

Haematological and Serum Biochemical Profile of Cattle Affected with Plastic Foreign Bodies

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Abstract- Cattle suffering with plastic foreign body syndrome were treated surgically by rumenotomy. The pre-operative and 12th day post operative blood and serum biochemical were recorded and compared with normal healthy cattle. Pre-operatively decrease in haemoglobin, packed cell volume and total erythrocyte count was observed which was gradually increased and came to near normal state on 12th post-operative day. There was leucocytosis, neutrophilia and corresponding lymphopenia observed in animals during pre-operative phase. The glucose, serum creatinine, serum albumin and calcium levels were found to be at lower level and total proteins, blood urea nitrogen and phosphorus at higher level in pre-operative period when compared to normal cattle. This may be due to low intake of food and water and also inflammatory condition in body due to presence of plastic foreign body.

Index Terms- plastic foreign body, cattle, rumenotomy, haematological and serum biochemical profile

I. INTRODUCTION

Digestive tract disorder like foreign bodies syndrome contributes to decreased digestive capacity and milk yield of cattle. Low nutritional status of stray cattle have forced them to scavenge for food in the urban streets and refuse dumps, paving way for consumption of both penetrating and non penetrating (metallic as well as plastic) foreign bodies. Approximately, 95% of urban stray cattle in India are suffering from various ailments due to hazardous materials, mostly plastic bags inside their abdomen (Singh, 2005). The present study was conducted to know the effect of plastic foreign bodies on blood and serum biochemical profile of cattle, hence present study was undertaken to evaluate the effect of plastic foreign bodies on blood picture and serum biochemical profile.

II. MATERIALS AND METHODS

The study was conducted in 50 clinical cases of stray cattle presented at Department of Veterinary Surgery and Radiology, Vanbandhu College of Veterinary Science & Animal Husbandry, N.A.U., Navsari (Gujarat), Shri Surat Panjrapole and Nandini Hospital, Surat (Gujarat). All 50 cows with long standing history (15-20 days) of partial or complete anorexia with or without chronic ruminal impaction and/or reduced ruminal motility were

examined for foreign bodies syndrome by metal detector and Trypsin Inhibition Spot Test (TIST) as per technique described by Samad *et al.* (1994). All the confirmed cows (50) were subjected for rumenotomy operation. The hematology [hemoglobin (g/dl), packed cell volume (%), total erythrocyte count ($10^6/\mu\text{L}$), total leukocyte count ($10^3/\mu\text{L}$) and differential leukocyte count (per cent)] and Serum biochemistry [glucose (g/dL), total proteins (g/dL), blood urea nitrogen (mg/dL), serum creatinine (mg/dL), serum albumin (g/dL), calcium (mg/dL) and phosphorus (mg/dL)] were investigated before rumenotomy and 12th day of post-operative. The parameters were observed and compared with control group of normal healthy animals (n=10).

III. RESULT

Different haematological parameters like haemoglobin, packed cell volume, total erythrocyte count, total leukocyte count, differential leukocyte count and biochemical parameters like glucose, total proteins, blood urea nitrogen, serum creatinine, serum albumin, calcium, phosphorus recorded in animals with plastic foreign bodies before rumenotomy and 12th post-operative day and were compared with normal healthy control animals (Table 1 & 2).

IV. DISCUSSION

The haemoglobin, packed cell volume, erythrocytes count was noticeably reduced in pre-operative animals as compared to control animals, which might be due to low intake of feed, water, dietary deficiency (Mayer *et al.*, 1992 and Vanitha *et al.*, 2010), impaired digestion and accumulation of food material (Kaur and Singh 1994, Raut, 2009 and Vanitha *et al.*, 2010). While increased in haemoglobin, packed cell volume, erythrocytes count values were noticed on 12th post-operative day. Significant leucocytosis, neutrophilia and corresponding lymphopenia were noticed during pre-operative period might be due to localized/generalized infection, the values were found to be within the normal physiological range on 12th post-operative day. The mean values of glucose, serum creatinine, serum albumin and calcium were found to be at lower level during preoperative period when compared to normal cattle. The reduced value might be due to low intake of food and water, (Ramprabhu *et al.*, 2004, Raut, 2009 and Vanitha *et al.*, 2010). Moreover, there were gradual rise in glucose, serum creatinine, serum albumin and

calcium in post-operative period reaching to almost normal level. Total proteins, blood urea nitrogen and phosphorus were at higher level during preoperative period when compared to cattle of group-I (normal cattle). Similarly Citil *et al.* (2004) and Jamma (2004) reported increased in plasma proteins value in cattle and buffalo suffering from traumatic reticulitis due to inflammation, respectively. However, further increase in total proteins and blood urea nitrogen was found to be due to feeding of proteinous diet and decline in phosphorus level in postoperative period when compared to pre-operative period may be due to improved body condition.

V. CONCLUSION

Haemato-biochemical parameters improved after surgical treatment because improvement in feeding, watering and ruminal motility. Surgery is the only effective method of treatment for plastic foreign bodies, however the early diagnosis is essential for a favorable outcome.

AUTHORS CONTRIBUTION

Dr. N. H. Kelawala, Dean of college of veterinary science & animal husbandry had provided all the facilities to fulfill the research work successfully. Dr D. N. Suthar, Assistant professor (Department of surgery) had provided technical guidance for research work. Dr. P. T. Sutaria Assistant professor (Department of surgery) had also provided technical guidance for research work.

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