RUMEN IMPACTION IN CATTLE WITH INDIGESTIBLE FOREIGN BODIES IN CHENNAI*

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ABSTRACT

Rumen impaction in cattle with indigestible foreign bodies (IFB) was studied in Chennai. About 30 stray animals with IFB were studied. More females were affected than males. The IFB were polythene bags, metallic objects, fibres and hairballs.Clinical rumen IFB impaction was characterized by pale mucous membrane, complete cessation of rumination, impacted rumen, atony, reduced rumen motility, absence of stratification, hard pellet mucous coated dung and inappetance. Normocytic normochromic anaemia with increased BUN, hypoproteinemia, hypoalbuminaemia, hypocalcaemia, hypoglycaemia and hypophosphataemia were noticed in some of the clinical cases. The results suggest that the rumen impaction in stray cattle might be due to scavenging on refuse dumps and that the blood biochemical changes, along with clinical signs, might be of some diagnostic assistance.

Key words: Rumen – Impaction – Indigestible foreign body – Blood biochemistry.

Rumen impaction is a condition which results from the accumulation of the indigestible materials in the rumen which interferes with the flow of ingesta leading to distension of the rumen and passing of scanty or no feces (Abdullahi *et al*., 1984). Further, the effects of these indigestible foreign bodies such as plastic bags, nylon rope etc on the nutrition and health aspect of cattle has not been elucidated. Lorber *et al*. (2004) suggested that toxic chemicals and pesticides have the potential to disrupt beneficial and necessary biological systems which threaten the biosecurity.

In the present study, ten apparently healthy animals selected from a private farm were used for studying normal parameters. It was ensured that these normal animals were raised indoors and not allowed to stray.

Sick cattle attending Large Animal Medicine Out–Patient Gastroenterology unit, MVC Teaching Hospital, Chennai – 7 were screened for signs suggestive of ruminal impaction. From these animals, thirty animals were selected after careful history of being stray cattle, history of recurrent bloat and having clinical symptoms suggestive of ruminal impaction for the study. Five animals from these thirty animals were also confirmed having indigestible foreign bodies in the rumen after performing rumenotomy.

In the present study, higher incidence of 91.02% was noticed in adult cattle. The prominent clinical signs observed were pale mucous membrane, absence of rumination and reduced ruminal motility. Absence of stratification was observed in all the affected animals. Rectal examination revealed pellet mucous coated dung. The clinical signs as noticed here were reported by Igbokwe *et al*. (2003), Reddy *et al*. (2004) and

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Hailat *et al*. (1996) also.

Highly significant decrease in the haemoglobin, PCV and total erythrocytic count with leukocytosis and neutrophilia may be due to dietary deficiency (Mayer *et al.*, 1992), presence of foreign bodies (Hailat *et al*., 1996) and sloughing, stunting, erosions, inflammatory response and the hyperplasia due to the pressure on the wall of the rumen caused by the foreign bodies (Hailat *et al*., 1996) (Table 1).

Highly significant increase in BUN value may be due to faulty rumen fermentation and reduced microbial activity (Hobson, 1988). Hypoproteinemia and hypoalbuminaemia could be due to dietary malnutrition (Mayer *et al*., 1992) and stress reaction to infection. Hypocalcaemia might de due to dietary deficiency and failure of calcium absorption due to reduced ruminal motility. Hypoglycaemia might be due to inadequate intake of feed (Ramakrishna, 1994). Hypophosphatemia noticed in the affected animals might be associated with shortage of feeds, perhaps especially of minerals and vitamins (Table 2).

It can be concluded that rumen impaction mainly causes depression, anorexia, reduced milk yield, abdominal distension and loss of defecation. There are significant alterations in BUN, protein, albumin, calcium, glucose and phosphorus in the affected animals.

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Table 1. **Hamatological parameters in cattle with rumen impaction**

Parameters	Control	Rumen Impaction	't' value
	Mean ± SE	Mean ± SE	
Hb (g/dl)	10.18 ± 0.45	7.44 ± 0.19	6.44**
PCV (%)	29.75 ± 1.28	21.91 ± 1.20	3.52**
RBC x 10^6/µl	7.24 ± 0.37	4.55 ± 0.21	6.35**
MCV (fl)	42.29 ± 3.21	50.02 ± 1.35	2.60*
MCHC (g/dl)	34.83 ± 2.18	34.94 ± 1.0	0.05 ^{ns}
MCH (pg)	14.37 ± 0.98	16.88 ± 0.5	0.42*
WBC x 10^3/ µl	66.78 ± 0.74	11.93 ± 0.72	3.87**
Neutrophils x 10^3/ µl	3.19 ± 0.53	5.22 ± 0.32	4.69**
Lymphocyte x 10^3/ µl	7.96 ± 0.48	6.02 ± 0.36	4.35**
Monocyte x 10^3/ µl	0.32 ± 0.02	0.39 ± 0.02	0.92^{ns}
Eosinophils x 10^3 / µl	0.42 ± 0.02	0.38 ± 0.02	0.59^{ns}
Basophils x 10^3 / µl	0.03 ± 0.002	0.02 ± 0.001	0.41^{ns}

* – Significant (P < 0.05) ** – Highly significant (P = 0.01)
NS – Non significant

Table 2.
Biochemical parameters in cattle with rumen impaction

Parameters	Control	Rumen Impaction	't' value
	Mean ± SE	Mean ± SE	
BUN (mg/dl)	25.62 ± 1.02	46.85 ± 2.79	4.31**
Creatinine (mg/dl)	1.66 ± 0.10	1.57 ± 0.09	0.54 ^{ns}
Total protein (g/dl)	7.05 ± 0.07	6.23 ± 0.14	3.16**
Albumin (g/dl)	3.36 ± 0.04	2.75 ± 0.05	6.39**
Calcium (mg/dl)	10.92 ± 0.30	8.36 ± 0.34	4.14**
Cholesterol (mg/dl)	115.40 ± 10.99	116.28 ± 7.18	0.06^{ns}
Glucose (mg/dl)	62.10 ± 3.29	42.78 ± 2.02	4.85**
Phosphorus (mg/dl)	6.76 ± 0.14	5.98 ± 0.11	3.13**

** - Highly significant (P = 0.01) NS – Non significant.

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