibular osteosarcoma

Anaesthesia was induced and maintained with 2.5 per cent solution of sodium thiopentone given to effect. Trachea was intubated with a cuffed endo-tracheal tube and pharynx was packed with moistened gauze to prevent aspiration of blood and debris. Surgical site was disinfected with povidone-iodine solution. The tumor was removed by horizontal hemimandibulectomy as described by White *et al.* (1985). The excised mass preserved in 10% formalin for histo-pathological examination. The report of the examination confirmed the case of osteosarcoma. Post-operative management consisted of intra-

muscular administration of **Floxidin**® vet (from Intervet) at the dose rate of 5 mg/kg body weight for 5 days and 250 ml of 5% DNS intra-venously twice daily for 2 days.

The dog started taking milk and water by the 2nd post-operative day and returned to normal feeding by the 7th day . Complete wound healing was noticed at the end of third week.

Discussion :

Osteosarcoma cases, though relatively rare in jaws, but account for more than 80 per cent of malignant bone tumors in dogs (Ru *et al.*, 1998). Pulmonary metastasis and recurrence after surgical removal are common complications and prognosis , therefore, is guarded in most cases (Heyman *et al.*, 1992). However, if diagnosed in early stages before metastasis, there are fair chances of recovery after surgical removal (White *et al.*, 1985 and Straw *et al.*, 1996). Even spontaneous regression of osteosarcoma in dogs have been reported recently by Mehl *et al.* (2001).

References:

Gibbs , C., H.R. Denny and D.F. Kelly (1984).

J. Small Anim. Pract., **25**, pp.: 177-192.

Ginel, P.J., M. Novales, J.M. Molleda , J. Perez and E. Mozos (1996). *Vet. Rec.*, **139**, pp.: 120-121.

Heyman, S.J., D.I. Diefendefter, M.H. Goldschmidt and C.D. Newton (1992). *Vet. Surg.*, **21**, pp.: 304-310.

Mehl, M .L., S.J. Withdraw, B. Seguin, B.E. Powers, W.S. Dernell, A.D. Pardo, R.C. Rosenthal, S.Z. Dolginow and R.D. Park (2001). *J. Amer. Vet. Med. Assoc.*, **219**, pp.: 614-618.

Ru, G., B.E. Terracini and L.T. Glickman (1998). *Vet.J.*, **159**, pp.: 31-36.

Straw, R.C., B.E. Powers, J. Klausner, R.A. Henderson, W.B. Morrisopn, D.L. McCaw, H.J/ Harvey, R.M. Jacobs and R.J. Berg (1996). *J. Amer. Anim. Hospital Assoc.*, **32**, pp.: 257-262.

White, R.A.S., N.T. Gorman, S.B. Watkins and Brearly M.J. (1985). *J. Small Anim. Pract.*, **26**, pp.: 693-708.

White, R.A.S., Gorman, N.T., Watkins, S.B and M.J. Brearly (1985). *J. Small Anim. Pract.*, **26**, pp.: 693-708.

" These prophets were not unique; they were men you or I. They were great Yogis. They had gained this superconsciousness, and you and I can get the same. The very fact that one man ever reached that state, proves that it is possible for every man to do so. Not only is it possible, but every man must, eventually, get to that state, and that is religion."

- Swami Vivekananda

" The human teacher utters the Mantra into the ear ; but God breathes the spirit into the soul."

- The Holy Mother - Saradamani

Case Report : Paraphimosis Associated with Priapism in a Dog

T. Madhava Rao* and S. Bharathi

Teaching Veterinary Clinical Complex, College of Veterinary Science, ANGR Agricultural University, Rajendranagar, Hyderabad- 500 030, AP

Abstract :

Priapism secondary to penile metastasis in a dog suffering from carcinoma involving both bladder and prostate gland is on record (Rogers *et al.*, 2002). In this report a case of paraphimosis associated with priapism coupled with genito-urinary infection and constipation in a mongrel dog is recorded.

Introduction :

Paraphimosis is an acquired condition of the penis and prepuce wherein the penis protrudes from the prepuce and cannot be retracted which is usually observed following sexual stimulation. Priapism refers to prolonged uncontrolled erection of penis which is usually secondary to malignancy. The prolonged erection is due to constriction of the prepuce posterior to the glans penis which prevents retraction of engorged glans penis into the sheath. These conditions are known to occur in man and various animals like dogs, horses, bulls and geese (Kuttin *et al.*, 1995).

Priapism is not common, usually associated with lesions of spinal cord, or occasionally accompanied with constipation or genitourinary infection (Johnson & Archibald, 1974). Pearson & Weaver (1978) had described a drug induced priapism mostly in horses, sedated or anaesthetized for castration.

Case History :

A six year old mongrel pet dog, weighing 17 kg was presented to the campus teaching veterinary clinical complex with a complaint of swollen, erectile penis with inability to retract into prepuce, and dysuria since two days. Anamnesis revealed that the condition was persisting since recent mating. The dog was passing constipated faeces.

Treatment :

The animal was sedated with xylazine hydrochloride at the dose rate of 1.0 mg/kg b.wt. Intra-muscularly following premedication with atropine sulphate at the dose rate (0.04 mg/kg b.wt. sub-cutaneously), Clinical examination revealed presence of glans penis and os penis outside the prepuce. A constrictive band of retracted prepuce was present behind the bulbus glandis. The glans and penis was erect and was congested. Cuffing edema of the glans and bulbus glandis was noticed (Fig.).

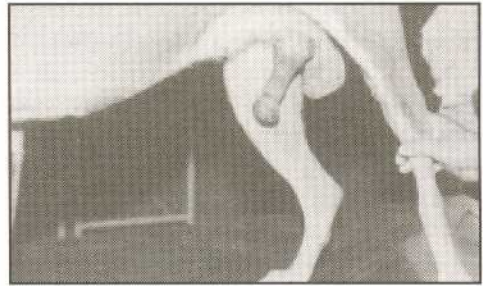


Fig. Priapism in a mongrel dog.

The penis and prepuce was cleaned with 1% povidone iodine solution and irrigated with normal saline. Lignocaine hydrochloride (2% Jelly) was applied onto the penis. The oedematous bulbus glandis was punctured using 20 G hypodermic needle and about 10ml of semi-suppurative liquid was collected. Two Allis's tissue forceps were applied onto the constrictive ring of prepuce and the penis was pushed backwards. Simultaneously, the prepuce was drawn forward. Retention sutures were placed using No. 2 silk to the prepuce orifice to prevent immediate recurrence of the condition. Amoxycillin and Cloxacillin at the dose rate of 15mg/kg b.wt. intra-muscularly was

* Corresponding author

administered daily for 5 days. Diclofenac sodium (1mg/kg) was administered intramuscularly daily for 5 days to counter inflammation. A contact laxative tablet of 5mg daily at night was administered *per os* for 3 consecutive days to ease defaecation. The owner was advised to provide the animal drinking water *ad libitum*.

The signs of genito-urinary infection subsided by the 5th day and the retention sutures were removed on the 7th day. The animal made an uneventful recovery with no recurrence upto a follow up period of 6 months.

Discussion :

The incidence in domestic animals has not been determined as the condition is only sporadically diagnosed (Gunn-Moore *et al.*, 1995). The condition is generally associated with penile vascular damage or obstruction, excessive release of erectile neuro-transmitters or prolonged smooth muscle relaxation, all of which can contribute to an increase in arterial blood flow or a decrease in venous out flow, causing erection, usually in the absence of sexual stimulation (Melman & Serels, 2000). The most common causes of feline and canine priapism are spinal injuries and thrombo-embolic

accidents involving the penile vasculature (Gunn-Moore *et al.*, 1995). Other causes include distemper encephalomyelitis in canines and priapism secondary to metastatic tumours affecting the dorsal penile nerves and not penile vascular metastasis (Rogers *et al.*, 2000).

Unresponsive priapism in dogs, particularly those with no evidence of spinal lesions and those with other signs of urinary tract disease should be carefully investigated for possible metastasis to the penis.

References :

- Gunn-Moore D A, P.J. Brown, P.E.Holt , T.J. Gruffydd-Jones (1995). *J. Small Anim. Pract.*, **36**, pp.: 262-266.
- Jonson, D. E. and J. Archbald (1974). Male Genital System: in *Canine Surgery*. 2nd Edn., pp.: 709-710.
- Kuttin, E.S., I. Glas and A. Nyslca (1995). *Israel J. Vet. Med.*, **50**, pp.: 163-165.
- Melman, A. and S. Serels, (2000). *Int. J. Impot. Res.*, pp.: 5133-5139.
- Pearson, H. and B.M.Q. Weaver, (1978). *Equine.Vet. J.*, **10**, p.:85 .
- Rogers, L., A. Lopez and A. Gillis, (2002). *Can.Vet.J.*, **43**, pp.: 547-549.

" The watchman can see with a dark lantern (bull's-eye) everyone on whom he throws its rays, but no one can see him so long as he does not turn the light upon himself. So does God see everyone but no one sees Him until the Lord reveals Himself to him in His mercy"

- Sri Ramakrishna Paramahansa

Sandip Banerjee and Soma Banerjee

B-1/87, Kalyani - 741 235, District - Nadia, WB

Abstract:

Deficiency or toxicity of trace elements are well known since ages. Sometimes problems due to trace minerals cause serious economic losses and mortality to livestock and pet animals. Such cases with Selenium toxicity (dogs) and Zinc (Sheep) and copper (dogs) deficiencies are discussed.

Introduction:

Importance of trace minerals was also understood for long time. Importance of elements like zinc, selenium, iodine, magnesium, manganese, molybdenum were visualized from time to time. However, it is in the common practice that the availability of trace minerals is generally taken granted and the manifestation of the symptoms due to deficiency or toxicity of the trace elements are sometimes neglected or considered for some other pathological causes. This often leads to serious economic loss and sometimes with the loss of the prized livestock and pets.

In this article, three unique cases of trace mineral deficiency (in livestock and pets) have been discussed.

Case - 1: Selenium Toxicity in Dogs

Selenium has been associated with growth and fertility in sheep and cattle (Underwood, 1962), An Alsatian dog was brought to the Kalyani pet clinic with dermatitis. The dog had been treated earlier with a selenium- based shampoo once in a week. The owner noticed that the dog became extremely restless after every bath. The condition subsided only after the animal received a course of an antihistamine.

Three more dogs of different breeds viz. Rampur hound, Chow chow and Dobermann pinscher

were recommended routine commercial dietary supplement containing selenium. The owners of all the three breeds were of the opinion that the dogs became excessively restless and having moderate salivation followed by facial swelling.

The dogs were treated symptomatically and later they recovered. Selenium toxicity / hypersensitivity recovered has been reported from selenium containing shampoo and from mineral supplements containing selenium (Anon, 1994).

Case-2 : Zinc Deficiency in Garole Sheep

Garole is a breed of microsheap native of Bengal. The breed is noted for its prolificacy and resistance of to many economically important diseases like, foot and mouth disease , foot rot, fleece rot, etc. and has a unique ability to tolerate most of the endo-parasites, prevalent in the region. (Banerjee & Banerjee, 2000).

A flock of Garole lambs was introduced at livestock farm at Bidhan Chandra Krishi Viswavidyalaya at Mohanpur (Nadia), West Bengal in the month of November, 2000. The lambs showed wool slippage within a fortnight and one ram lamb was fallen ill. The symptoms were excessive salivation, followed by depressed appearance and a fall in rectal temperature. The serum bio-chemical findings showed a drastic fall in serum alkaline phosphatase (SAP) level. The lamb succumbed to death within 48 hours. The death was soon followed by three more in the flock (two ram lambs and one ewe lamb). Literature revealed that wool slippage could be due to trace mineral deficiency especially of zinc. This was further evident by the serum bio-chemical findings. The fall in SAP can be attributed to low dietary zinc levels (Underwood,1962). Minerals mixture containing zinc as one of the ingredients led to

dramatic recovery in all the affected animals. No further mortality in the flock was observed there after. There was an increase in SAP levels too.

Case-3 : Copper Deficiency in Dogs

Copper deficiency was noticed in Labrador retriever and Alsatian breeds. The general symptoms were gradual loss of pigmentation in and around the eyelids, muzzle and the lips. This was followed by de-pigmentation of hairs (Alsatian), but not in yellow Labrador retriever. Deficiency symptom was pronounced by excessive de-pigmentation and cracking of the skin on the muzzle area.

Haematological findings revealed absence of any haemo-parasite. The microscopic examination of fecal samples showed no endo-parasite. The dogs were a bit lethargic and preferred to stay indoor.

The absence of haemo-parasites, endo-parasites and lack of anorexia led to the conclusion that the existing problem may be a due to the absence of some trace minerals. Review of literature indicated, copper is associated with various bio-chemical functions in canines and the deficiency of which may lead to a series of problems which may be confusing at times, presumably the effect of copper deprivation on pigmentation is related to its role conversion of tyrosine to melanin (Underwood, 1962).

The dogs were treated with trace minerals supplement containing copper as copper sulphate (3.5 mg/tablet / twice daily). The regeneration of pigmentations occurred within a couple of days. The skin around the muzzle became normal.

Importance of the Above Three Findings:

During these case studies, it was observed that the symptoms were visualized in certain breeds or even be restricted to certain families within the same breed, while the other animals tend to be quite normal showing no deficiency or apparent symptoms. The animals, which are maintained on pasture, derive their mineral requirements from different soils and different plant species. It has been observed that usually the deficiency symptoms pertaining to trace minerals are difficult to identify. The result of proper supplementation is dramatic and the animals usually recover within a short period of time.

References:

- Anon. (1994). The Merck Veterinary Manual. 7th Edn., Merck and Co. Inc., the USA.
- Banerjee Sandip and Soma Banerjee (2000). Limitations of Garole sheep farming in new alluvial soil Zone of West Bengal (accepted for publication for *The Indian Veterinary Journal*).
- Underwood, E. J. (1962). Trace Elements in Human and Animal Nutrition. 2nd. Edn., Academic Press, New York.

*" Rejoice in your strength, rejoice in your talents and powers,
rejoice in the wonders of your own nature.*

For there is far more in you than you ever dreamed."

- Christian D. Larson

"These prophets were not unique; they were men as you or I. They were great Yougis. They had gained this superconsciousness, and you and I can get the same. The very fact that one man ever reached that state, proves that it is possible for every man to do so. Not only is it possible, but every man must, eventually, get to that state, and this is religion"

- Swami Vivekananda

Case Report : Foreign Body Syndrome in Cattle

J.D. Parrah, B.A. Buchoo, B.A. Molvi and M.Z. Khan

S.K. University of Agricultural Sciences and Technology of Kashmir, Shalimar Campus, Srinagar - 191 121, J & K

Abstract:

Foreign body, penetrated through diaphragm towards the latero-ventral thoracic wall because of pressure exerted by growing calf during late pregnancy leading to formation of an abscess. Post-operatively, animal treated with **Floxadin**[®] Vet injection (from Intervet) and recovered uneventfully.

Introduction:

Cattle are very prone to pick up and swallow foreign bodies of various kinds, including cloth, hair, leather, twine, needles, pins, pieces of iron, wire, umbrella ribs, etc. (O'Connor, 1985). The sharp objects when ingested by cattle can penetrate a large number of visceral organs like rumen, reticulum, heart, lung, pleura, spleen, liver etc. hence appropriately called foreign body syndrome (Chakrabarti, 1988). Very rarely a sharp foreign body from the reticulum penetrates through the abdominal wall, causing a local abscess (Venugopalan, 1994). This paper puts on record a case of penetration of a foreign body through the thoracic wall diaphragm and formation of an abscess in a cow and its successful surgical management.

History and Clinical Examination:

A pluriparous crossbred jersey cow, aged 5 years was brought for treatment in a veterinary clinical camp held at Bandipora, Baramullah with a history of chronic discharge of pus from an abscess, located on the left latero-ventral thoracic wall for last 3 months. Anamnesis further revealed that the cow at the 7th month of pregnancy stage showed a sort of stiffness/lameness in the left fore limb prior to development of abscess. Earlier, the cow had shown many times deviation from normal health

which was mostly manifested by suspension of rumination, anorexia and dullness. Previous treatments administered in a few occasions, helped the cow to overcome these minor ailments but the abscess located at the left latero-ventral thoracic wall could not be cured.

The clinical examination revealed a tennis-ball size of fibrosed tissue at the 5th inter-costal space with discharging opening at its centre. The purulent tract was originating from 6th inter-costal space passing obliquely forward and outward to open at the 5th inter-costal space. On applying pressure, a little quantity of white colour puss came out through the outer opening of the purulent tract.

All the physiological parameters were within normal limits. Cow had good appetite but appeared emaciated. Significant reduction in milk yield as compared to previous lactation was reported by the owner.

Treatment:

The animal was prepared for aseptic surgery as per the routine procedure. Under xylazine sedation and field block anaesthesia, fibrosed tissue along with purulent tract was dissected free from the surrounding tissue. On opening the tract, an ordinary sewing needle 6.5 cm of length with broken eye was removed from it. The whole fibrosed tissue along with purulent tract was removed. The wound was closed as per the routine procedure.

Post-operatively, the animal was given **Floxadin**[®] vet (from Intervet) at the dose rate of 15ml intra-muscularly for 3 days. The wound was aseptically dressed for a period of 10 days. Sutures were removed on the 11th day post-operatively.

Results and Discussion :

Foreign bodies may be in the roughage or concentrate or may originate on the farm, when repairs are carried out. Lack of oral discrimination coupled with pica or allotriophagid due to phosphorus deficiency in cattle can lead to the ingestion of foreign bodies (Hofmeyr, 1974). The cardinal symptoms of foreign body syndrome recorded in cow during this study, like stiffness of forelimb, suspension of rumination and drop in milk yield are in total consonance with those of Tyagi & Singh, 1993. Foreign bodies which remain embedded in the reticular wall are pushed further by the pressure of the foetus during late pregnancy or the efforts during calving. Pericarditis is more likely in cows after 6 months of pregnancy (Blood *et al.*, 1979). In the present case, the foreign body had penetrated through diaphragm towards the latero-ventral thoracic wall because of pressure exerted by growing calf during late pregnancy, leading to the formation of an abscess. Removal of the foreign body and institution of specific treatment led to complete and uneventful recovery of the animal.

References :

- Blood, D.C., J.A. Henderson and O.M. Radostits (1979). *Veterinary Medicine: A Text Book of Diseases of Cattle, Sheep, Pigs and Horses*, 5th Edn., *The English Language Books Society and Bailliere Tindall*, London.
- Chakrabarti, (1988). *Text Book of Clinical Veterinary Medicine*. *Kalyani Publishers*, New Delhi-110002.
- Hofmeyr, C.F.B. (1974) . The Digestive System; In: *Text Book of Large Animal Surgery*, Edited by F.W. Oehme and J.E. Prier, *The Williams and Wilkins Company*, Bailliere, PP.: 407-410.
- O'Connor, J.J. (1985) *Dollars Veterinary Surgery*. 4th Edn., *Tindall & Co.*, London.
- Tyagi, R.P.S. and J. Singh (1993). *Ruminant Surgery*, *CBS Publishers and Distributors*, Delhi, pp:380-390.
- Venugopalan, A. (1994). *Essential of Veterinary Surgery*, *Oxford and IBH Publishing Co. Pvt. Ltd.*, Mumbai.

*" We solicit from you, O Divine Waters, That pure, Faultless, Rain-shedding,
Sweet essence of the earth Which the pious worshippers Have first conse-
crated as a Beverage of the Resplendent Lord."*

- Rig Veda

*"I do not know much about gods;
but I think that the river / Is a strong brown god."*

- T. S. Eliot

*"Human beings were invented by water as a device
for transporting itself from one place to another."*

- Tom Robbins

Case Report :Carpal Hygroma in a Jersey Crossbred Bull

S. Bharathi, T. Madhava Rao and K. Satish Kumar

Teaching Veterinary Clinical Complex, College of Veterinary Science, Acharya N G Ranga Agricultural University, Rajendranagar, Hyderabad – 500 030, AP

Abstract:

Carpal hygroma in a jersey crossbred bull is successfully treated by non-surgical method.

Introduction:

Carpal hygroma in bovine is a condition of traumatic origin. The tissues involved in this are skin, sub-cutaneous pre-carpal bursa and loose sub-cutaneous connective tissues.

Case History and Observation:

A jersey crossbred bull was presented to the campus teaching veterinary clinical complex with a history of limping on left fore-limb due to swelling on its lower aspect. Clinical examination revealed a sub-cutaneous, soft, fluctuating, hot and painful swelling on the dorso-lateral aspect of the carpal joint. The swelling of six inches in diameter was said to be developed over a period of two months. The swelling was interfering with the flexion and extension of the limb at the carpal joint. The animal evidenced pain on palpation of the affected area. Under the sterile conditions, the swelling was explored using a 18 G hypo-dermic needle, which revealed collection of sero-sanguinous fluid. Approximately, 20ml of fluid was aspirated from the bursa (Fig.).



Fig. Aspiration of fluid from the bursa.

The skin of the carpus was thick and cellulitis of the surrounding region was evident. The bursal cavity was multi-locular, so punctures were made into each pocket separately and the fluid was removed by aspiration. There was profuse cutaneous bleeding from the punctured areas. As the animal was showing restricted mobility and was evidencing pain, so septic arthritis was suspected (Krishnamurthy, 1995).

Treatment:

Two ml of 5% povidone iodine solution was injected into the bursa daily for 3 days in the initial stages to destroy the bursal membrane as indicated by Venugopalan (1992). Injection of dexamethasone sodium (8mg) was administered into the bursal pockets after aspiration of the fluid. The animal was given oxytetracycline (15ml) intra-muscularly for 7 consecutive days and injection of diclofenac sodium – DS (15ml) was administered intra-muscularly daily for 5 days. Infra-red fomentation was also given for 15 minutes daily.

After giving of anti-inflammatory gel topically, pressure bandage was applied using crepe bandage. The treatment given was in accordance with Krishnamurthy (1995).

Discussion:

Carpal hygroma of bovines is a condition of traumatic origin. Repeated trauma due to lack of bedding on hard floor, with restricted movement of the animal were the predisposing causes (Krishnamurthy, 1995). Excoriation of skin on the dorsal aspect of the affected carpal joint is not noticed when compared to the contralateral carpal joint. The

skin was normal with hair growth on the affected joint as the animal was not resting the joint during recumbancy and while standing.

Some clinicians recommend radical surgery (Venugopalan, 1992 and Saikia & Sarma, 2001) or lancing and drainage of the bursa at a dependent area and evacuation of the contents followed by application of an irritant to its interior (Venugopalan, 1992). In the present case, there was profuse cutaneous bleeding and as it was suspected for septic arthritis, radical surgery was not undertaken. The animal showed uneventful recovery.

References:

Krishnamurthy, D.(1995). Tendons and Ligaments: Ruminant Surgery, **1st Edn.**, C.B.S. Publishers and Distributors, New Delhi, pp.: 312-313.

Saikia, B. and K.K. Sarma (2001). *Ind.J.Vet.Surg.*, **22** (2), p.:129.

Venugopalan, A.(1992). Essentials of Veterinary Surgery, **6th Edn.**, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, pp.:149-150.

" The only true duty is to be unattached and to work as free beings, to give up all work unto God. All duties are His."

- Swami Vivekananda

" As a boy holding to a post or pillar whirls about it with head long speed without fear of falling, so perform your worldly duties, fixing your hold firmly upon God; and you shall be free from danger"

- Sri Ramakrishna Paramahansa

" Just as cowards die many times before their death so, senility is frequently the consequence of self-centeredness. If we can develop strong impersonal interests and absorb ourselves in fruitful occupations, we need not count the number of years we have lived."

- G.L. Mehta

" It is idle to expect that dangers and difficulties will not come. They are bound to come. But, for a devotee they will pass away from under the feet like water."

- The Holy Mother - Saradamani

Case Report : Ocular Neoplasm in a Nagpuri Buffalo

B.N.Meshram and M.V.Kamble

Nagpur Municipal Corporation Veterinary Dispensary, Mahal, Nagpur - 440 032, MS

Abstract :

Ocular neoplasm in both eyes is rarely seen. Generally, one eye is affected in domestic animal. Following series of therapy, a correction of bilateral involvement of ocular neoplasm is reported.

Introduction :

Neoplasm of the eyelids, conjunctiva and cornea are usually encountered in domestic animals (Panchbhai *et al.*, 1987). Also it is observed for recurrence of infiltrative growth and metastasis. Because of its rapid growth and poor vascularisation, it undergoes recrobiotic process and leads to the loss of vision which reduce the working capacity. Usually one eye is affected but bilateral involvement is rarely seen (Plakhotin, 1984). Present paper deals with ocular neoplasm in buffalo and to record the bilateral involvement with due importance.



Fig. 1. Left eye showing the neoplasm

Case History and Observations :

A Nagpuri buffalo was presented to the Nagpur Muncipl Corporation Veterinary Dispensary, Mahal, Nagpur. Her entire left eye was involved into the neoplasm (Fig. 1) while right was also showed the start of neoplasm and counters like structure (Fig. 2).



Fig. 2. Bilateral involvement where right eye showing counters as a neoplastic growth

Treatment :

After the diagnosis, the buffalo was prepared for unrewarded extirpation of the left eye while post-operative anti-neoplastic therapy in the form of Injection. Vincristin Sulphate considered to be the effective for right eye.

The deep sedation was induced with the injection of Xylazine hydrochloride at the dose rate 0.50 mg / 50 kg body weight. The local anaesthesia was also maintained through retrobulbar nerve block with Lignocain hydrochloride (2%). All aseptic measures were applied during extirpation of the eye ball and both the eye lids was saturated as per standard surgical procedure (Gelatt *et al.*, 1982).



Fig. 3. Corrected right eye ball

Post-operatively injections of amoxicillined and cloxacillin and **Vetalgin®** (from Intervet) were administered intra-venously twice a day, at the dose rate of 3g and 20 ml, respectively. Following which same medication was repeated once in a day for another 4 days. As an anti-neoplastic

therapy, injection of Vincristin sulphate was administered at the dose rate of 10 ml for 350 kg body weight at weekly interval for 6 weeks. The correction of right eye ball was observed after six weeks of treatment (Fig. 3).

References :

Gelatt, K.N., E.D. Wolf, C.L. Boyd and K. Titus, (1982). The Special Sense Organs in Large Animal Surgery, **1st Edn.**, F.W. Oehme and J.E. Prier (eds), Baltimore, Williams, Wilkins, pp.:654-658.

Panchbhai, V.S., R.E.Kulkarni and B.B. Deshpande (1987). *Ind. Vet. J.*, **64** (1), pp.: 29-32.

Plakhotin, M.V.(1984). General Veterinary Surgery, *MIR Publishers*, Moscow. **1st Edn.**, pp.: 382-383.

" What does a man become by realizing God ? Does he grow two horns ? No. What happens is, he develops discrimination between the real and the unreal, gets spiritual consciousness, and goes beyond life and death. God is realized in spirit. How else can one see God ? Has God talked to anybody devoid of ecstatic fervour ? One sees God in spiritual vision, talks to him, and establishes relationship with Him in spirit"

- The Holy Mother - Saradamani

" There will always be leaders and followers, but the leaders are worth keeping only as long as they can serve the followers by acquiring their love, respect and gratitude."

- Dr. Hans Selye

Ehrlichiosis in Dogs

Ehrlichiosis is a tick-borne infectious disease of dogs and wild canidae family caused by the rickettsial agent *Ehrlichia canis*. Other canine parasites include, *E. ewingi* and *E. platys*. The organism is transmitted by the brown dog tick, *Rhipicephalus sanguineus*. The disease was first reported by Donatien & Lestoquard in 1935 in Algeria. The disease is of world-wide distribution and it gained more attention during the Vietnam war, when a large proportion of military dogs were infected and died due to this disease. In India, the disease was first reported by Mudaliar in 1944.

Ehrlichiae organisms are gram negative, pleomorphic, oligate intra-cellular parasites. Within their hosts, they specifically infect leukocytes and multiply within endosomes, producing cytoplasmic inclusions called morulae. The inclusions are usually 2 - 6 µm blue to blue-grey in colour with 4 to 20 punctate, elementary bodies. These morulae are occasionally observed in blood smears during acute (early) phase of disease and in later (chronic) phase it is rarely observed.

Canine infection usually occurs when salivary secretions from the tick, contaminate the biting site during ingestion of a blood meal. Following tick bite, the incubation period is 1-3 weeks. The infection can also be introduced by blood transfusion. Ticks (*Rhipicephalus sanguineus*, *Dermacentor varibilis*) are thought to be primary reservoirs for the disease. An adult tick is capable of transmitting *E. canis* for 155 days after deachment from the host.

Acute phase: Duration 2-4 weeks. The organism multiplies within circulating mononuclear cells, mainly in the mononuclear phagocytic system (MPS) i.e. Lymphocytes liver and bone marrow resulting in hyperplasia and enlargement of organs (lymphadenopathy, splenomegaly and hepatomegaly). Platelet consumption, sequestration and destruction all appear to contribute to thrombo-cytopenia during this phase.

Sub-clinical phase: Lasts for weeks to months and is characterized by the persistence of the organism and variable persistence of thrombo-cytopenia, anaemia and leukopenia in the absence of clinical signs. Dogs may either eliminate the organism or progress to the chronic phase of infection during this phase.

Chronic phase: This occurs when immune response is not effective resulting in chronic illness, weight loss and bone marrow dysfunction.

Clinical signs: No pathognomonic signs are usually seen. During acute phase, main symptoms observed include depression, anaemia, fever, severe loss of stamina, weight loss, ocular and nasal discharges, dyspnoea, lymphadenopathy and oedema of the limbs or scrotum.

Usually resolve within one or two weeks Haematologic and bio-chemical abnormalities include thrombo-cytopenia, mild to severe anaemia, leucopenia or leucocytosis, mild hyper-globulinemia and elevation of serum liver enzyme activities.

Treatment : Doxycycline is the drug of choice and can be give peros at the dose rate of 10 mg/kg every 12-24 hours for 10-14 days. Tetracycline is another choice (22 mg/kg every 8 hours for 14-21 days) Imidcarb dipropionate, an anticholine esterase parasymphathomimetic, dose given at the dose may be rate of 5 mg/kg intra-musulery or sub-usuneously repeated in 14 days has been effective in dogs with refractory ehrlichosis. In addition, supportive therapy with blood, blood products or fluids may be administered as the situation demands.

Prevention : Tick control constitutes the chief support of prevention for ehrlichiosis. Also low doses of tetracycline (6.6 mg/kg *per os* 24 hours) or doxycycline (2 mg/kg *per os*, every 24 hours) may be used in endemic areas during peak tick interfation.

J.P.Smitha and K. Vijaykumar

Department of Veterinary Epidemiology and Preventive Medicine, College of Veterinary and Animal Sciences, Mannuthy, Thrissur, Kerala.

Clinico - Biochemical and Therapeutic Studies on Canine Mange

A study was undertaken to investigate the epizootiological aspects, haemato-biochemical parameters and therapeutic efficacy of drugs used against canine mange. In group I, dogs were treated (topical application) with **Taktic®** (from Intervet) at the dose rate of 10 ml per litre of water . While Group II dogs were received injection of Dectomex, Group III dogs were treated with both **Taktic®** topically and sub- cutancous injection of Dectomex. In addition to above, all dogs were received similar supportive treatments viz., injection of vetade (i.m.), kengram (P.O) and injection of cadistin (i.m.)

Out of 197 dogs treated, 44 (22.34%) dogs were found positive for mange infestation. Data indicated that age - sex and breed - wise, the prevalence of mange infestation was 45%, 65% and 42%, respectively.

The therapeutic responses to above three different treatments employed in group I, II, III, dogs were 80%, 80% and 90%, respectively indicating a marginal superiority of the combined therapy of **Taktic®** (Topical application) and Dectomax (Parenteral administration) over the other two treatments.

A.Nageswaramma and C.Suranarayana

Department of Clinical Veterinary Medicine, College of Veterinary Science, Rajendra Nagar,Hyderabad, - 500 030, AP

News

Functioning of Animal Welfare Association at Gandhigram, Tamil Nadu

'The Animal Welfare Association' is functioning at Gandhinagar in Dindigul district of Tamil Nadu, since 1999. The animal welfare activities include veterinary health camp, infertility camp, vaccination and deworming camp regularly.

The organisation is recognised by the Animal Welfare Board of India, Chennai and sanctioned financial assistance for Rs: 10, 000/- as an initial grant for 2003-04.

Dr. K.V.K. Veerasoaran, B.V.Sc., M.A., M.V.Sc., M.Phil. and Ph.D. scholar in Ganghian thought at Gandhigram Rural University, Gandhigram and a retired Deputy Director of Animal Husbandry in Tamil Nadu Animal Husbandry Department, is appointed as Veterinary Doctor cum Project Director.

S. Palaricharny

Managing Trustee 'Animal Welfare Association'.

Gandhigram, TN

Distinguished Teacher Award to Dr. Mahendra Pal

Dr. Mahendra Pal, University Professor and Head, Department of Veterinary Public Health, College of Veterinary Science and Animal Husbandry, Anand Agricultural University, Anand, Gujarat, has been conferred the "Distinguished Teacher Award" by C.V. Kanpur Education, New Delhi, in recognition of his high academic

achievements and great dedication to the students. Professor Pal is well known authority in the field of Actinomycetic and fungal zoonoses. His original research work is frequently cited by many authors in their text books, monographs, manuals and reviews papers. So far, he has guided 3 Ph.D. and 4 M.V.Sc. students in veterinary public health.



Dr. Mahendra Pal

- Editor

Abstracts**Efficacy of Fenbendazole Granules and Pyrantel Pamoate Suspension Against *Toxocara canis* in Greyhounds Housed in Contaminated Runs**

Michael W. Dryden, *et al.*, *Veterinary Parasitology* (1999) 82 In *Animal Health Spectrum*, summer 1999.

The efficacy of Fenbendazole granules against *Toxocara canis* in infected greyhounds housed in contaminated environments was evaluated. Eight pens, each containing three to seven greyhounds, 3-12 months of age, were randomly allotted into treatment groups. Greyhounds in Group 1 were treated with Fenbendazole granules mixed in their feed at the dose rate of 50 mg/kg/day for 3 consecutive days once a month for 4 months. Greyhounds in Group 2 were treated with pyrantel pamoate suspension at the dose rate of 5.0 mg/kg per os once a month for 4 months. Quantitative fecal examinations were performed on days, 0, 11 and then in the first day of each monthly treatment.

Greyhounds administered Fenbendazole had fecal egg count reductions (FECRS) of 95.8% and 99.8% at 10 and 31 days following initial treatment, respectively. Greyhounds administered Pyrantel pamoate had FECRS of 85.8 and 88.35 at 10 and 31 days after the first treatment, respectively. *T.canis* fecal egg counts conducted from Day 31, through Day 128 were significantly lower in those greyhounds administered Fenbendazole as compared to greyhounds administered Pyrantel pamoate. Fenbendazole reduced FECRS in greyhounds from Day 31 through Day 128 by 96.8-99.8%. Pyrantel pamoate reduced fecal egg counts during the same time period 71.4-98.3%.

Source : *Veterinary News*, The Lenny Sylvarnia State University PA - 16802

Nutrition of Checks and Layers

T.R.Morris

Department of Agriculture, University of Reading, Earley Gate, Reading, RG66AR,UK

When formulating least-cost poultry diet ME (Metabolized Energy) concentration should be optimised by alternative procedure, not entered as a fixed value. This diet ration must calculate profit margins by taking into account the way in which feed intake and saleable outputs vary with ME, concentration.

In the case of broilers, adjustment of critical amino acid contents in direct proportion to ME concentration does not result in birds of equal fatness. To avoid an increase in fat deposition at higher energy levels, it is proposed that amino acid in laying trials and give economically optimal estimates of amino acid inputs for practical feed formulation. Flocks coming into lay and flocks nearing the end of the pullet year have bimodal distributions of rates of lay, with the result that calculations of requirement based on mean output will underestimate the optimal amino acid input for the flock. Chick diets containing surplus protein can lead impaired utilisation of the first-limiting amino acid. This difficulty can be avoided by stating amino acid requirements as a proportion of the protein.

Source : *World's Poultry Journal*, March 2004, pp.: 5-18

Abstracts**Current Trends in the Microbiological Safety of Poultry Meat**

G.C.Mead

17 Harbutts, Bathampton, Bath, Somerset, BA2 6TA, UK

Contamination of poultry meat products with *Salmonella* and *Campylobacter* spp. continues to be the main microbiological problem affecting both industry and consumers. In some countries, control measures appear to have reduced flock infection with *Salmonella*, but other issues have arisen; these include an increase in multiple resistance to antimicrobials in certain serotypes and the recent emergence of *Salmonella* Paratyphoid B variant Java, also frequently multi-resistant. For intensive production systems, there is much information on sources and routes of *Salmonella* transmission and the relative risk of infection/contamination at different stages of production. Some possible reasons for control failures are discussed. In contrast, less is known about *Campylobacter* sp. in these respects, and a better understanding is needed of the physiology and host-interactions of the organisms, and of their behaviour in poultry operations. On such knowledge may depend the future development of effective controls.

Source : *World's Poultry Journal*, March 2004, pp.: 112-118**Detection of Feline Herpesvirus Infections**K.M. Burgesser, *et al.*

Feline herpes virus (FHV) type - 1 is a ubiquitous alpha herpes virus that infects cats. FHV infection has been associated with serious upper respiratory tract disease, including rhinitis, conjunctivitis, keratoconjunctivitis, and corneal disease, with high mortality can exceed 60%. During the acute stages of infection, large amounts of infectious virus are present in nasal and ocular discharges. Latency in sensory nerve ganglia occurs commonly after recovery from acute infection. Recrudescence of clinical signs and shedding of infectious virus can occur at later times after reactivation by a variety of stimuli or by corticosteroids. During periods of reactivation, small amounts of infectious virus are shed for a shorter period of time than during acute primary infection.

Clinical signs of conjunctivitis are not pathognomonic for any etiologic agent but represent a reaction pattern of the conjunctiva to insult. Pathogens, that have been associated with feline conjunctivitis in addition to FHV, include *Chlamydia psittaci*, *Mycoplasma* spp., and other less common bacteria and viruses. Non-infectious causes of conjunctivitis may also result in similar, clinical signs. When other causes of conjunctivitis or keratitis have been eliminated, especially in chronic or recurrent disease, a positive PCR result may be more meaningful.

Source : *J. Vet. Diagn. Invest.*, 11: 1999, In *ISU Vet Med*, May 1999.



The '*Creature Companions*' New Veterinary Pet Magazine

A new magazine '*Creature Companions*' was released in the month of May 2004. The publication team headed by Ms. Linda Brady-Hawke and Mr. William Hawke on behalf of L. B. Associates, Noida, Delhi are committed to focusing on the protection, health and welfare of the pet animals through technical and interesting articles from the eminent pet experts in the country. The magazine covers information, suggestions and Do's and Don't for the companion animals like - dogs , cats, birds, fish and other large & small pet animals as well. The magazine is edited by Mr. William Hawke and the marketing part is looked after by Mr. Binoy Sahee. The '*Creature Companions*' will be published quarterly and is targetted towards the pet owners and shall attempt to include contents that address the complexities regarding pet ownership and other matters. The name of the magazine itself suggested that it is only related to pets but not to the animals produced commercially for food, racing , laboratory research, etc.

The cover price is Rs. 55/- but with a subscription of three years (Rs. 600/-) one can get a complementary file cover in which one can save past issues. The contact persons are Mr. William Hawke / Mr. Binoy Sahee at the following address. L.B.Associates (Pvt.) Ltd., A-16, Sector 35, Noida.UP. Tel. No. 95120-2506666, Fax No. 95120-2506655. e-mail to hawkelba @satyam.net.in

-Editor



The North East VETERINARIAN

A quarterly magazine on animal health care and livestock Production

The North East Veterinarian (NEV) is published quarterly. The magazine is on animal health care and livestock production and dedicated to the field veterinarians of the country. It is not a commercial venture, but aimed to refresh the field vets with the recent advances and approaches on animal health care as well as to create enthusiasm, writing habits among the field vets. Today, NEV is in its 4th year of publication and getting overwhelming response from the field vets.

The NE Veterinarian

Birubari, Guwahati - 781 016.

Ph : 0361-24744636 E-mail : d_nayanjit@rediffmail.com

Applied Animal Endo-crinology

E.J. Squires

Department of Animal and Poultry Science, University of Guelph, Canada

The purpose of this book is to explain the role of hormones in improving and monitoring the production, performance, reproduction, behaviour and health of animals. The focus is primarily on commercially important farm animal species, including poultry and fish as well as cattle, pigs, sheep and horses.

The contents include a description of hormone and receptor structure and function as well as methods for the production of hormones and the manipulation of endocrine function. This is followed by a description of the endocrine effect on growth and carcass composition, along with animal products (egg, milk and wool), reproduction, and animal health, behaviour and welfare. The book provides a text book reference, suitable for advanced students of animal science and veterinary medicine.

Publication October 2003; pages : 272; Binding : Paperback; ISBN: 0 85199 5942;

- Editor

Comments/Suggestions on 'The Blue Cross Book' - 21 and Expected Articles for 'The Blue Cross Book' - 23

1. Dr. S. Jagadish

Ex-Editorial Board Member, "The Blue Cross Book" and Dean (Retd), Bombay Veterinary College, Parel, Mumbai, MS

Tel. No. 022-28206535

'Thank you very much for sending the 21st issue of "The Blue Cross Book". The majority of the articles cater to the clinicians and field veterinarians which is very creditable. The article on 'Differentiation of *Theileria annulata* in Salivary Glands of *Hyalomma anatolicum anatolicum*' is very useful for epidemiological studies. Similar work was carried out by me during my doctoral studies during 1975-78 and was published in the book on The Haemoprotozoan Diseases of Domestic Animals, edited by Gautam, Sharma and Dhar -1980. This is just for your information only.

Thank you once again. Keep up this good work.'

2. Dr. P.Ranga Reddy

10 [old No.18], Ganapathy Street, Royapettah, Chennai- 600014

Tel.No. 044-28117778

'I express my sincere thanks for the issue 21/2003 of "The Blue Cross Book". All the reasearch articles are practical oriented with field applications. I request to concentrate also on poultry research articles since all presently included are from livestock. I can send research review article if needed on "Immune Modulation and Stimulatio".'

3. Prof. K. Muraleedharan

House No. T.C. 37/282, "Pranayam", Thrikkumaramkudam, Thrissur, Kerala- 680 003

Tel.No. 0487-2383677

'Each issue of "The Blue Cross Book" contains short easily readable articles which will help sourcing of valuable information for both research oriented and field veterinarians. Article for publication will be sent in due course.'

4. Dr. Nagendra Gupta

Kunal Pet Care Aids, 212 - Chandralok, Aliganj, Lucknow, UP

Tel.No. 09415352518

'I am very happy and glad to receive "The Blue Cross Book" from your Sr. Sales Executive, Mr. R.K. Sharma (Lucknow). The journal is very useful and informative. We are eagerly looking forward for the future issues. Articles will be sent shortly through e-mail.'

5. Dr. A.Rajeshwar

Veterinary Assistant Surgeon, Centralised Semen Collection Centre, Sarangapur (P.O.) Nizamabad - 503186

Tel.No. 08462-221753

'As our office is not at all getting this copy, please send also one copy to my residence address. I will submit an article on hypo-calcaemia in cows shortly.'

Comments/Suggestions on 'The Blue Cross Book' - 21 and Expected Articles for 'The Blue Cross Book' - 23

6. Dr. K.A. Doraisamy

Professor and Head, 42-5171, G.I.P.G. Nagar, Jagir Ammopalayam, Dist. Salem - 636 302
Tel.No. 2342455

'Mass Deworming Programme Through Balanced Feed and Concentrated Feed Pellet Incorporated with Febendazole in the Rural Area'- this work has to be studied further on the aspect of long-term feeding on the production.'

7. Dr. R.U. Ingle

Deputy Director of Animal Husbandry, Rekha colony, V.M.V. Road, Amravati, MS
Tel.No. 2530032

'FMD Outbreaks and Virus Types in Assam and NE State, India during 1998-2001' is really useful for the field veterinarians particularly in that area. This type of data should be generated and published for Maharashtra state also.'

8. Dr. Ram Kishore Sharma

Veterinary Surgeon & Physician, Ganoulkothi Ashirwad Bhawan, Kharmanchak,
Dr. D.N. Singh Road, Bhagalpur - 812 001, Bihar
Tel.No. 0641 2429847.

'I am very happy in getting "*The Blue Cross Book*" 21st issue and many thanks to Dr. A.K. Datta for sending the issue regularly. I have been going through "*The Blue Cross Book*" whenever I have had an opportunity. It is now getting the shape of a true scientific journal. The articles are of field importance and very helpful to field veterinarians. This issue impressed me a lot as an increased number of case reports and news are included i.e. 'Management and Therapy of Parturient Paresis with Heat Stroke in HF Cow', 'Free Milker (leaker) Cow' and 'Surgical Treatment of an Unusual Intestinal Obstruction in dog'. Efficacy of a New Antibiotic - 'Ciftiofur sodium against Actinomycosis' & 'Efficacy of **Iliren**® (from Intervet) against Delayed Parturition in the Murrah Buffalo'. Obviously, these will be beneficial for the field veterinarians in the country.'

9. Dr. S. Suryanaratana

A.H. Professor & University Head, Department of Clinical Veterinary Medicine & Head Teaching Veterinary Clinical Complex, College of Veterinary Science & A.H., Rajendranagar, Hyderabad - 500 030, AP
Tel.No. 040 24062906

'*The Blue Cross Book*' is providing very useful and technical information for which I appreciate the Editor, Dr. A.K.Datta. I would like to send abstract on the clinical biochemical and therapeutic studies on mange in dogs.'

10. Dr. P. Dhanavel

Veterinary Assistant Surgeon, Veterinary Dispensary, Sikkal, Nagai - 611 108, TN

Comments / Suggestions on '*The Blue Cross Book*' - 21 and Expected Articles for '*The Blue Cross Book*' - 23

'Ingestion of Plastic Materials - A Real Bovine Health Hazard' – R.N. Kohli has provided the most needed information. Since, increasing usage of plastic materials leads to environmental pollution as well as more seriously affects to ruminants, causing non-traumatic Reticulo-ruminal disorder. This attempt is really adorable. Thank you and I congratulate and wish you for the continuance of the current updates.'

11. Dr. R.N. Kohli

922, Sector - A (B/C), Vasant Kunj, New Delhi- 110 070

Tel.No. 011-26896911

'In the article entitled "Ingestion of Plastic Materials - A Real Bovine Health Hazard" by R.N. Kohli, published on the pages 12-15 of the 21st issue of "*The Blue Cross Book*". The words '(Kohli *et al.*, 1998)' Kindly be read as '(Singh & Sobti, 1998)' at the following places in the text, under the Incidence (P:12): Last line of the first paragraph and Clinical signs (P:13): 24th line (i.e. 3rd from the bottom). The reference may kindly be noted as: Singh, M. and V.K. Sobti (1998). *Ind. J. Vet. Surg.*, **19**(2), p.: 126. Sorry for the inconvenience caused in this regard.'

12. Dr. D.S. Dadke

National Aids Research Institute (NARI), Pune, MS

Tel.No. 0211-4 228411

'Being a regular reader of "*The Blue Cross Book*" I heartily congratulate Intervet as your publication has been enlisted in CAB International, the UK. Basically, I am a veterinarian and working in a "Medico field" and would like to read more and more articles about "Aids in Animals". So looking forward for the next issues.'

13. Dr. R. Jayachandran

Senior Veterinary Surgeon, Duchoadam, Ambalathinkara, Kazhakkuttom, P.O. Thiruananthapuram - 695582, K S

Tel.No. 0471 2416132

'The article "Use of Prokinetics in Canine Medicine" is of veterinary use and interesting to note that Metoclopramide and Ranitidine together with oral antacids give wonderful results in canine gastritis and oral administration of liquid paraffin along with parenteral administration of metoclopramide and Ranitidine enhances gastric emptying and relieves constipation. Expecting much more such articles in canine medicine and surgery.'

14. Dr. A.K. Srivastava

Additional Director (Poultry), Directorate of Animal Husbandry, Badshahbag, Lucknow - 226 007, UP

Tel. No. 98390 25350

'Thank you very much for continuing "*The Blue Cross Book*". But one thing I have to mention that I am not a Veterinary Officer at Veterinary Hospital, Badshahbag. I was at Polyclinic, Lucknow till March 1993 and I got elevated and now working in the Directorate of Animal Husbandry, UP. I am now AD (Poultry). I met you in Pune in the year 2000. Please correct my designation and address.'

GUIDELINES TO CONTRIBUTORS

"*The Blue Cross Book*" is published biannually. The contributions to the journal are accepted in the form of invited review articles, research articles (clinical / field studies), case reports, other information pertaining to animal health and production. The decision of the Editorial Board members will be final regarding acceptance of the article for publication. The manuscript should be typed on one side of the paper with double spacing except for footnotes and references for which single spacing be used. The style of reference citing should be strictly followed as shown below. The words to be printed in italics should be underlined. The manuscript should be arranged in the following order:

- Title** : Note on the Outbreak of Pox in Sheep
- Name/s of author/s** : K. Kumari, P.C. Chowdhri and P.K. Das
- Place of work** : Department of Pharmacology, Bombay Veterinary College, Parel, Mumbai-400 012, MS
- Materials and Methods** : In details.
- Results and Discussions** : With the help of tables/ figures etc.
- Reference/s** : For Periodical/s : Surname/s and initials/s of author/s, year of publication in parenthesis, abbreviated title of journal (*italic*), volume number (**Bold**), first and last page number/s.
- e.g. Chhabra, D., Moghe, M.N. and Tiwari, S.K. (1996). *Ind. Vet. J.*, **82**, **PP**: 1-3.
- : **For Books** : Name/s of author/s, year of publication in parenthesis, title of the book, edition (**Bold**), name of publishers (*Italic*) and place.
- Radostits, O.M., Blood, D.C. and Gray, C.C. (1994). *Veterinary Medicine, 8th Edn., English Language Book Society (ELBS)*, London
- Tables and Figures** : Tables are to be numbered in Roman numbers (I, II and so on). Each table should have a clear title. Figures should be of good quality and numbered in Arabic numbers (1, 2, 3 and so on).

For clinical articles and short communications, these should not exceed four typed pages. For case reports, history, observation, tentative and confirmatory diagnosis, line of treatment and follow up on the case should be given.

Authors are requested to confirm that the paper has not been published elsewhere and also to indicate details of postal address for communication along with telephone/fax number with STD code etc.

We would appreciate if you kindly send us your manuscript (technical article) in Word File either by floppy disc or by e-mail : adatta@intervetindia.com, anupkdatta@yahoo.co.in

All manuscripts should be mailed to the following address :

Dr. Anup K. Datta, Editor, "*The Blue Cross Book*", Intervet India Pvt. Ltd., Briahnagar, Off Pune-Nagar Road, Wagholi - 412207, Dist. - Pune, Tel. (Direct) : +91-20-27051811, Fax : +91-20-27050859
E-mail : adatta@intervetindia.com, anupkdatta@yahoo.co.in



Research Makes the Difference

Intervet India Pvt. Ltd.

Briahnagar, Off Pune - Nagar Road,
Wagholi - 412207, Dist. Pune.

Tel.: +91-20-7051800-803, Tel. (Direct) : +91-20-7051811, Fax : +91-20-7051805
E-mail : adatta@intervetindia.com