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*"The history of the world is the history of a few men who had faith in themselves.  
That faith calls out the Divinity within. You can do anything.  
You fail only when you do not strive sufficiently to manifest infinite power.  
As soon as a man or a nation loses faith in himself or itself, death comes,  
Believe first in yourself, and then in God."*

*- Swami Vivekananda*

*"God never fails His devotees in the hour of trial. The condition is that  
there must be living faith in and the uttermost reliance on Him.  
The test of faith is that having done our duty we must be prepared to welcome,  
whatever He may send - joy as well as sorrow; good luck as well as bad."*

*- Mahatma Gandhi*

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## PREFACE



**Victor van Solinge**  
Managing Director  
**Intervet India Pvt. Ltd.**

Dear Readers,

It is an immense pleasure and honour to hand over the 21<sup>st</sup> issue of '*The Blue Cross Book*' to you.

Let me thank my predecessor, Dr. Herve Laberthe who will be returning to Europe, for his contribution to '*The Blue Cross Book*' for the last six issues .

I hope you will continue to provide your support and valuable suggestions which have been instrumental to the success of '*The Blue Cross Book*' .

As discussed with the Editorial Board members, I am happy to note that the real usefulness of '*The Blue Cross Book*' is now firmly established amongst the field veterinarians and the academicians in different veterinary institutions in India. Last year, the journal has been enlisted under CAB International (CABI), the UK. The CABI aims to cover all scientific publication on a global level. We are thankful to all scientists and field veterinarians for their contribution of technical articles and case reports, without which this may not have been possible.

I would like to take this opportunity to inform you of two new products, launched by Intervet recently. The products are **Chlorasol™** and **Bazuril,™** a disinfectant and an anti-coccidial with growth promoting efficacy, respectively.

Let me also express Intervet's continuous support and commitment to '*The Blue Cross Book*' and the Animal Health Industry.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'V. van Solinge', written over a horizontal line.

**Victor van Solinge**

*“Victor van Solinge was born on 25/03/1965 in the city of Gouda in the Netherlands. He has a Masters Degree in Operational Research & Econometrics, received in the year 1990, at the Free University in Amsterdam, the Netherlands.*

After receiving degree and a short stay at another company, he continued his career with Intervet in the Netherlands in the Logistics department. He was assigned to the job of defining a new Logistic concept for Intervet. During September 1991, Victor was made responsible for **Production Planning and Distribution** of all Intervet sites, world wide to implement the newly defined Logistic concept.

In 1996, he moved to Economical Finance department as **Business Economist**. In this department, he worked on the preparations of many projects in Asia, like China and India. He was also actively involved in various company acquisitions in Australia and India and also in the most recent merger between Intervet and Hoechst Roussel Vet.

**Victor van Solinge is now heading Intervet India Pvt Ltd. as Managing Director with effect from November 1, 2003.**

On behalf of the Editorial Board members, **I welcome you Victor, as our new Patron of 'The Blue Cross Book'**

- Editor

*" If you do not pray to God, what is that to Him ?  
It is only your misfortune"*

**- The Holy Mother Saradamani**

*" Happiness is not a state of becoming. It is a state of being. You don't  
acquire happiness. You assume happiness "*

**- John E. Haggai**

*" Never stop being creative. The more you practise the more  
creative you become. Creativity spells success."*

**- Alden James**

*" The secret of being miserable is to have leisure to bother about  
whether you are happy or not. The cure for it is occupation "*

**- Bernard Shaw**



## THE VETERINARY COLLEGE IN INDIA

### BIHAR VETERINARY COLLEGE, PATNA

The Bihar Veterinary College, Patna is one of the premier colleges of the Rajendra Agricultural University and being the oldest institution, it is proud privilege of this institution in training of quality veterinarians, many of whom have been instrumental in disseminating the knowledge for the protection of health of animals and increased productions of livestock procedure not only in this country but in number of developing countries as well. Many of the illustrious scholars of this college have also occupied highest positions and identifying themselves as prominent as the nation builders. The Bihar Veterinary College has the history of keeping itself abreast of recent developments and has acquired infrastructures and facilities, which are unique in this country. From the outset, i.e. from 1930 to 1949, a three year diploma course was initiated, awarding G.B.V.C. (Graduate of Bihar Veterinary College) to the successful candidates. Keeping pace with the advancement of science and technology, degree course awarding the degree of Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. & A.H.) of four years during was started in 1949 and the college of Rajendra Agricultural University in 1971.

After the declaration of the Jharkhand state and inclusion of Ranchi Veterinary College under Birsa Agricultural University, Birsa, Jharkhand, the Bihar Veterinary college, Patna is solely responsible for catering to the needs of Animal

Husbandry development programmes for rest of Bihar.

At present, the college has 17 departments, namely — Veterinary Anatomy, Veterinary Physiology, Animal Breeding & Genetics, Animal Reproduction; Gynaecology and Obstetrics, Veterinary Surgery, Epidemiology, Veterinary Parasitology, Veterinary Pathology, Veterinary Public Health, Animal Nutrition, Livestock Product Management, Livestock Products Technology, Veterinary Extensions and Veterinary Biochemistry. The college has also veterinary clinics, composite livestock farm and library.

#### **Academic :**

#### **Under-graduate Programme:**

The college admits 60 students every year, out of which 51 come from Bihar state combined competitive examination and 9 come from the competition conducted by VCI on all India basis. The college awards the degree of Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. & A.H.) of 10 semester system in which last semester in the internship training programme, generally conducted at the district hospitals, livestock & poultry farm, zoo and different clinical disciplines of the college. Since 1991, it has admitted 698 under-graduate students (620 boys & 78 girls), out of which 297 candidates have passed, so far. Rests of the

batches are still continuing their studies in different semesters.

### **Post-graduate Programme:**

Post-graduate courses leading to the award of M.Sc. (Vet) and M.Sc. (A.H.) degree were started in 1960 for specialization in different discipline. The first batch of post-graduate students got their degree in 1962. Students from different states like, Maharashtra, West Bengal, Uttar Pradesh, Gujarat, Tamil Nadu, Kerala, Orissa, Assam and also nominees from Colombo, Afghanistan and Nepal used to come in this institute. Later on in 1972, both M.Sc. (Vet) and M.Sc. (A.H.) were combined to award M.V.Sc. degree under the Rajendra Agricultural University. At present, the college is offering a regular programme of Master degree under the able guidance of 14 departments and has adopted semester system from the academic year 1985-86. Altogether, more than 400 students have been awarded for post-graduate degree since it's inception.

### **Research :**

The college has completed 19 and 13 research projects, funded by ICAR and other agencies respectively, in addition to 66 departmental projects, funded by the Rajendra Agricultural University. Presently, 2 NATP and 7 Ad-hoc research projects, funded by ICAR and one project, funded by Government of Bihar are being carried out in this college.

So far, approximately 1500 research papers have been published altogether, in the leading National and International journals by the different faculty members of the college.

### **Extension :**

The department of Extension education was established in the year 1960 with the financial assistance of Indian Council of Agricultural Research (ICAR). In 1984, M.V.Sc. degree in animal husbandry extension was started. Laboratory to land programme was started in the year 1987. By regular field, television programmes, radio talks and publishing general articles in the popular magazine, this department keeps farmers abreast on the control and prophylaxis of different diseases of livestock and poultry. Till today, already 372 extension articles have been published, 216 radio talks and 26 television programmes have been organised. From time to time, the college also participated in Kisan mela, organized by the university. Camps were also organized for treating the sick and ailing small & large animals and for vaccination against different infectious diseases.

Courtesy :

Dr. Mani Mohan  
Dean & Principal, Bihar Veterinary College,  
Patna.

Photograph and other information collected  
by Dr.P.K.Pal and Dr B.K.Mohapatra of  
Intervet, Patna HQ.

*" The ultimate goal of all mankind, the aim and end of all religions,  
is but one - reunion with God, or, what amounts to the same,  
with the divinity which is every man's true nature "*

**- Swami Vivekananda**

# Etiology and Management of Canine and Feline Ringworm

**M.Pal**

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## **Abstract :**

Ringworm caused by non-dermatophytic fungi is called dermatophytoses. So far, 100 species of dermatophytes listed, 35 species are found to be incriminated in the etiology of ringworm infection both in human & animals. As zoophilic dermatophytes are major public health significance, a detailed discussion on ring worm infection in cats and dogs (pet animals) has been taken up in this article.

## **Introduction :**

Ringworm, also known as dermatophytoses and tinea, is the most common superficial and highly contagious mycotic disease of man and a wide variety of animals (Pal, 1987, 1989 and 1997). The disease is world wide in distribution and occurs in sporadic as well as epidemic form. It is caused by three anamorphic genera of filamentous, aerobic fungi, namely *Epidermophyton*, *Microsporum* and *Trichophyton* which are collectively known as dermatophytes. The word "dermatophyte" literally means "skin plant". The infection caused by non-dermatophytic fungi is called as dermatophytoses. Presently, there are over 100 species of dermatophytes, of which about 35 are found to be incriminated in the etiology of human and animal ringworm. These dermatophytes have the ability to invade the keratinized structures of the skin and also the hair and nail (Pal, 2001). *Epidermophyton* does not attack the hair and *Microsporum* failed to infect the nail. The following dermatophytes are implicated as the cause of ringworm infection in cats and dogs (Ainsworth & Austwick, 1973; Pal 1981 and Pal *et al.*, 1990).

## **Cat :**

*Microsporum audouinii*, *M.canis*, *M.gypseum*, *Trichophyton megninii*, *T.mentagrophytes*, *T.rubrum*, *T.schoeleinii*, *T.terrestre*, *T.verrucosum*, *T.violaceum*.

## **Dog :**

*Epidermophyton floccosum*, *Microsporum audouinii*, *M.canis*, *M.cookei*, *M.distortum*, *M.gallinae*, *M.gypseum*, *M.persicolor*, *M.vanbruseghemii*, *Trichophyton ajelloi*, *T.megninii*, *T.mentagrophytes*, *T.rubrum*, *T.schoeleinii*, *T.simii*, *T.terrestre*, *T.verrucosum*, *T.violaceum*.

*M.canis* is the most frequent cause of ringworm in the cats and dogs. Inapparent infections are common in cats than dogs. In cats, scaly or crusted alopecic patches appear on the ears, face and extremities. Circular or ovoid alopecic lesions with short, broken hair are observed on the face, lower abdomen and extremities of dogs. However, erythema and crust formation occurs in acute cases. Occasionally, generalized lesions may also be noticed. The infection is more common in young animals.

As ringworm in cats and dog may resemble with other skin disorders, such as neoplasia, bacterial dermatitis, seborrhoea and parasitic infestations, the direct microscopy and culture are mandatory to confirm the diagnosis. The skin scrapings and hairs should be collected before medication from the margin of the active lesions as dermatophytes have the tendency to grow centrifugally (Pal & Lee, 1996). The specimen should be obtained on a black paper and not in screw capped glass bottle as high relative humidity favours the bacterial



growth. The contamination of the samples can be minimised by thoroughly sterilizing the skin lesions, scalpel, forceps and hand with 70% alcohol. A part of the specimen on clean glass slide is treated with 2 drops of mixture containing equal parts of 20% potassium hydroxide (KOH) and dimethyl sulfoxide (DMSO) for 5-10 minutes and then examined under light microscope for the presence of septate branched hyphae and arthroconidia. The



Fig.: *Trichophyton mentagrophytes* from cutaneous lesions of a dog on Sabouraud medium.

affected hairs show ectothrix and endothrix type of invasion. The culture should be attempted on Sabouraud dextrose agar (Fig.) with chloramphenicol (0.1 mg/ml) and actidione (0.5 mg/ml) or dermatophyte test medium (DTM). In later medium, the change of colour from yellow to red within 3-7 days at room temperature suggests the presence of dermatophyte. The petri dish of the inoculated medium should preferably be sealed with adhesive tapes to reduce the evaporation. The morphology of the dermatophytes can be made in a recently developed NARAYAN stain (Pal, 1998). It contained 0.5 ml of methylene blue,

4.0 ml of glycerine and 7.0 ml of dimethyl sulfoxide. It is emphasized on the routine use of Wood's lamp as a diagnostic aid of ringworm in pet animals. However, the direct microscopy remains a reliable and rapid tool for the diagnosis of ringworm in field areas where laboratory facilities for isolation of dermatophytes are not available.

Management of the ringworm in cats and dogs require the use of topical as well as systemic use of anti-fungal drugs. Numerous topical agents such as 1% ciclopirox olamine, 1% clotrimazole, 1% econazole, 2% ketaconazole, 2% miconazole, 1% terbinafine, 1% tolnaltate are recommended for the treatment of ringworm (Pal, 1997). The therapy is done with topical application of drugs on each lesion after the removal of crusts and scales with plastic brush in an enamelled bowl containing with 5% lysol or cresol. The drug should be applied two times daily for at least 2-3 weeks. In case of extensive, severe and generalized lesions, oral chemotherapy with griseofulvin (10-20mg/kg body weight) and ketoconazole (10mg/kg body weight) along with topical drugs should be done.

The animal pen, chain, water and feed utensils should be treated with 2% formaldehyde or 5% phenol. The crusted material, which is full with infectious fungi, should be properly disposed off either by burning or burying. The diseased pets should be isolated and treated. In cat colonies where *M.canis* is the chief pathogen, the screening can be done by the wood's light as *M.canis* produce a green fluorescence. It is advised that hair brush technique should be employed to identify the carriers of *M.canis* in catteries and kennels by isolation on DTM or Sabouraud medium at 25°C. As zoophilic dermatophytes are of major public health significance, care should be taken while handling the diseased animals or infected material (Pal, 1991 and 2001). The pet handlers are advised to frequently wash their hands with antiseptic soap or solutions to avoid the spread of infection to other susceptible ones.

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# Use of Prokinetics in Canine Medicine

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## Introduction:

Prokinetics are the drugs usually employed to enhance gastric emptying and thus play an important role in the management of gastric hypomotility syndrome in dogs and cats. Gastric hypomotility with delayed emptying of liquid and/or solid contents of the food is clinically manifested by nausea, vomiting, heart burn, post prandial discomfort, indigestion and gastro-esophageal reflux. These syndromes may occur as a result of primary diseases like gastritis, gastric foreign bodies, gastric motility disorders, pancreatitis, gastric neoplasia and gastric distension etc. or may be secondary to systemic disorders. In such cases dietary management is complementary to prokinetic therapy. Dietary regimens in these cases comprised of small frequent liquid meals with both of carbohydrate but low in fat and proteins. To facilitate an early emptying without overstay of food in stomach, prokinetics have become the drug of first choice. Some prokinetics are selective in their action owing to their effect either on proximal or distal gastrointestinal tract while others influence whole gastrointestinal tract. Therefore, prokinetics find their use in the management of bilious vomiting syndrome, oesophagitis, gastro-esophageal reflux, constipation and abstinence in pet animals. In hepatic lipidosis, prokinetics such as metoclopramide or cisapride are also being recommended to prevent vomiting. Cases of intestinal obstruction due to rug have also been managed using cisapride along with fluid therapy and H<sub>2</sub> blockers (Gaur *et al.*, 2001). Cisapride, metoclopramide, domperidone, ranitidine, nizatidine, erythromycin, bethanechol and trinitrobenzamide have

been reported to have prokinetic activity. A brief account of these drugs along with their doses and use is being discussed herein.

## Metoclopramide:

Prokinetic activity of metoclopramide is believed to be through antagonism of dopaminergic D-2 receptors and agonism of serotonergic 5-hydroxy tryptamine-4 (5-HT<sub>4</sub>) receptor. The drug also enhances release of acetyl choline from myenteric neurons (Reynolds & Putnam, 1992) therefore, concurrent use of atropine can make metoclopramide ineffective. Metoclopramide increases motility of smooth muscle from esophagus through proximal small bowel and accelerate gastric emptying. The drug is recommended not only as a prokinetic but also as an anti-emetic agent. As a prokinetic, it is indicated in the management of delayed gastric emptying gastroesophageal reflux, reflux esophagitis, reflux gastritis in dogs and cats at the dose rate of 0.2 to 0.5 mg/kg orally or parenterally every 8 hourly intervals. The drug can also be used as constant rate infusion at the rate of 0.01 to 0.02 mg/kg every hour or 1-2 mg/kg every 24 hour. In humans, metoclopramide has been found to be minimally effective in preventing esophagitis due to gastroesophageal reflux (GER). Metoclopramide also increase the amplitude and frequency of antral contractions, inhibits fundic receptive relaxation and coordinates gastric, pyloric and duodenal motility. It acts initially to inhibit vomiting through activation of dopaminergic D<sub>2</sub> receptor in chemoreceptor triggering zone and also peripherally through enhancing gastric emptying. Its use is contraindicated in cases of gastro-intestinal haemorrhage,

perforation or obstruction. Since it decreases seizure threshold, metoclopramide should not be used in cases of epilepsy.

### **Domperidone:**

It has been used experimentally to inhibit vomiting and alter gastric motility but clinical details lacking in dogs. It is peripheral dopamine antagonist. It has potential antiemetic activities similar to metoclopramide but it is more potent anti emetic agent in controlling chemoreceptor triggering zone mediated vomiting. The drug has negligible effect on colonic motility. Its effect in the management of gastroesophageal reflux disease has not been documented even in humans.

### **Cisapride:**

It indirectly stimulates cholinergic nerves (Reynolds & Putnam, 1992; McCallum *et al.*, 1988). The effect of cisapride on motility of stomach and small intestine closely resembles with metoclopramide and domperidone. It has 5HT<sub>1</sub>/5HT<sub>3</sub> antagonistic effect on enteric cholinergic neurones and non-5HT effects on canine antral cholinergic neurones. It is a drug of choice in managing the cases of delayed gastric emptying and gastroesophageal reflux at the dose rate of 0.1 to 0.5 mg/kg orally every 8 to 12 hourly, before meal. It is also effective in a wide variety of gastrointestinal condition. In addition it has been found promising in treating chronic idiopathic constipation and colonic hypomotility in human. It has also been found effective in preventing esophagitis due to gastroesophageal reflux (Klinkenbergknol *et al.*, 1995). In cats, it has been found effective in the management of constipation/obstipation at the rate of 0.1 to 0.5 mg/kg b.wt. 8 hourly orally as it has been shown to stimulate feline colonic smooth muscle contraction (Haster & Washabau, 1997). The drug is more potent than metoclopramide in stimulating gastric emptying and increasing gastroesophageal sphincter pressure. In dog, it accelerates gastric

emptying by stimulating pyloric and duodenal motor activity by enhancing antropyloroduodenal co-ordination and increasing duodenal contraction. It also increases colonic motility and can cause diarrhoea in man (Macallum *et al.*, 1988). It has a weak anti-emetic effects against apomorphine induced vomiting in dogs. Its gastro-intestinal effect may be blocked by atropine. Cisapride does not seem to have dopamine antagonist activity and hence does not influence concentration of prolactin.

### **Mosapride:**

It is a newer prokinetic that relieves gastric discomfort and restores motility. The drug has no affinity to D<sub>2</sub> receptor hence it is safe to CNS. It is 5HT<sub>4</sub> receptor agonist.

### **Erythromycin:**

It is believed to stimulate gastric motility via motilin receptors (Reynolds & Putnam, 1992) and therefore cause vomit in many dogs. The gastrointestinal polypeptide motilin has been found to initiate intestinal interdigestive myoelectric complex (Brunton, 1996). In human medicine it has also been used to enhance gastric motility (Keshavarzian & Issac, 1993). Erythromycin and other macrolide antibiotics accelerate gastric emptying by inducing antral contraction. The prokinetic dosage of erythromycin is much lower (0.5 to 1 mg/kg per os tid.) than that of antimicrobial (10-20 mg/kg per os tid.) in dogs and cats. The development of macrolide analogs of motilin has opened a new chapter in the development of a new class of prokinetics.

### **Ranitidine:**

It stimulates gastro-intestinal tract motility by lowering acetylcholinesterase activity and thus increases acetylcholine. It is said to be useful in the management of gastric motility deficit and gastric ulcer. In fact, gastric ulceration might

led to delayed gastric emptying. Ranitidine exerts its prokinetic effect at the usual dose rate of 1-2 mg/kg given 12 hourly. It is reported to stimulate colonic motility in cats through inhibition of synaptic acetylcholinesterase (Hall & Washabau, 1997) and hence, can be valuable in management of constipation.

#### **Nizatidine:**

It acts as reversible, competitive H<sub>2</sub> receptor antagonist with gastric antisecretory properties and increases gastric contraction and accelerates gastric emptying at gastric antisecretory dose. Like ranitidine it is also indicated in the management of delayed gastric emptying at 2.5-5.0 mg/kg *per os* 24 hourly. Its prokinetic activity is comparable to that of cisapride and have wide margin of safety. It does not involve hepatic microsomal enzyme activity. It should not be used with atropine as beneficial prokinetic effect of nizatidine is blocked.

#### **Bethanecol:**

It also enhances gastric motility to some extent but does not accelerate gastric emptying and often produce unacceptable side effects. Owing to its potential anticholinergic side effects it must be used carefully.

#### **Trimethobenzamine:**

The drug exercises its antiemetic effect through

blocking dopamine receptor. Dystonic symptoms may be seen in following its use in humans. It is less effective than metoclopramide. Drowsiness, dizziness, allergy, extrapyramidal symptoms are common side effects.

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*" God is formless and God is with form too, and He is that which transcends both form and formless. He alone can say what else He is "*

**- Sri Ramakrishna Paramahansa**

*"Put purpose in your life. Take the tools at hand and carve your own best life."*

**- Dr.Frank Caprio**

# Ingestion of Plastic Materials - A Real Bovine Health Hazard

R.N. Kohli

922, Sector A (B/C), Vasant Kunj, New Delhi- 110070

## Abstract:

An attempt has been made in this report to analyze the present information on the incidence, etiology, pathogenesis, clinical signs, diagnosis, treatment and prevention of this condition so as to build a data base for clinical research on the subject. The matter attains urgency because of the speed at which it is spreading to become a real bovine health hazard.

## Introduction:

Ingestion of abnormal feed leads to dysfunction of ruminant fore-stomachs commonly referred to as indigestion. Vagus indigestion is one of the sequelae of acute, sub-acute and chronic forms of traumatic reticuloperitonitis resulting from ingestion of small sharp metallic objects. Acute engorgement of rumen due to ingestion of excessive quantities of fermentable feeds also sets up a similar but a more complex and variable disease process. A similar syndrome is also produced by chronic ruminal engorgement caused by ingestion, over a variable period of time, of large quantities of plastic materials.

## Incidence:

Perhaps the disease commenced as soon as the plastics became available for regular use. It has been suggested that in adult cows, the ingestion of placenta occasionally produces an obstruction of cardia or rumino-reticular orifice. Similar obstruction can also be caused by ingestion of plastic bags or discarded rectal palpation sleeves even after considerable time has passed (Garry, 1996). Fifty four cases of

chronic ruminal engorgement associated with ingestion, over a variable period of time, of large quantities of plastic materials and their accumulation in rumen were observed in south west Iran during a six year period (Kohli *et al.*, 1998). Similarly, it has been reported that in a herd of buffaloes in north India more than thirty animals died over a time period after showing anorexia for 6-8 weeks leading to gradual loss of condition. Necropsy on one buffalo and rumenotomy on two randomly selected buffaloes led to the recovery of plastic ropes (from the rumen and reticulum) which were probably ingested by the animals about three years back (Kohli *et al.*, 1998).

Small ruminants are often regarded as less indiscriminate in their eating habits. Despite that some solitary cases of ingestion of plastics have been recorded in sheep and goat (Eshoue *et al.*, 1989; Hailat *et al.*, 1995; Hailat *et al.*, 1998; Kohli *et al.*, 2000 and Kumar *et al.*, 2000).

## Etiology:

Indiscriminate feeding habits of the ruminants, non availability of green fodder, mineral deficiencies and malnutrition due to unbalanced diets, adverse climatic conditions, lack of enclosures and stalls, free roaming of animals and easy availability of plastic materials are the main factors responsible for ingestion of plastics by the susceptible animals.

## Pathogenesis Following Ingestion of Plastics:

Following ingestion by ruminants, these non-biodegradable (and thus non-digestible) plastic materials are passed on into the rumen.

Their smooth and malleable nature help an easy passage through the oesophagus. Smaller quantities may lodge in the rumen for long periods without causing any serious clinical signs. However, their accumulation in the rumen over a period of time sets up clinical signs of indigestion associated with ruminal engorgement, blockage of reticulo-omasal orifice and decreased reticulo-ruminal motility, etc. The presence of large quantities of plastic materials obviously upsets the normal functioning of the fore stomachs. The fermentation of ingesta, for which the ruminant fore stomach serves as a large specialized vessel, is adversely affected because the ruminal capacity gets reduced due to occupation of functional space by plastics. Engorgement of rumen increases the intraruminal pressure leading to pain and depression of appetite. Obstruction of reticulo-omasal orifice would produce clinical signs resembling those of vagus indigestion (Radostits *et al.*, 1994 and Behl *et al.*, 1996) but may cause more acute signs which have been suggested to have caused death of many buffaloes following ingestion of plastics over a period of time (Kohli *et al.*, 1998). Omasal canal obstructions usually result from ingestion of baling twine or plastic and are easily diagnosed during rumenotomy (Constable, 1986).

#### **Clinical Signs:**

An analysis of the pre-operative case histories of 54 animals which were later diagnosed to be the victims of ruminal engorgement due to ingestion of plastics, revealed that almost all of them were presented with a history of lack of appetite, decreased production and progressive loss of condition and weight. The average reticulo-ruminal motility was less than 1 in 3 per minutes. The defaecation was often decreased but faeces were mostly of normal consistency. The animals had often been treated earlier for chronic recurrent bloat. The body temperature, heart and respiration rates were

always within the normal range. The rumen on rectal examination was often found to be enlarged and its consistency was variable from hard to doughy to mildly tympanic. The back pinch test was negative. The pH of the ruminal contents, measured only in 5 cases, was normal. The total and differential blood counts fell within the normal range in all the animals (Kohli *et al.*, 1998). Only anorexia and gradual loss of condition have been reported to be the clinical signs in buffaloes (Kohli *et al.*, 1998) while partial anorexia with distension were observed in a goat (Kumar *et al.*, 2000).

#### **Diagnosis:**

Reticulo-ruminal engorgement with plastic materials has no specific pathognomic clinical signs to help in making immediate diagnosis. Since the syndrome resembles the well known diseases like traumatic reticulo-peritonitis, peri-reticular abscess, diaphragmatic hernia (reported in buffaloes in India), ruminal engorgement with other non fermentable or fermentable food materials and vagal indigestion, etc. The latter diseases were usually suspected till such time laparorumenotomy revealed the plastics.

In making the diagnosis, the elimination of traumatic reticulo-peritonitis, diaphragmatic hernia, and other diseases of the fore-stomachs is therefore, necessary.

#### **Treatment:**

Removal of the ingested plastic materials from the rumen and reticulum via laparorumenotomy is the only treatment. This, followed by routine administration of antibiotics and parental fluids during the post operative period, led to complete and uneventful recovery of all the 54 cases treated during a six year period. The only problem faced sometimes during treatment was the difficulty in the removal of plastic impregnated rumenal contents in those cases where they assumed the shape of a huge hard ball-like lump that almost entirely occupied the ruminal

cavity. The lump had to be cut and split several times within the rumen (where there was hardly any working space for doing so with the help of cutting instruments) before it could come out of the abdominorumenal incision. This was tiring and time consuming even after extension of the incision. The plastic mixed ingesta removed from these animals was not weighed

but was estimated to be around 50 kg (Fig.). Filling the evacuated rumen with about 20 kg of mixture of water soaked concentrate, wheat bran and 50 to 100 g of ruminotoric powder has been reported before closing the incision (Mehendale *et al.*, 1998).

**Prevention:**

Plastics being a general environmental hazard have attracted a slogan: ‘Say NO to Plastics’ introduced by environmentalists. Veterinarians and animal lovers should join the movements against the use of plastics on their own ground because it constitutes a real bovine health hazard.

Research on the production of biodegradable plastics can be strengthened and supported by all communities and by Veterinarians and establishments associated with them.

Government should regulate the use of plastic materials at official and private functions like parties, receptions, dinners etc. and ensure proper disposal of all non biodegradable materials immediately after these events. Offenders should be heavily penalized.

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**Figure:** (Top) A lump of plastic mixed ingesta hangs out of the incision during its removal from a heavily engorged rumen of a cow at laparo-rumenotomy; (Bottom): A part of the ruminal contents impregnated with black plastic strands removed from a cow.



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# Prevalence of Helminth Parasites in Cattle Reared in Shopian Area of Kashmir Valley

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## Abstract:

Coprological examination carried out to study the prevalence of helminth parasites in the cattle from Shopian area of the district Pulwama (J&K state), revealed seven types of nematodes, four types of trematodes and one type of cestode. The overall prevalence rate was 75.1%. Prevalence rate of the parasites was highest for *Strongyloides* spp. (36.5%), followed by *Amphistomes* spp. (26.6%), *Dicrocoelium* spp. (18.8%), *Ascaris* spp. (18.4%), *Schistosoma* spp. (12.7%), *Fasciola* spp. (10.6%), *Trichuris* spp. (5.3%), *Moniezia* spp. (1.7%), *Nematodirus* spp. (0.7%), *Marshallagia* spp. (0.7%) and *Cooperia* spp. (0.3%). The overall prevalence rates were higher in animal over one year of age (76.3%) compared with calves less than one year of age (72.0%). Also the prevalence was higher in Shopian area (86.0%), followed by Kellar area (77.4%) and Rajora area (63.7%).

## Introduction:

Parasites are ubiquitous. Their infection occurs in cattle, raised both under range as well as intensive managemental systems, causing huge economic losses to the industry. For effective control measures, knowledge of the prevalence of parasitic infection is essential. The present study was undertaken to investigate the prevalence of parasites in cattle in the Shopian belt of the district of Pulwama of Kashmir valley.

## Materials and Methods:

A total of 282 dung samples including 75 from young (less than one year of age) and 207 from adult (more than one year of age) were collected from cattle, reared in different areas of Shopian belt of the district of Pulwama (Table I) during August to December. The sample were preserved by adding 2% formalin and brought to the laboratory for qualitative evaluation of parasitism.

## Results and Discussion:

Out of 282 dung samples, 212 (75.1%) were positive for various parasitic ova, and the infestations were mostly of mixed types (Table II). The overall prevalence was higher (76.3%) in adult animals (more than one year) than (72.0%) in younger animals (less than one year). Among the three strata, prevalence was highest in Shopian (86.0%), followed by Kellar (77.4%) and Rajpora (63.7%). In Shopian area, both adults and young cattle were equally affected (86.3% and 85.8% respectively) while in Kellar area, prevalence was high in younger age group (87.5%), compared to adult age group (73.9%). Nematode infections were highest followed by trematodes and cestodes. In all, seven types of nematodes, four types of trematodes and one type of cestode were recorded. Among the nematodes, prevalence was highest for *Strongyloides* spp. (including *Strongylus* spp.), followed by *Ascaris* spp. and *Trichuris* spp.

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**Table I: Show geographical areas selected for collection of dung samples from cattle in the district of Pulwama.**

Area	Nature of the Land	Villages selected	Number of samples		
			<1 year	>1 year	Total
<b>Rajpora</b>	Plains near the central Pulwama	Wathoo, alampora, Wampora and Uzrampathry	37	76	113
<b>Kelar</b>	Foothills of Kelar highland pasture in south-west Pulwama	Pangoo and Kralichek	16	46	62
<b>Shopian</b>	Marshy areas from southern Pulwama	Bonigam and Kachadora	22	22	22
		Total	75	207	282

*Strongyloides* spp. were noted slightly higher in calves less than one year of age while *Ascaris* spp. were more prevalent in animals more than one year of age. Higher incidences for both types of parasites were noted in Shopian, followed by Rajpora and Kelar. Scanty occurrences of *Marshallagia* spp., *Nematodirus* spp., *Cooperia* spp. and *Eimeria* spp. were recorded (less than 1%).

Among the trematodes, highest prevalence was for *Amphistomes* Spp. followed by *Dicrocoelium* Spp. and *Schistosoma* Spp. *Fasciola* Spp. was more prevalent in adults, whereas other trematodes were slightly higher in young cattle. *Amphistomes* spp. and *Dicrocoelium* spp. were more prevalent in Kelar but in Shopian areas, *Schistosoma* and *Fasciola* were dominant. Among the *Schistosoma* species, *S. indicum* was more prevalent. However, eggs of *S. japonicum*, *S. bovis* and *S. spindalis* were also observed. *Fasciola*

*gigantica* was observed in adult cattle from Shopian and Rajpora. The study on the occurrence of parasitic infections in Kashmir valley is scanty. Raina & Khan (1982) reported 28.5-100% prevalence of *Amphistomes* Spp. in cattle from Heewan, Drangbal and Tral areas of the district of Pulwama during various months of the year. Sharma *et al.* (1989) reported the prevalence for *Fasciola* Spp. ranging from 66.6-100% in Gulmarg belt of Kashmir which is quite higher than the overall prevalence of 10.6% observed in Pulwama district. From the present study, it was gathered that nematode and trematode infections are fairly common, compared to cestodes in these areas of the district of Pulwama.

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"Of all the ways to make your fortune, the quickest and the best is to make people see clearly how much our success is in their interest"

- **La Bruyere**

"As you think, you travel; as you love, you attract.  
 You are today where your thoughts have brought you;  
 you will be tomorrow where your thoughts take you"

- **Anonymous**

Table II: Helminth parasites of cattle in Shopian belt

Types of Parasites	Rajpora Area			Kelara Area			Shopian Area			Total Numbers of Sample		
	< 1 year	> 1 year	Total	< 1 year	> 1 year	Total	< 1 year	> 1 year	Total	< 1 year	> 1 year	Total
Nos. of samples examined	37	76	113	16	46	62	22	85	107	75	207	282
N0. positive (% positive)	21 (56.7)	51 (67.1)	72 (63.7)	14 (87.5)	34 (73.9)	48 (77.4)	19 (86.3)	73 (85.8)	92 (86.0)	54 (72.0)	158 (76.3)	212 (75.1)
<i>Ascaris spp.</i>	3 (8.1)	12 (15.7)	15 (13.2)	3 (18.7)	4 (8.7)	7 (11.3)	5 (22.7)	25 (29.4)	30 (28.0)	11 (14.6)	41 (19.8)	52 (18.4)
<i>Strongyloides spp.</i>	10 (27.0)	25 (32.9)	35 (31.0)	6 (37.5)	9 (19.5)	15 (24.2)	13 (59.1)	40 (47.0)	53 (49.5)	29 (38.6)	74 (35.7)	103 (36.5)
<i>Trichuris spp.</i>	3 (8.1)	6 (7.9)	9 (8.0)	-	1 (2.1)	1 (1.6)	1 (4.5)	4 (4.7)	5 (4.6)	4 (5.3)	11 (5.3)	15 (5.3)
<i>Cooperia spp.</i>	-	1 (1.3)	1 (0.8)	-	-	-	-	-	-	-	1 (0.4)	1 (0.3)
<i>Nematodirus spp.</i>	-	-	-	-	1 (2.1)	1 (1.6)	1 (4.5)	-	1 (0.9)	1 (1.3)	1 (0.4)	2 (0.7)
<i>Marshallagia spp.</i>	-	-	-	-	2 (4.3)	2 (3.2)	-	-	-	-	2 (0.9)	2 (0.7)
<i>Eimeria spp.</i>	1 (2.7)	-	1 (0.8)	-	2 (4.3)	-	-	-	-	1 (1.3)	-	1 (0.3)
<i>Fasciola spp.</i>	-	7 (9.2)	7 (6.2)	-	7 (15.2)	15 (24.2)	5 (22.7)	16 (18.4)	21 (19.6)	5 (6.6)	25 (12)	30 (10.6)
<i>Dicrocoelium spp.</i>	7 (18.9)	13 (17.1)	20 (17.7)	8 (50)	6 (13)	8 (12.9)	6 (27.2)	12 (14.1)	18 (16.8)	21 (28)	32 (15.4)	53 (18.8)
<i>Schistosoma spp.</i>	5 (13.5)	7 (9.2)	12 (10.6)	2 (12.5)	21 (45.6)	29 (46.7)	3 (13.6)	13 (15.3)	16 (14.9)	10 (13.3)	26 (12.5)	36 (12.7)
<i>Amphistome spp.</i>	8 (21.4)	13 (17.1)	21 (18.5)	8 (50)	-	-	7 (31.8)	18 (21.1)	25 (23.3)	23 (30.6)	52 (25.1)	75 (26.6)
<i>Moniezia spp.</i>	-	1 (1.3)	1 (0.8)	-	-	-	-	4 (4.7)	4 (3.7)	-	5 (2.4)	5 (1.7)

Figures in parenthesis indicate per cent of positive cases

# Use of Fluroquinolones for Treating Sub-clinical Uterine Infections

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## Abstract:

Forty post-partum repeat breeding cross bred cows with evidence of sub-clinical uterine infections were administered pefloxacin 1200 mg (n = 20) intra-uterine daily for three days from the day of estrus and ciprofloxacin 2000 mg (n = 20) intra-uterine daily for three days from the day of estrus. The treated cows conceived (75% and 85% respectively), by insemination in the subsequent estrus, compared to only 40% of the control cows (n = 10) conceiving in subsequent estrus.

## Introduction:

Information on the use of fluroquinolones for the treatment of uterine infections is not readily available. The probable mechanism of action and use for systematic treatment of fluroquinolones has been described in dogs and other species (Fernandez, 1988; Neer, 1988 and Prescott & Baggot, 1994) and to a lesser extent in cattle (Bauditz, 1987; Lukeux & Art, 1988 and Srivastava, *et al.*, 1999). The *in-vitro* and *in-vivo* efficacy of the drugs for uterine infections of cattle have been recently described (Chaturvedi, 1997 and Chaturvedi, *et al.*, 1999). The present study deals with the efficacy of fluroquinolones against sub-clinical uterine infections in repeat breeding cow.

## Materials and Methods:

Forty post-partum repeat breeding Rathi and cross bred cows, brought to the veterinary obstetrics outdoor, College of Veterinary & Animal Science, Bikaner, were included in the study. The cows parturated 6 – 8 months back,

had normal estrus cycle lengths of 20 – 22 days but repeating to AI / natural service for 4 – 5 or more services. Clinical examination revealed sub-clinical infections, diagnosed on vaginoscopic examination or by presence of flakes in the estral mucus. Cows were treated in two groups. Pefloxacin (n = 20) was administered for three days at the dose rate of 1200 mg intra-uterine, dissolved in distilled water. The treatment was started from the day of estrus whereas ciprofloxacin was administered to 20 cows at the dose rate of 2000 mg intra-uterine, dissolved in distilled water for three days. Additionally, 10 repeat breeding cows were not given any treatment and kept as control group. Animals were inseminated in the subsequent estrus cycle. The clinical response was adjudged by disappearance of infection (flakes / pus) and pregnancy diagnosis 60 days post-insemination (by recto-genital palpation).

## Results and Discussion:

Examination of repeat breeder animals in subsequent estrus revealed that the small amount of pus or flakes visible earlier in estral mucus on vaginoscopic examination had disappeared. The conception rates (CR) to single insemination post-treatment are presented (Table) which shows that both the fluroquinolones had a distinct advantage on the conception rates over the control, the CR being best with ciprofloxacin (85%), compared to pefloxacin (75%). The conception rates are similar to those reported earlier by Chaturvedi (1997) although a higher dose was used during the present study. Prescott & Baggot (1994) had stated that fluroquinolones have wide antibacterial activity, and *in-vivo* and

**Table: Effect of fluroquinolones on conception rate in repeat breeding cows**

Groups	No. of animals treated	No. of animals conceived in 1st service	Conception rate (1%)
Profloxacin	20	15	75
Ciprofloxacin	20	18	85
Control	10	4	40

*in-vitro* studies by Chaturvedi (1997) and Chaturvedi *et al.* (1999) had shown that ciprofloxacin and pefloxacin were the most effective antibiotics on isolates from repeat breeder cows. This preliminary clinical trial have shown that fluroquinolones can be used for treatment of sub-clinical uterine infection in repeat breeding cattle.

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*" If you have two pennies left, spend one on loaf and one on a flower.  
 The bread will give you life, the flower a reason for living."*

**- Chinese Proverb**

*"Having learnt the lesson from a past mistake simply forget the  
 mistake and you will forge ahead smoothly."*

**- Homi Kharas**

# Differentiation of *Theileria annulata* in Salivary Gland of *Hyalomma anatolicum anatolicum*

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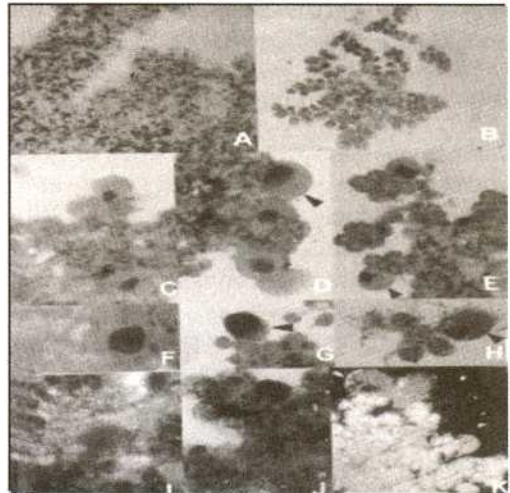
## Abstract:

Detection of *Theileria annulata* in the salivary gland of the tick vectors (xenodiagnosis) is useful to ascertain the prevalence of infection in a particular geographical area which helps in the study of epidemiology. It also indicates the seasonal pattern of transmission of the disease to bovines. The present work was planned to record the different morphological features of *T. annulata* in stained salivary gland of infected tick vectors which would serve as a ready reckoner for the zoologists, epidemiologists and students.

## Introduction:

Bovine tropical theileriasis, caused by the protozoan parasite *Theileria annulata* is prevalent in a wide belt of tropical and subtropical countries including Indian subcontinent. The small livestock holders, peri-urban dairies and imported cattle are the main production system affected by this malady (McCosker, 1979). *Theileria annulata* is transmitted by the three-host ticks, *Hyalomma anatolicum anatolicum* which pick up the intra-erythrocytic gametocytes while feeding on infected bovines. The gametocytes are differentiated into micro- and macro-gametes in the gut of the tick. The zygote, resulting from union of gametes enters the midgut epithelium and transform to motile kinety. The kinety leave the gut cells and enter the acinus of the salivary glands to develop to sporozoites. The sporozoites are injected into bovine hosts. The transmission occurs in a stage to stage manner where gametes are picked up by engorging larvae or nymphs of ticks, develop into

sporozoites in salivary gland of the succeeding nymphal or adult stage respectively.



**Fig :** Salivary glands of adult *H. anatolicum anatolicum* ticks stained with Methyl-green Pyronin (MGP) showing *T. annulata*.

A- Normal gland-female tick (100x), B-Normal gland-male tick (100x), C-E- Immature sporoblast of *T. annulata* (100x) F- Dark blue parasite mass surrounded by intense red area (400x), G-J- Mature sporoblast of *T. annulata* (100x), K- slaty blue parasites in unstained glands.

## Materials and Methods:

Tick: The study was carried out in *Hyalomma anatolicum anatolicum* adult ticks which were either collected from the body of the cattle, showing infection of *T. annulata* in blood cells or from cattle houses. The adult ticks were partially fed on rabbit blood for a period of 72

hours to stimulate growth of the parasite in the salivary gland.

**Salivary gland:** The salivary gland of partially fed ticks were dissected under a dissecting microscope (10-15 X) according to Purnell & Joyner (1968). Ticks were embedded in wax layered on glass petridish and immersed in small quantity of normal saline. The entire dorsal cuticle was then removed with a blade and fine forcep. The paired salivary glands were lifted and placed on microscope slide.

#### **Staining:**

The glands were spread and air dried on glass slides and fixed in carnoys fixative (60% absolute alcohol, 30% chloroform and 10% acetic acid). After a brief wash in distilled water, glands were stained with methyl-green pyronin (MGP) as per the method of Irvin *et al.*, (1981). The morphological stages of *T. annulata* in acini of salivary gland was classified as per Kirvar *et al.*, (2000).

#### **Results and Discussion:**

Different stages of *T. annulata* in the salivary glands of the ticks are shown in Fig. The normal salivary gland of female ticks (A) were

larger in size and contained more number of acini than the normal gland of male ticks (B). The infected acinar cells are larger in size than the normal uninfected acini and the nuclei of the infected acinar cells were hypertrophied and stained pink. The immature parasites were seen as pink to purple densely stained discrete masses (C-E). Dark blue parasites mostly surrounded by intense red area were also detected (F). The mature parasites were seen as comparatively less densely stained purple to blue masses (G-J). In unstained salivary gland, the parasites looked slaty blue inside hypertrophied acinar cells (K).

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*" There must be no fear. No begging, but demanding - **demanding** the highest. The true devotees of the Mother are as hard as adamant and as fearless as lions. They are not the least upset if the whole universe suddenly crumbles into dust at their feet ! **Make** her listen to you. None of that **cringing** to Mother ! Remember She is all-powerful. She can make hero is even out of stones ! "*

**- Swami Vivekananda**



# Case Report: Surgical Removal of Plastic Ball from the Stomach of a Pup

Mohit Mahajan and K.D. Ryot

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## Abstract:

Surgical removal of a plastic ball from the stomach of a four month old puppy and its uneventful recovery is reported.

## Introduction:

Dogs usually live in close intimate environment of humans and share common living place. On several occasions, they eat most extra-ordinary objects like toys, balls, large bones, stones, keys, metal pieces, etc. at play with children or willingly swallow (Hungerford, 1990). Due to their playful, investigative and exploratory behaviour, frequently obstruction is caused in the mouth, throat or may be lodged in the oesophagus, stomach or causing obstruction of the intestine depending up on the shape and size of the foreign body. Such emergency cases are



Fig. 1: Explored stomach though the incision revealed hollow plastic ball

treated by surgical interventions to save life of the dog. Recently, a hollow plastic ball was recovered following gastrotomy in a pup and this clinical case is presented.

## Case History and Observations:

A non – descript male pup, aged four months, was presented with the history that while playing with a plastic ball, it got lodged in the throat of the pup and animal started gasping. In an attempt to relieve the obstruction by introducing hand into the oral cavity by the owner it slipped down into the oesophagus and sings of gasping abated. But this was followed by sings of intermittent emesis and aneroxia. Pup was presented to the veterinary hospital two days later of the above episode. On the clinical examination, pup was found in stable condition with mild dehydration. So based on the above findings, it was decided to perform gastrotomy on the pet.

## Treatment:

Pup was given 300ml of DNS 5% and 2ml of dexamethasone intra-venously before proceeding to the surgery. Pup was pre-medicated with atropine sulphate at the dose rate of 0.04 mg/kg body weight intra-muscularly and surgical anesthesia was achieved using xylazine and ketamine at the dose rate of 2mg/kg and 10 mg/kg body weight respectively by intra-muscular route. A cranial midline incision behind xiphoid was placed and stomach was explored through this incision which revealed presence of hollow plastic ball (Fig.1). Stomach was exteriorized with the ball to incision site and an incision was placed parallel to the greater

curvature on the stomach to relieve the ball out of the stomach. A round and hollow, green coloured plastic ball of 1.5 inch diameter was taken out (Fig.2). Stomach incision was closed with double layer of Lembert sutures using 2-0 catgut and laparotomy incision was closed in a routine manner. Post-operative medication included injection of amoxicillin + cloxacillin (250 mg) twice daily meloxicam (0.5 ml) daily and polybion (2 ml) for three days. Gelusil gel (antacid) one teaspoonfull orally twice daily for five days and daily antiseptic dressing of suture line was done. Sutures were removed on the seventh day post-operation.

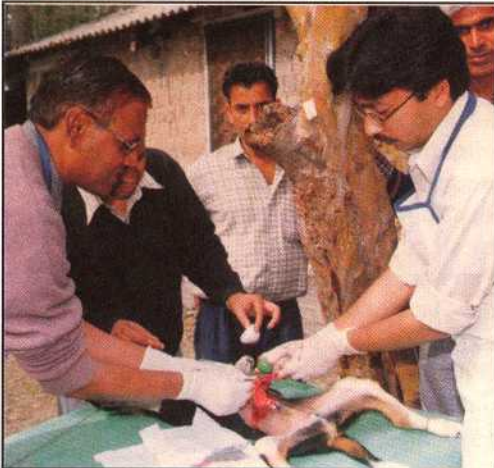


Fig. 2 : Removal of plastic ball on gastrostomy

### Results:

Pup regained appetite after 24 hours of surgery but oral feeding was restricted upto 24 hours after the surgery. Then pet was offered water and milk in small quantities at frequent intervals for next two days. Later bread, milk and soft diet was given in small volumes divided in 4-5 meals per day for next few days. Pet recovered well (Fig.3).

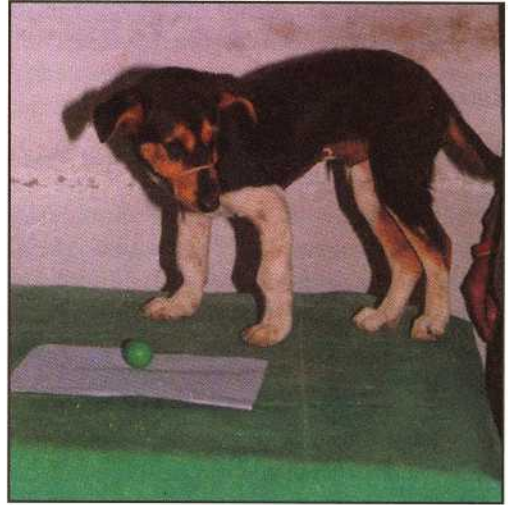


Fig. 3 : Recovered pup after a few days

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*" We should have no regrets. We should never look back. The past is finished. There is nothing to be gained by going over it "*

*- Rebecca Beard*

*" When the going gets tough the tough get going "*

*- Joseph Kennedy*

# Mass Deworming Programme Through Balanced Feed and Concentrated Feed Pellets Incorporated with Fenbendazole in the Rural Area

**P.R. Pande**

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## **Abstract :**

The demand for improved efficiency in the dairy industry has been in the approval of a large number of anthelmintics which may not be suitable or economical or safe for the cattle and its effect on different economic traits. Fenbendazole powder in the balanced cattle feed (**Sumuldan** from SUMUL cattle feed) and concentrated feed pellets were used in this mass deworming programme which acted as self-medication method of prolonged low level administration of anthelmintics through feed for consecutive 15 days of ration.

## **Introduction:**

Endo-parasites live within a host and obtain nutrients from that animal in order to survive and reproduce. Parasitism leads to a 25 - 30 % reduction in weight gain in production animals and substantially reduces their productivity. The menace of endo-parasites are non-visible, compared to the ecto-parasites, generally taken care of by the most of the dairy producers. The non-adoption or delay in routine deworming may lead to great losses not only in the production but also to the health condition of the prized animals. Adult dairy cattle suffer from production loss due to parasitism mainly because of nematodes, found in the gastro-intestinal tract, like in the abomasum - *Haemonchus* spp., *Ostertagia* spp. and *Trichostrongylus* spp., in the small intestine - *Cooperia* spp., *Bunostomum* spp., *Strongyloids* spp. and *Nematodirus* spp., in the large intestine - *Oesophagostomum* spp., *Chabertia* spp. and

*Ostertagia* spp., etc.

Good management practices and control of intermediate hosts can put a check on parasitic infestations, but effective deworming results in maximum economic benefits. Dairy producers have been convinced of the benefits of parasitic control as evidenced by increased milk production with deworming. A total of 11 - 13% increase in the volume of milk produced from dairy animals is possible through reduction in worm population.

## **Material and Methods:**

The major issue in the profitable dairy development is not only regular deworming but the right selection of good dewormer and proper way of deworming. The demand for improved efficiency in the dairy industry has been in the approval of a large number of anthelmintics which may not be suitable or economical or safe for the cattle. An ideal anthelmintic should-

- exhibit high level of toxicity to the parasite but not to the host.
- have broad spectrum activity.
- have wide therapeutic index or margin of safety.
- be easy to administer.
- be safe at any stage of life of the animal.
- be effective against different stages of the parasite.
- Be tasteless and odourless.
- Economical.

Fenbendazole meets the standards of an ideal anthelmintic. It is the safest drug and can be given at any stage of pregnancy. It does not have teratogenic or embryo toxic effect. Fenbendazole not only leads to economical benefits by increasing milk production but also contributes for improving the conception rates of animals. Several studies had shown that regular deworming with Fenbendazole had an increase of 10 % conception rates among brood cows, compared to untreated herds. Fenbendazole has broad spectrum anthelmintic activity in cattle, buffalo, sheep and goats. It has high degree of efficacy and eliminates adults and larval stages of nematodes, lung worms and cestodes.

Fenbendazole powder in the balanced cattle feed (**Sumuldan** from SUMUL cattle feed) was used in this mass deworming programme which acted as self-medication method of prolonged low level administration of anthelmintics. So, it is generally advised to the milk producer to feed such balanced cattle feed with Fenbendazole for consecutive 15 days.

During these three years of campaign - Fenbendazole incorporated feed bags (containing 70kg feed incorporated with Fenbendazole) were used as follows -71429 bags (2000-2001), 91786 bags (2001-2002) and 89286 bags (2002-2003). A total of 15 villages were selected for this mass deworming programme. Field veterinarians, AI workers at SUMUL dairy farm were advised to give mass deworming through such balanced cattle feed with Fenbendazole to young calves during the specific period of self medication. Concentrated dewormer feed pellets with Fenbendazole for the curative approach was also practiced.

### **Results and Discussions:**

Constant circulating of Fenbendazole is

particularly efficacious against the adult worms and the developing larvae. Such constant and a low level of prolonged administration of Fenbendazole is found efficacious against larvae of benzimidazole resistant strain of parasites. Prolonged, low level and divided doses of administration of anthelmintic through balanced feed and feed pellets have following benefits.

1. The involvement of labour and spillage of medicines that occurred during conventional oral drenching can be avoided.
2. The low but prolonged administration of the drug not only increases its efficacy against existing worms but also prevents reinfection.
3. The chances of emergence of anthelmintic resistant parasites is likely to be delayed and the larvae, already resistant to benzimidazole group, are likely to be killed.
4. Strategic application of these anthelmintic delivery devices, depending on the epidemiological importance of the parasites, will help in reduction of worm egg output in the faeces of the animals, resulting in the reduction of pasture contamination and finally parasitic infestations to the young calves which are highly susceptible.

Microscopic examination of the faecal sample of cattle is generally necessary for estimating parasitic load and to ensure severity and type of parasitic infestation. High parasitic worm burden, ultimately leads to reduction in milk production by 15-20% along with losses of body weight and other health condition, like reproduction (fertility), stress, calf mortality, etc.

Efficacy percentage of Fenbendazole is calculated by the following method :

$$\text{Efficacy \%} = \frac{\text{No.of faeces tested before treat (found positive in 1}^{\text{st}} \text{ round)} - \text{No.of faeces found positive (found positive in 2}^{\text{nd}} \text{ round)}}{\text{No.of faeces tested before treat (found positive in 1}^{\text{st}} \text{ round)}} \times 100$$

Pre- and post-treated faecal samples were tested accordingly from the different societies (villages) and the results ( efficacy %) are tabulated in the table.

Table : Showing percentage efficacy post-treatment with Fenbendazole incorporated in the balanced and concentrated feed ( **Sumuldan** from SUMUL cattle feeds)

Particulars	2000-01	2001-02	2002-03
No.of faecal samples tested before treatment and found positive	5000	2630	3250
No.of faecal samples found positive (1 <sup>st</sup> round)	575	837	1494
No.of faecal samples found positive (2 <sup>nd</sup> round)	59	75	225
Efficacy (%)	89.7	91.1	84.90

**Conclusion :**

Strategic application of anthelmintic delivery devices, depending on the epidemiological importance of the parasites, will help in reduction of worm egg output in the faeces of

the animals, resulting in the reduction of pasture contamination and finally, parasitic infestations to the young calves which are highly susceptible.

*“ The Voice of Asia has been the voice of religion.  
The Voice of Europe is the voice of politics. ”*

*“ India is immortal, If she persists in her search for God ”*

*“ I do not mean to say that political or social improvements are not necessary, but what I mean is this, and I want you to bear it in mind, that they are secondary here, and that religion is primary.”*

*“ None can resist her (India) any more;  
never is she going to sleep any more;  
no outward powers can hold her back any more;  
for the ifinite giant is rising to her feet.”*

**- Swami Vivekananda**

# Case Report: Surgical Management of Hydroallantois in an Osmanabadi Goat

P.T. Jadhao, N.M. Markandeya and G.U. Yadav

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## Abstract:

A case of successful treatment of hydroallantois in an Osmanabadi goat was recorded. Surgically, the foetuses were recovered and the pregnancy was terminated to save the patient. However, placental disease could not be recorded.

## Introduction:

Hydroallantois is uncommon in goats. The condition leads to over distension of uterus and subsequent uterine inertia or ante partum paraplegia. Present report records a rare case of hydroallantois in an Osmanabadi goat.

## Case Report:

An Osmanabadi goat, three and half years of age and 32 kg of body weight, was presented to the clinic with a severe bilateral abdominal distension. There was moderate dehydration. Abdominal palpation revealed tense barrel, fluid feel on upper side of para-lumbar fossa and absence of foetal feel. Per vaginal examination revealed closed cervix without any discharge. The case of accident during pregnancy was primarily diagnosed as dropsy of foetal membranes.

## Treatment:

Considering the condition of the animal and continued pain symptoms, it was decided to undertake immediate termination of pregnancy by caesarian operation. Prior to surgery, the patient was rehydrated by infusing 500 ml each of normal saline and 5 percent dextrose intravenously, followed by injection of chlorpheniramine maleate (2 mg) intra-muscularly.

Caesarian was performed under local analgesia. Laparotomy was carried by an oblique incision on the left flank. Tense, thin walled gravid uterus was partially exteriorized. A clear watery, yellow coloured fluid gushed out on incision on the wall of the uterus. Approximately, 9 litres of fluid came out and two viable normal foetuses delivered. After installing two antibiotic boli in the uterine horn, surgical wound was sutured as usual. Injections of strepto-penicillin 1 g intra-muscularly, analgesic and antiseptic dressing of surgical wound was attempted daily for 5 days post-operatively. The patient recovered uneventfully after 10 days of operation. However, new born kids succumbed after 5 hours of delivery. Cases of hydroallantois in goats have been successfully operated by Goel *et al.* (1989) and Vijaykumar *et al.* (2001) which were in consonance with the present line of treatment. However, trocarization in hydroallantoic goat has been reported to be fatal by Mishri & Singh (2001). The hydroallantoic condition can develop after second half of pregnancy as an acute obstetrical problem, which needs immediate termination of pregnancy. In the present case, placenta appeared pale, cyanotic and congested.

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# Case Report: Schistosomus Reflex in Bovine

T.K. George and Sharafudheen

Veterinary Polyclinic, Kunnampulam, District - Trissur, Kerala

## Abstract:

Schistosomus reflex in bovine is very rarely noticed in Kerala. It is very common in female goats in Malabar area. Surgical operation was performed and the foetus was removed. After treatment with intra-venous fluid and antibiotic, the animal was healthy and milk yield was recorded 25 litres per day.

## Case History:

Dystocia case of a crossbred Jersey cow, aged five years from Prokulam, was reported to Veterinary Polyclinic, Kunnampulam. Vaginal examination revealed that the calf inside the uterus was alive and the body of the foetus was enlarged. The head was laterally deviated to left side and fore-limbs were not traceable. The lateral edges of the somatic disc in the

developing embryo curved upwards, instead of downwards. The viscera float freely in the amnion, the head and tail were curved up towards each other. The foetus created a dystocia with the fore-limbs and head together present in the cervical canal (Fig.). The pelvic ring was closed and it was difficult to remove the foetus. The case was diagnosed as Schistosomus reflex. Finally a caesarian operation was advised.

## Surgical Treatment:

The animal was cast in the right lateral recumbency. Surgical area was shaved and cleaned by disinfectant. The site of operation was cleaned and epidural injection of 2% xylocaine was administered.

Surgical operation was performed and the foetus was removed. The foetus was not alive and weighing 38 kg. The visceral organs including lungs and heart were protruding through the visceral opening. The fore-limbs were about 75 cm in length.

The wound was sutured aseptically with cat gut size No. 1 and the animal was given intra-venous fluids along with antibiotics. The treatment with intra-venous fluid and antibiotics were continued for another six days. The animal was healthy and it was taking food normally and milk yield was recorded 25 litres per day.



Fig. Showing foetus with the fore-limbs and head together in the cervical canal

## Case Report: A Successful Treatment for the Oesophageal Obstruction in Cows

R.Uma Rani, K.Vairavasami and D.Kathiresan

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### Abstract:

Six adult cows, having oesophageal obstruction at cervical part, were successfully dislodged by non-surgical economical method in field condition.

### Introduction :

Obstruction of the oesophagus is of infrequent occurrence in high producing or nutritionally deficient ruminants (Jit Singh *et al.*, 1995). Oesophageal obstruction in adult cattle is often caused by attempts at ingestion of apples, turnips, potatoes, beets, corncobs and foreign bodies which are too large to pass down the oesophagus (Kohli *et al.*, 2000). Present paper reports about the successful non-surgical economical method of dislodging the obstruction in adult cows.

### Case History and Management:

Six adult cows brought to the veterinary polyclinic, Madurai, TamilNadu over one year of period (2000-2001) with the symptoms of inability to swallow, profuse salivation, regurgitation, stretched neck and tympany. Clinical examination revealed marked swelling in the ventral neck region and stomach tube could not be passed in all the 6 animals. From the symptoms and clinical examination, it was diagnosed as oesophageal obstruction at cervical part. Tympany was relieved using Trocar and Cannula. Efforts made by external manipulations were unsuccessful to dislodge the obstruction.

A cylindrical bamboo piece of 5 inches diameter and 1 foot length (Fig.) was placed

inside the oral cavity without damaging the tongue and oral mucous membrane. Lubricant (vaseline) was applied on the inner aspect of the bamboo. A left or right gloved hand according to the convenience was passed through the bamboo piece until the hand touched the obstruction. Little manipulations made on the obstruction with hand and obstructed materials were successfully dislodged and removed through the bamboo. A large sized mango from 2 animals, Jackfruit waste weighing around 300 grams from one animal, a cauliflower from one animal and a large sized guava from two animals were removed. All the animals were given 5% Dextrose and Ringers lactate to compensate



Plate-1 : Cylindrical bamboo piece utilized to dislodge the cervical obstruction in cows



fluid deficit. Thereafter, the symptoms of salivation and regurgitation disappeared.

### Discussion:

The lactating cows are let free in the vegetable markets and fruit markets by many of the small dairy farmers. The cows eat foreign material to assuage their craving appetite and because of their haste and greedy feeding nature, oesophageal obstruction occurs. Hofmeyr (1988) reported that 80% of oesophageal obstructions occur in the cervical region. An easy and less costly treatment can be aimed to dislodge the obstruction by internal manipulation (Jit Singh *et al.*, 1995). Kohli *et al.* (2000) used probang to push the obstructed material into the rumen. Solid obstructions in the upper esophagus of cattle may be reached

by passing the hand into the pharynx with the aid of a speculum (Radostits *et al.*, 1997). In field conditions, the obstruction of upper oesophagus may be successfully dislodged using a bamboo piece as described in the present study.

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# Case Report: Bilateral Congenital Backward Deviation of Carpus in a Graded Buffalo- heifer

S. P. Mouli and S. Nagarjuna Babu

Veterinary Clinic, Guntur – 522001, AP

## Abstract:

A rare case of bilateral, congenital, abnormal flexion and extension of the carpus in a graded buffalo-heifer which survived after birth and grown upto four years with stunted growth was recorded. The causes, disadvantages of weak conformation and the importance of recording such case, were discussed.

## Introduction:

Reports on congenital abnormal flexion and extension of limbs in buffalo calves survived after birth is generally not always available in the literature. In the present report, a case of bilateral, congenital, abnormal flexion and extension of carpus in a graded buffalo heifer is detected when it was brought to the clinic for some other ailment.

## Case History and Clinical Observations:

A graded buffalo-heifer about four years old was admitted to the clinic with the history that it was not taking feed and water, not ruminating and not passing dung for the last two days. Clinical examination revealed that temperature was 40<sup>0</sup> C. Blood smear revealed no abnormality, dung with no internal parasites, fore-limbs showing abnormal flexion and extension of both the carpus (Fig.). The owner informed that it was born for its graded mother in its second pregnancy. The first calf also had the same congenital abnormality in its first pregnancy but said to be died two days after birth. Both the calves were born after served by a murrh bull. The present heifer survived after birth with stunted growth and running 4<sup>th</sup> year.



Fig. Backword deviation of carpus in graded buffalo-heifer.

## Therapy:

The heifer was given enrofloxacin (**Floxidin**<sup>®</sup> from Intervet), 15ml daily through intra-muscular route for three days. The animal started taking feed and water and its temperature came to normal by the 3<sup>rd</sup> day and the animal was discharged. The owner was advised to give daily 30 g of mineral mixture containing Vitamin A for better growth and to make it fit for procreation.

## Discussion:

Backward deviation of the carpus or carpal joints (calf knees) is a weak conformation and the limbs seldom remain sound, under heavy work or strain. This conformation places strain on the carpal and radial check ligaments, the proximal middle and distal accessory carpal ligaments, the palmar reflection of the antibrachio, carpal joint capsule and increases compression on the dorsal aspect of the carpal

bones (Stashak, 1987). The legs in the present case may be treated as “half limber legs” since it is also to stand atleast whereas in cases with full “ limber leg” the calves cannot stand, have little control of movement and eventually they have to be distorted (Stashak, 1987). In cattle such abnormalities are usually found to be inherited only when a number of cases occur after breeding of related animals (Greenough *et al.*, 1981). The present case may be of that type. Effective recording and registration of all important congenital anomalies in cattle/ buffaloes is an essential prerequisite to any

control programme which can then be based on the information obtained by this means.

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# Case Report: Reducible Hernia in a Foal

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## Abstract:

Abdominal hernia is the protrusion of abdominal contents through an opening of abdominal wall just below the intact skin and its recurrent incidence found in foals. As the age advances, it becomes larger. As the skin of the horses is much elastic, it easily acquires larger shape. When pressed by a finger or palm, it goes into abdomen and on release it regains its original shape.

## History and Clinical Findings:

A case with swelling in the abdomen was reported in a five months old filly, named Zera, weighing about 150 Kg. After examination, the animal was found to suffer from hernia. The hernial orifice was about 3.0-3.5 inches in diameter. It could be pushed easily into the abdomen by light pressure of the palm. To handle the case successfully and to minimise the risk, it was decided to use the aluminum clamps.

## Operative Technique:

The site of swelling was prepared by aseptic precaution. The visceral contents were pushed into the abdomen and the clamps were fixed longitudinally as close to the abdominal wall as possible. This fixation was done in standing position. On the third day, the epidermal layer was sloughed off. The impression of the clamps was noticeable on the skin folds. There was local inflammation and swelling. As soon as the impression were on skin fold around the hernial orifice, the clamps were removed. The site was washed with hydrogen peroxide and applied with betadine spray. Injection of

gentamycin 15 ml bid and of **Novalgin**<sup>®</sup> (from Intervet) 10 ml were administered by intra-venous route. The hernial ring was sutured with nylon thread so as to have skin to skin contact just below the orifice. This was followed in lateral recumbency with local anaesthetic, lignocain. Eight imaginary points were predetermined around the sac which was about one inch behind the open ends of musculature and injected 0.5 ml turpentine oil with 0.5 ml chloroform at each point with the help of one inch length of 18 gauge needle. After this injection, the site of hernia was much oedematous as per the expectations and a local form of swelling was present.

Regular administration of gentamycin with vitamin B complex was followed for 10 days. After 10 days, the dose of gentamycin was minimised and reduced from twice to once a day and vitamin B complex therapy was discontinued. During the treatment period, external application of betadine spray was followed regularly.

After 10 days, antibiotic dose was administered on alternate days. Within a month, all inflammation was subsided with total correction of abdominal hernia.

## Results and Discussion:

Abdominal organ positioned just below the intact skin through the opening of abdominal wall is called hernial sac. When inflammation got localised, organs could not come out due to the pressure on the skin fold (O' Connor, 1930). When turpentine oil with chloroform was injected into the musculature it acted as strong counter irritation agent with local anaesthetic

action. Counter irritation facilitated the ends of hernial sac to come closer as stated by Srinivasan (1966). The inflammation of the skin fold helped to retain the organ inside and forcing the musculature to close the opening and thereby the hernia got corrected.

#### Acknowledgement:

The authors are thankful to the authority (Late Jaysingh D. Gokuldas) of Sewania Stud Farm

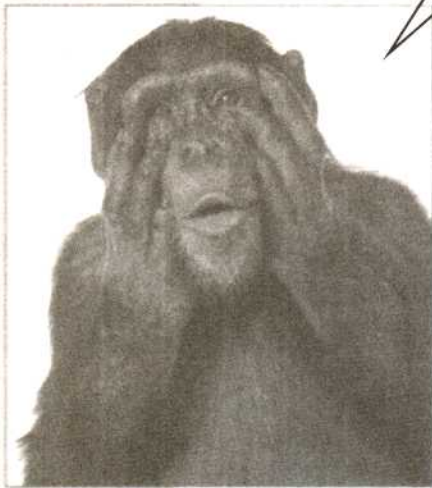
at Bhopal and also to Mr. Sayeed Khan for the facility provided for this study.

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# Case Report: Management and Therapy of Parturient Paresis with Heat Stroke in HF Cow

Shatrughn Singh and Tripti Singh

Government Veterinary Hospital, Raigarh – 496001, CG

## Abstract:

The present case deals with parturient paresis (milk fever) in HF cow with heat stroke brought to veterinary hospital, Raigarh, Chhatis Garh State. The rare case was successfully treated with fluid and calcium therapy.

## Introduction:

Parturient paresis (PP) is metabolic disease, occurring most commonly during the time of parturition in adult female and characterised by hypocalcemia, subnormal temperature, general muscular weakness, circulatory collapse and depression of consciousness. Normal serum calcium level is between 8-12 mg per 100 ml blood. Clinical symptoms are observed when the calcium level drops below 05 mg per 100 ml blood. Heat stroke is the elevation of body temperature. This is caused due to excessive heat production or absorption of heat or deficient heat loss and it is purely physical.

## Case History:

In Raigarh, the summers are very hot and humid. During summer, heat stroke cases are very common in high yielder cows, but milk fever with heat stroke is rare in occurrence. A HF cross cow recently parturated (II<sup>nd</sup> calving) in summer was in sternal recumbency and brought to veterinary hospital in a tractor trolley in the evening.

On enquiry, the owner informed that large quantity of colostrum was milked out in one stroke in the morning. Cow's respiration was fast, rectal temperature was recorded 106°F and having dry muzzle. The case was diagnosed as

milk fever with heat stroke. Treatment first started for heat stroke so that the temperature could be reduced for calcium therapy.

## Treatment I :

In the evening, the cow was treated with DNS – 500 ml X 2, Rintose – 500 ml X 2 and Hivit – 15 ml X 2 through intra-venous route, followed by **Floxidin**® – 15 ml (from Intervet), **Novalgine**® -20 ml (from Intervet) through intra-muscular route. Cold packs were applied all over the body.

## Treatment II:

Next day in the morning (after 12 hours), temperature was recorded 105°F. The animal was still in recumbency. Now it was decided to go for calcium therapy. Prior to that the cow was treated with **Novalgine**® (from Intervet) - 20 ml, **Avil**® – (from Intervet) – 10 ml through intra-muscular route. Now Calcium borogluconate – 450 ml was given via intra-venous route slowly with interruption. **Tonophosphan**® - (from Intervet) 20 ml was also administered through intra-venous route. Rectal temperature was recorded at every 10 minutes of interval. After two hours, with a great surprise, the temperature got reduced to 103°F. After three hours, cow was in standing position with normal respiration, but still off feed.

## Treatment III :

After twelve hours of treatment II, temperature was recorded 101°F. Animal started taking dry paddy straw. A schedule of treatment III maintained as follows -  
Calcium borogluconate (450 ml), Rintose (500

ml), Hivit (15 ml) and 15 ml of **Tonophosphan**<sup>®</sup> (from Intervet) were administered intra-venously, along with Urimin (15 ml) and 15 ml of **Prednisolone** (from Intervet) intra-muscularly.

Cow started taking concentrate feed also. Owner was advised to continue the treatment of oral

syrup Ostocalcium – Vet 100 ml daily for one month and **Rumicare**<sup>®</sup> powder (from Intervet) at the dose rate of 50 g before diet for three days.

**Reference:**

Rodostits, O.M., Blood, D.C. and Handerson, J.A. (1985). *Veterinary Medicine 6th. Edn., English Language Book Society, London, pp. : 27-74.*

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## Case Report: Free Milker (Leaker) Cow

A.U. Bhikane, G.U. Yadav, N.M. Markandeya and A.D. Patil  
Udgir Veterinary College, Udgir, District - Latur - 413517, MS

### Abstract :

A free milker cow did not have any history of any trauma or mastitis condition. The loss of muscular tone might be relaxation of sphincter muscles in all four teats.

### Case History :

A six years old cross bred cow was presented to a clinical camp, organized by Veterinary College, Udgir, with a history of continuous leakage of milk from all teats. The cow was parturated one month before and was in the third lactation. The milk yield of cow was 20 liters per day. There was continuous loss of milk due to uncontrolled milk secretion upto one litre per day.

The free milker is a condition that occurs due to relaxation of teat sphincter muscles. It may be caused due to direct trauma to the teat orifice or during treatment of hard milker animal where the sphincter is excessively dilated by treating person leading to the degeneration of sphincter muscles treatment. The loss of tone of the teat sphincter could also be due to phosphorus deficiency. There was no history of any trauma or mastitis in the present case and hence, the case was treated with organic phosphorus injections to regain the teat tone.



Fig. Leakage of milk from the teats

Tyagi & Singh (2001) reported that cases of hard milker animals at the time of treatment may suffer traumatic condition to one or other teats leading to subsequent free milker condition. However, the present case was of the different type and teats were involved.

### Reference:

Tyagi, R.P.S. and Singh, J. (2001). Ruminant Surgery, CBS Publication and Distributors, New Delhi.

*" When a man sees defects in others, his own mind first gets polluted.  
What does he gain by finding faults in others ?  
He only hurts himself by that "*

*- The Holy Mother, Saradamani*



# Case Report: Surgical Treatment of an Unusual Intestinal Obstruction in Dog

M.V.Kamble and B. N. Meshram

Pets Clinic, Ganesh Nagar, Nagpur-440009, MS

## Abstract:

Some objects obstruct the intestinal canal which can be a cause of death. Surgical intervention is the most convenient technique to save the life. Present paper records the successful surgical treatment of an unusual intestinal obstruction in a dog.

## Introduction:

Discrimination of food materials and eating habits is always difficult for canines and become a common problem. This instinct of the ingestion/swallowing of unwanted articles leads to severe problem like intestinal obstruction (Ellison, 1990). Capacity to dispose off the foreign bodies, even of larger shape is the nature's gift for canines (Mantri *et al.*, 1992).

## Case History:

Non-discript young dog of five years of age was presented to the clinic with the complaint of anorexia, vomiting, dullness and not passing stools since one week. Abdominal pain, dehydration, severe stress were observed. On palpation, the abdomen was hard to touch. The facility of radiographic examination was not available and emergency surgical intervention was the prime requisite and decided to go for the same to save the dog.

## Surgical Treatment:

The animal was put into sedation with xylazine hydrochloride at the dose rate of 20mg/10kg body weight intra-muscularly. The site was prepared at the ventral midline with all aseptic precautions for exploratory surgery. About six

inches long incision was made over the midline for laparotomy. Intestinal tract with the obstruction isolated from other viscera and took it out from the abdominal cavity. Washed it with DNS liberally. A longitudinal incision was put of sufficient length over the object and took it out. With all precautions enterotomy incision was closed by continuous cushioning suture using 2.0 absorbable cati gut. Laparotomy incision was closed as per the standard surgical procedure. The object was found a plastic stud of an iron rod supporting a table (Fig.).

Post-operatively administered fluid therapy and advised not to feed orally. From second day, little quantity of milk was feed. Antibiotic therapy with B-complex and a pain killer were administered for five days. Fluid therapy continued for the same period. The external sutures were removed on the eighth day.

## Discussion:

Intestinal obstruction is fatal in canines.



Fig : Showing intestinal obstruction

Obstructed object does not allow to pass the stools and it increases the secretion of sodium, potassium and water into the bowel (Satishkumar, 2002). Bacterial growth and endotoxin at the proximity of the obstruction leads to severe toxemia. Obstructed object also act as an irritant to cause the mucosal laceration, severe inflammation and pressure necrosis also (Ettinger, 1989 and Yadav & Sangwan, 2001). Felts *et al.* (1984) have reported that abdominal palpation is rarely diagnostic and radiography is mandatory for confirmatory diagnosis of intestinal obstruction. In the present case, symptoms and the observations made, demanded an emergency surgical intervention to save the life of the dog. The operation was carried out successfully and the dog got recovered uneventfully.

#### References:

- Ellison ,G.W.(1990). Enterotomy; In Current Techniques in Small Animal Surgery .Edited by M.Joseph Bojrab, **3rd. Edn., Lea and Febiger, Philadelphia, p.:**249.
- Ettinger, S.J. (1989). Textbook of Veterinary Internal Medicine, Diseases of Dog and Cat, **3rd. Edn., W.B.Sounders and Co., Philadelphia.**
- Felts, J.E., Fox, P.R.and Buskf , R.J.(1984). *J.Amer Vet. Med. Assoc.*, **184**, p.: 54.
- Mantri, M.B., Mantri A., Vishwasrao, S.V., Dave.C.B.and Upadhey S.V. (1992). *Ind. vet. J.* **69**, p.: 346.
- Satishkumar, (2002). *Intas Polivet*, 3(II), pp.: 327-328.
- Yadav, L.K. and Sangwan, Y. (2001). *Ind.Vet.J.*, **78**, pp.: 518-519.

*" What are you to do when you are placed in this world ? Give up everything to Him, resign yourself to Him, and there will be no more trouble for you. Then you will come to know that everthing is done by His will."*

**- Ramakrishna Paramhansa**

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\* A half dose administration in the second week is recommended for all breeders in very endemic regions.

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**Note :** All vaccination practices have to be decided and implemented by a veterinarian.

Intervet India Pvt. Ltd., Brihannagar, Off-Pune Nagar Road, Wagholi - 412 207.

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**Intervet**

**News****An Unusual Case of Cyclopia in a Buffalo**

Cyclopia or cebocephalus is one of the genetic abnormalities mainly encountered in pigs and sheep. An unusual case of cyclopia in a buffalo-calf was noticed.

A she-buffalo was brought to the extension camp with a history of continuous straining. Per-rectal examination revealed abnormal presentation, which was solved by using gynaecological manoeuvres. The buffalo-calf was well developed but it had a single orbit with apparently normal eye ball. Eyelids and nose were absent. Jaw was curved dorsally at the cranial end and was fused. The buffalo-calf died 20 minutes after the birth.

Clinical examinations, revealed a case of cyclopia, observed rarely in buffaloes but most common in the pigs and sheep.

**R.S.Rane.,A.Samad.,H.D.Kadamand R.C.Mazkori.**

B.G.Chitale Dairy Pvt.Ltd., R&D I-sub Division,Sangli - 416303, MS

Tel. No. 02346-33112

**Clinical Case of Ventricular Enlargement in Dog**

One Labrador male dog was brought to the clinic with the symptoms of severe panting on changing of position, irregular heart beats and off feed. Physical examination of eyes revealed faint conjunctiva .

Blood tests are shown —(1) Haemoglobin, 9.3 (2) Total WBC count 10,500 (3) Differential count ( Neutrophils, 72 (4) Lymphocytes, 27; Monocytes, 00; Eosinophils, 01; Basophils 00), Blood biochemistry test showed -Blood urea, 29; Serum creatinine, 1.1; Serum alkaline phosphate, 77; Serum bilirubin - Total 0.4 (direct 0.1 and indirect 0.3), Serum GPT /ALT, 19; Serum GOT / AST, 20 and Serum CPK, total 52.

Preliminary treatment started with intra-muscular injections of Infeon (1ml) and Belamyl ( 2 ml) per day for 10 days. The Haemoglobin improved to some extent but rate of panting not changed. This was suspected some cardiac problem. Auscultation was carried out and it was observed that heart beats were heard even upto the last rib. X-ray showed ventricular enlargement. The second line of treatment was started with the homeopathy medicine, Angiocard in liquid form which contains, Cactus G, Cratagus Oxy, Convallaria, Camphor, Gold and Strophantus (10 drops of Angiocard ,twice daily in one teaspoonful of water ), followed by Arsenic Alb 200 (four globules at a time).

After ten days, improvement took place. Panting had diminished, Dog was able to walk for some distance and about a month later, panting completely stopped and the dog started running.

**S. V. Akolkar**

A-2, Amul Apartments, Ellorapark, Subhanpura Road, Baroda - 390007 GS

Tel. No. 281532

News

**Efficacy of Iliren® (from Intervet) Against Delayed Parturation in a She-buffalo**

An eight year old She-buffalo (in 3<sup>rd</sup> lactation) was brought to the Veterinary Polyclinic at Parnera Purdi Valsad, with a history of not calving though, gestation period was over. The owner informed that previously she-buffalo was treated with – Dexona (10ml i.m.), Calcium borogluconate(450ml i.v.), Rintose (500ml i.v.) and Epidojin(10ml i.v. twice), anticipating torsion of uterus and there was no response.

After three days, she-buffalo was examined (per rectal and per vaginal) and found that the foetus was alive. Considering a case of delayed parturation, she-buffalo was treated with 5ml of **Iliren®** (from Intervet) intra-muscularly in the evening. Next day morning, a good response was noticed and after 36 hours of post- treatment with **Iliren®** (from Intervet), the cervix was fully opened and the foetus (female) was taken out successfully.

**P.I.Munshi**

Veterinary Poly Clinic, Parnera Purdi, Valsad-396001, GS

**Efficacy of a New Antibiotic , Ceftiofur sodium Against Actinomycosis ( *Actinomyces bovis* )**

A two years old buffalo heifer (cross bred), weighing around 250 kg , was suffering from Actinomyses ( *Actinomyces bovis* ). The heifer was having temperature (104°F) and other symptoms like, mandibular hard swelling, nasal discharge and neuralgia. The new antibiotic – Ceftiofur® sodium whose sample was provided by Intervet India Pvt. Ltd., was prescribed. The antibiotic Ceftiofur® sodium (1g) was dissolved in 20 ml of sterile distilled water and 10ml was given intra-muscularly for three days. Along with Ceftiofur ,other supportive therapy (intra-muscularly ) was prescribed for three days as follows – 10ml of **Prednisolone** (from Intervet) , 15ml of Diclofenac + Paracetamal, 10ml of **Avil®** (from Intervet) and 70g of **Rumicare®** (from Intervet).

The animal was completely cured within three days and returned to its normal feeding.

**S.M.Prasad**

Government Veterinary Hospital, Gudambia, Lucknow , UP

Tel. No. 2738441 (R), 09415062704 (M)

**News****Professor Dr. V.P. Vadodaria, New Dean of Gujarat Agricultural University Veterinary Faculty**

**Professor Dr. Vijay P. Vadodaria**, has resumed the duties of Dean of Veterinary Faculty at the College of Veterinary Science & Animal Husbandry, Sardarkrushinagar. He started his career as a lecturer and subsequently got promotions and selection at various positions to the professor rank. During his career he also taken the responsibilities as U.G.T.C. as well as P.G.T.C. Chairman. He has guided two M.V.Sc. students, one Ph.D.student in the endocrinology reproduction and digestive physiology. He has been awarded Hari Om Ashram award for his best research contribution in the field of development of neonatal digestive enzymes as a comparative study in buffalo and cow calves. He is presently working on many of the National and International projects. He represented Gujarat Agricultural University, Sardarkrushinagar, India and participated at the 2<sup>nd</sup> Asian Buffalo Congress held at Philippines, Manila.

**Dr. V.P. Vadodaria****Prof. Dr. Mahendra. Pal is on the Editorial Board of the “Revista Iberoamericana de Micologia” Journal**

**Professor Dr. Mahendra Pal**, Department of Veterinary Public Health, College of Veterinary Science, Gujarat Agricultural University, Anand has been appointed as a member of the Editorial Board of “Revista Iberoamericana de Micologia”, the international journal of medical and veterinary mycology, published from Spain. Dr.Pal has done commendable research work on many fungal infections in particular to cryptococcosis, candidiosis aspergillosis and dermatophytosis. He has the credit to record for the first time of the etiologic significance of fungi in disorders of animals and man. Prof. Pal has authored 4 books and published over 142 research papers. He has developed sunflower seed medium which is now widely used in microbiology and public health laboratories to establish rapid diagnosis of Cryptococcosis in human and animals. Prof. Pal has also developed PHOL (Pal, Hasegawa, Omo amd Lee) and NARAYAN stain to study the morphology of fungi and algae. In recognition, he has been awarded fellowship by the Korean Society of Veterinary Clinical Medicine, Seoul.

**Dr. Mahendra Pal**

Abstracts

**Effects of Oral Administration of Methazolamide on Intra-ocular Pressure and Aqueous Humor Flow Rate in Clinically Normal Dogs**

Brian J. Skorobohach, Dan A. Ward and Daine V.H. Hendrix

To determine magnitude and duration of the effect of oral administration of methazolamide at 2 dosages on intra-ocular pressure (IOP) in dogs in single-dose and multiple-dose trials and to determine aqueous humor flow rate (AHFR) by use of anterior segment fluorophotometry before and during treatment was studied in 25 healthy adult Beagles.

Baseline IOPs and AHFRs were determined on days 0 and 1, respectively. On day 2, the single-dose trial was initiated with oral administration of 25 or 50 mg of methazolamide at 7 AM to 2 groups of 10 dogs each. Five dogs served as control. In the multiple-dose trial, the same dog received 25 or 50 mg of methazolamide at 7 AM and at 3 PM and 11 PM on days 3 through 9.

Intra-ocular pressures varied diurnally with highest IOPs in the morning. In the single-dose trial, IOP decreased significantly at 3 to 6 hours after treatment and then increased significantly at later time points, compared with baseline values. In the multiple-dose trial, dogs in both treatment groups had significantly lower IOPs during the treatment period at 10 AM and 1 PM but not at 6 PM and 9 PM, compared with baseline values. In both treatment groups, morning IOPs had returned to baseline values by the first after treatment. Evening IOPs were significantly increased by 2 to 3 days after treatment, compared with baseline values. The AHFRs in both treatment groups were significantly lower than pre-treatment AHFRs.

Oral administration of methazolamide decreases IOPs and AHFRs in clinically normal dogs, with effective diminishing in the evening.

Source : *Amer. J. Vet. Res.*, (2003). **64**, pp.: 183 – 187.

**Use of Threshold Serum and Milk Ketone Concentrations to Identify Risk for Ketosis and Endometritis in High-yielding Dairy Cows**

Martin Resst, Daniel K. Erdin, Daniel von Euw, Kaspar M. Techumperlin, Hans leuenberger, Harald M. Hammon, Niklaus Kunzi and Jurg W. Blum

To use threshold concentrations of acetone and  $\beta$ -hydroxybutyrate in milk and serum respectively; identify risk for ketosis and endometritis; and assess analyses of blood and milk samples as predictors of risk for ketosis in high-yielding 90 multi-parous Holstein dairy cows.

At intervals before and after parturition, blood samples were obtained for determination of glucose, non-esterified fatty acids, leptin, insulin, insulin-like growth factor-1 and  $\beta$ -hydroxybutyrate concentrations. Samples of milk were obtained at similar intervals after parturition for determination of fat content and concentrations of acetone, protein and lactose. Reproductive examination of each cow was performed weekly.

For each cow, threshold concentrations of acetone and  $\beta$ -hydroxybutyrate were calculated

## Abstracts

as 75th and 90th percentiles of maximum post-partum concentrations of acetone in milk (0.40 and 0.87 mmol/L) and  $\beta$ -hydroxybutyrate in serum (2.30 and 3.51 mmol/L). Significant decrease in milk production (442 to 654 kg of energy-corrected milk/305-day period per cow) was associated with acetone or  $\beta$ -hydroxybutyrate in excess of threshold values. Milk acetone concentrations  $> 0.40$  mmol/L were associated with 3.2 times higher risk for endometritis. Low plasma glucose, high serum  $\beta$ -hydroxybutyrate and high milk acetone concentrations during week 1 after parturition were indicators of increased risk for ketosis later during lactation.

Determination of milk acetone concentration during the week after parturition may identify cows at risk for ketosis and endometritis; with appropriate interventions, development of disease and production losses may be reduced.

Source : *Amer. J. Vet. Res.*, (2003). **64**, pp.: 188 – 194.

### **Description of an Epidemic Simulation Model for Use in Evaluating Strategies to Control an Outbreak of Foot and Mouth Disease**

Thomas W. Bates, Mark C. Thurmond, and Tim E. Carpenter

To develop a spatial epidemic model to simulate intra-herd and inter-herd transmission of foot and mouth disease (FMD) virus. 2,238 herds, representing beef, dairy, swine, goats, and sheep, and 5 sale yards located in Fresno, Kings, and Tulare counties of California.

Using Monte-Carlo simulations, a spatial stochastic epidemic simulation model was developed to identify new herds that would acquire FMD following random selection of an index herd and to assess progression of an epidemic after implementation of mandatory control strategies.

The model included species-specific transition periods for FMD infection, locations of herds, rates of direct and indirect contacts among herds, and probability distributions derived from expert opinions on probabilities of transmission by direct and indirect contact, as well as reduction in contact following implementation of restrictions on movements in designated infected areas and surveillance zones. Models of supplemental control programs included slaughter of all animals within a specified distance of infected herds, slaughter of only high-risk animals identified by use of a model simulation, and vaccination of all animals within a 5 to 50 km radius of infected herds.

The FMD model represents a tool for use in planning bio-security and emergency response programs and in comparing potential benefits of various strategies for control and eradication of FMD appropriate for specific populations.

Source : *Amer. J. Vet. Res.*, (2003). **64**, pp.: 195 – 204.

### **Results of Epidemic Simulation Modeling to Evaluate Strategies to Control an Outbreak of Foot and Mouth Disease**

Thomas W. Bates, Mark C. Thurmond and Tim E. Carpenter

To assess estimated effectiveness of control and eradication procedures for foot and mouth disease (FMD) of 2,238 herds and 5 sale yards in Fresno, Kings, and Tulare counties of California.



**Abstracts**

A spatial stochastic model was used to simulate hypothetical epidemics of FMD for specified control scenarios that included a baseline eradication strategy mandated by USDA and supplemental control strategies of slaughter or vaccination of all animals within a specified distance of infected herds, slaughter of only high-risk animals identified by use of a model simulation, and expansion of infected and surveillance zones.

Median number of herds affected varied from 1 to 385 (17% of all herds), depending on type of index herd and delay in diagnosis of FMD. Percentages of herds infected decreased from that of the baseline eradication strategy by expanding the designated infected area from 10 to 20 km (48%), vaccinating within a 50 km radius of an infected herd (41%), slaughtering the 10 highest risk herds for each infected herd (39%), and slaughtering all animals within 5 km of an infected herd (24%).

Results for the model provided a means of assessing the relative merits of potential strategies for control and eradication of FMD should it enter the US livestock population. For the study region, pre-emptive slaughter of highest risk herds and vaccination of all animals within a specified distance of an infected herd consistently decreased size and duration of an epidemic, compared with the baseline eradication strategy.

Source : (*Amer. J. Vet. Res.*, (2003). **64**, pp: 205 – 210.)

**Endotoxin Induced Non-thyroidal Illness in Dogs**

David L. Panciera, Jerry W. Rithchey, Danial L. Ward

To determine the effects of endotoxin administration on thyroid function test results and serum tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) activity in 6 healthy adult male dogs.

Serum concentrations of thyroxine ( $T_4$ ), 3,5,3'-triiodothyronine ( $T_3$ ), 3,3',5'-triiodothyronine ( $rT_3$ ), free  $T_4$  ( $fT_4$ ), and endogenous canine thyroid stimulating hormone (TSH), and TNF- $\alpha$  activity were measured before (day-1; baseline), during (days 0 to 3), and after (days 4 to 24) intra-venous administration of endotoxin, every 12 hours for 84 hours.

Compared with baseline values, serum  $T_3$  concentration decreased significantly, whereas  $rT_3$  concentration increased significantly 8 hours after initial endotoxin administration. Serum  $T_4$  concentration return to reference range, then decreased significantly days 5 and 7 after stopping endotoxin treatment. Serum TNF- $\alpha$  activity was significantly increased only 4 hours after initial endotoxin treatment, compared with baseline activity.

Endotoxin administration modeled alterations in thyroid function test results found in dogs with spontaneous nonthyroidal illness syndrome. A decrease in serum  $T_4$  and  $T_3$  concentrations and increase in serum  $rT_3$  concentration indicate impaired secretion and metabolism of thyroid hormones. The persistent decrease in serum  $T_4$  concentration indicates that caution should be used in interpreting serum  $T_4$  concentrations after resolution of an illness in dogs.

Source : (*Amer. J. Vet. Res.*, (2003). **64**, pp: 229 – 234.)

## READERS' COLUMN

### Comments / Suggestions on 'The Blue Cross Book' - 20 and Expected Articles for 'The Blue Cross Book' - 21

**1. Dr. Bidhan Chandra Das,**

Veterinary Assistant Surgeon, District Veterinary Hospital, R.K. Pur, Udaipur-7990120, Tripura State

Tel No. 0381-2206977 (R)

Introduction of consortium and its website is a novel approach which will promote to solve many problems faced by the veterinarians and also will help in sharing knowledges across the country. "Thank you very much for prompt delivery of 'The Blue Cross Book' -20' "Effect of Fertagyl Administration at the Time of Insemination on Conception Rate in Prostaglandin Induced Oestrus in Cows." is very much informative and is practical oriented findings. I also thank you for publication of article like "Tenorrhaphy in a Bullock" which will inspire the field veterinarians as well.

**2. Dr. K.R.V. Praveen**

Veterinary Assistant Surgeon, C/o K.C. Rajanna Garu, House No. 12/254, Yemmiganur-518360, AP

Tel No. - 08512-256957

Thanks for prompt sending of 'The Blue Cross Book'. I am deeply impressed by the article "Uterine Torsion in Holstein X Deoni Cross-bred Cow. I suggest to incorporate - a column on "field Veterinarians queries and answer" which should be dealt by the competent subject specialist from Intervet. Please publish more clinical articles, if possible with color photographs.

**3. Dr. S.K. Bhudhiraja**

Sr. Specialist, Dog Disease, F-1 Rajouri Garden, Behind Canara Bank, New Delhi - 110027

Tel No. 011-25449727

**Berenil**® 7% Vet RTU (from Intervet) is a wonderful drug for the treatment of Babesiosis and Trypanosomiasis in dogs. Cases which don't respond to the treatment even after second doses of **Berenil**®, have shown complete cure if tetracycline is administered for five consecutive days after the 2<sup>nd</sup> dose of **Berenil**® 7% Vet.

**4. Dr. R. Jeyaganesan**

Veterinary Assistant Surgeon, Pudukkottai-622 002, Tamil Nadu

Mobile No. 94433-28199

Tel.No. 04322-221915

"Efficacy of **Panacur**® Along with Diethyl Carbamazine Citrate in Case of Lumber Paralysis in Goat." By Aniruddh Rai is of very useful and informative. I expect similar case report regarding canine distempers as a success story.

**5. Dr. R.G. Jani**

Coordinator, Wild life Health (WRC) Veterinary, Medicine College, Anand-388001, GS  
Tel No. 02692 - 263056

Congratulations for continous 10<sup>th</sup> year of dedicated services in the research, publication and updated information to the veterinarians in the country.

### Comments / Suggestions on 'The Blue Cross Book' - 20 and Expected Articles for 'The Blue Cross Book' - 21

**6. Dr. Uma Shanker**

Principal Scientist Animal Reproduction, C-99 H.I.G. Rajendra Nagar, Bareilly – 243122, UP

Tel No. 0581-2586107 Mob. – 919412287929

Thanks for sending the issue No. 20. This journal is indeed useful and informative. We appreciate the views made by Managing Director on the page 2 "A new Consortium to connects – Scientist and Vets."

**7. Dr. Devendra Kumar**

Janta Veterinary Hospital, Budhana Road, Shamli-247776, Distric- Muzaffar Nagar, UP

Thanks for the issue 20/2003. This journal should be published quarterly. I would request you to include articles on canine medicine and also periodical information regarding seminars being conducted in the country or in the various parts of the world. Please send me each and every issue regularly of this journal.

**8. Dr. N. Muhindro Singh**

S/o N. Dhakasana Singh, Luwangsangbam (Near Godown), P.o. Mantripukhri – 795002, Imphal, Manipur

Tel No. 0385 – 2427345 (R)

Thanks for the prompt supply of the issue. The article on "Efficacy of 12.5% (Amitraz) Against Dog Flea Infestation" gave a good clinical information to be moted. Please do continue publishing such case reports. Looking forward for the future issues.

**9. Dr. P.V. Ramchandra Rao**

President Veterinary Public Health Association, 313, Maheswri Coplex, Masab Tank, Hyderabad – 500028

Tel No. 040-2331 8453

At least one paper on zoonotic diseases should find a place in each issue of 'The Blue Cross Book'. I can contribute a paper on "Brucellosis in a Lady Vet". Please inform whether it will be acceptable.

**10. Dr. K. Radha Krishnan**

Assistant Director, Animal Husbandry Directorate, Vikas Bhavan, Trivendrum

Tel No. 0471-2303683

Thanks for sending the issue No.20, promptly. I feel very happy to know that the Animal Health consortium and its Web Site has been launched. Those behind this effort actually deserve appreciation. This issue impressed me a lot, as an increased number of case reports are included. Obviously, these will be beneficial for the field veterinarians in the country.

## READERS' COLUMN

### Comments / Suggestions on 'The Blue Cross Book' - 20 and Expected Articles for 'The Blue Cross Book' - 21

#### 11. Dr. Tej Singh Manohar

Incharge Veterinary Hospital, Opposite Police Station, Ladnun-341306,  
District-Nagaur, Rajasthan  
Tel No. 01581-224861

I am very happy to receive 'The Blue Cross Book' from your Veterinary Sales Officer. Good information. Kindly send regularly. I want to send an article on Babesiosis in horse and its treatment with **Berenil**<sup>®</sup> (from Intervet).

#### 12. Dr. K. Venkataramana

Scientist & Head, Livestock Research Station, M.C. Farm, P.O. Nandyal - 578 502  
District-Kurnool  
Tel No. 08514-284523 (O), 08514-284517 (R)

The information on recent Veterinary development, spreading/reaching to all field Veterinarians through 'The Blue Cross Book' is worth appreciating. I also congratulate - the editor and thank Intervet India Pvt. Ltd. for their immense Intervet and dedication in publishing their journal. I shall send article shortly.

*" The history of the world is the history of a few men who had faith in themselves. That faith calls out the Divinity within. You can do anything. You fail only when you do not strive sufficiently to manifest infinite power. As soon as a man or a nation loses faith in himself or itself, death comes.*

*Believe first in yourself, and then in God."*

*- Swami Vivekananda*

*" You will see God if your love for Him is as strong as that of the attachment of the worldly - minded person for things of the world."*

*- Ramkrishna Paramhansa*

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

*- The Holy Mother Saradamani*

New Publication



**Zoonoses and Communicable Diseases, Common to Man and Animals, 3rd Edition: vol 1: Bacterioses and Mycoses**

Acha PN and Szyfres B

Pan American Health Organization

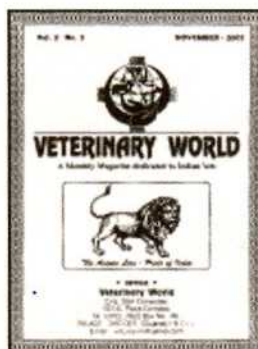
Subject/Key word : Bacterial infections and mycoses; Diseases reservoirs; Public health veterinary; Communicable disease control; Food contamination; Zoonoses

This popular book, useful for schools and public health, medicine, and veterinary medicine, as well as public health and animal health institutions, offers the latest information on zoonoses and communicable diseases, common to man and animals in Latin America and the rest of the world. Thanks to technologies and advances in epidemiology, ecology, and other biological and social sciences, great progress has been made regarding these diseases since the first edition was published in 1977. The edition is the first to be published as three volumes: the first includes bacterioses and mycoses; the second, chlamydioses, rickettsioses, and viroses; and the third, parasitic zoonoses. This essential work also includes maps, tables, and figures that help to explain the transmission cycle and the geographic distribution and prevalence of many of these diseases.

*Scientific and technical publication: No. 580, 384pages*

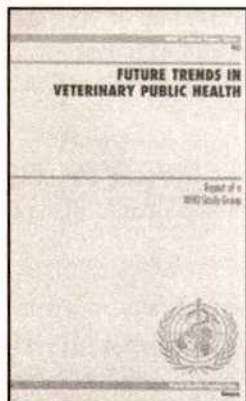
ISBN / Document No. 92 7511 580 x

Price: Rs. 1440/-



**'Veterinary World'** : A New Veterinary Monthly Magazine – Published. The magazine is dedicated to Indian vets and being published monthly from Rajkot, Gujarat. The magazine is edited by Dr. A.V.Sherasiya and being associated by Dr. R G Jani (Veterinary College , Anand) and Dr. R.Verma (IVRI). Apart from clinical articles, the magazine includes product information of New drug launched in the market by veterinary pharmaceuticals. For more details, please contact the Editor, [vet\\_anjum@yahoo.com](mailto:vet_anjum@yahoo.com)

New Publication



**Future Trends in Veterinary Public Health: Report of a WHO Study Group**

World Health Organization; WHO Study Group on Future Trends in Veterinary Public Health

**Subject/Keyword:** Public health-trends; Veterinary public health-trends; Veterinary public health and zoonoses; Forecasting; Veterinary medicine-trends

Since the publication of the report of a joint FAO/WHO Expert Committee on Veterinary Public Health in 1975, many significant developments have occurred in this field. The present report of a WHO Study Group re-examines the role and functions of veterinary public health and its contribution to public health practice today and in the years to come.

Since 1975, new, emerging and re-emerging zoonotic diseases have acquired global significance for human health, and teamwork between, physicians, veterinarians, and biologists. The veterinary sector has a long and distinguished history in contributing to the maintenance and promotion of public health. As health is multi-dimensional, health policy and practice should be inter-disciplinary and inter-sectoral. Therefore, the contributions of other sectors - in particular agriculture, animal health and production, food industry, education, housing, public works, and communications - are vital. Such concerted action is particularly needed in developing countries with weak infrastructures and limited resources.

This report reviews current and foreseen global changes for their potential implications on veterinary public health with regards to national and international policies, management of programmes and training. The report also provides recommendations for action in these areas.

*WHO technical report series; 907, 85pages*

ISBN/Document No. 92 4120 9070

Price : Rs. 560/-

# 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:

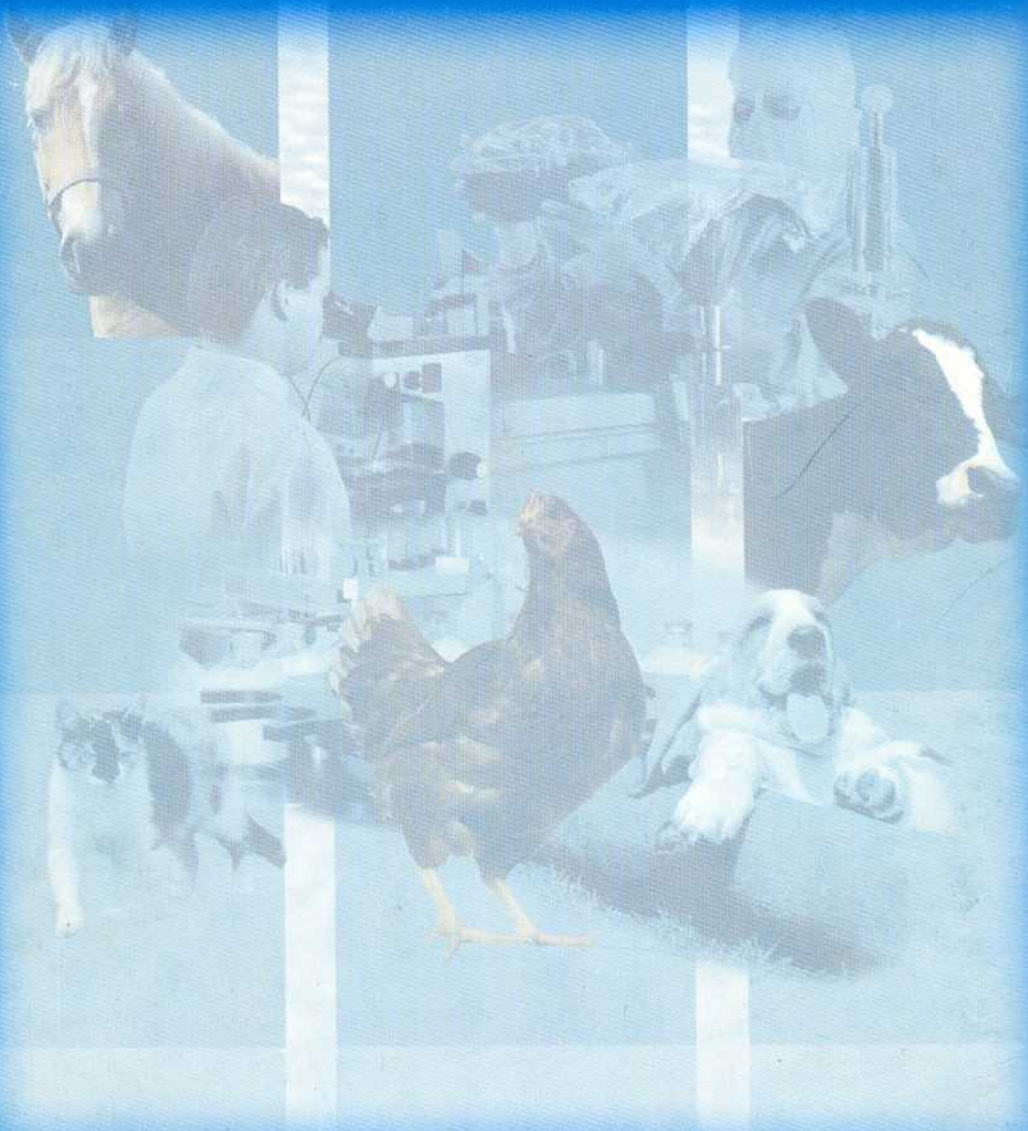
- Title** : Note on the Outbreak of Pox in Sheep
- Name/s of author/s** : K. Kumari, P.C. Chowdhri and P.K. Das
- Place of work** : Department of Pharmacology, Bombay Veterinary College, Parel, Mumbai-400 012, MS
- Materials and Methods** : In details.
- Results and Discussions** : With the help of tables/ 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, 8<sup>th</sup> 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](mailto:adatta@intervetindia.com), [anupkdatta@yahoo.co.in](mailto:anupkdatta@yahoo.co.in)

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