

Therapeutic Management of Traumatic Reticuloperitonitis in a cow

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Abstract

Four -year-old Jersey cross-bred cow was brought with history of inappetence, reduced milk production and brisket oedema for the period of 10 days. Detailed clinical examination revealed fever, tachycardia, tachypnoea, positive venous stasis and dehydration. Elevated haematocrit, leucocytosis with neutrophilia, presence of a greater number of immature neutrophils and decreased lymphocyte count were noticed. Hypoproteinemia, hypophosphataemia and increased calcium and AST values were noticed. Radiography revealed the presence of linear foreign body in the reticulum. The ultrasonography revealed presence of anechoic fluid in the peritoneum, mixed echogenic mass on the serosal surface of reticulum suggestive of reticular abscess. The cow was managed medically with antibiotics, diuretics, NSAIDs and fluid therapy for three days. Subsequently rumenotomy was performed to relieve the foreign body and the cow had uneventful recovery.

Keywords: Cattle, Reticular abscess, Rumenotomy

Traumatic reticuloperitonitis, also known as hardware disease, continues to be one of the most significant digestive disorders in cattle (Mousavi *et al.*, 2007). Bovines are more prone to ingesting foreign objects than small ruminants because they do not differentiate between metallic materials in their feed, particularly those raised in urban and peri-urban areas (Aiello *et al.*, 2016). Traumatic reticuloperitonitis (TRP) occurs when a metallic foreign body is accidentally swallowed and penetrates the reticular wall, leading to acute inflammation around the reticulum, along with adhesions and abscess formation (Abdelaal *et al.*, 2009). A case of TRP in a cattle and its successful management is reported in this article.

Four-year-old Jersey cross-bred cow was brought to the Large Animal Medicine Out Patient Unit of Madras Veterinary College Teaching Hospital with history

of inappetence, reduced milk production and brisket oedema (Fig-1) for a period of 10 days. Detailed clinical examination revealed fever, tachycardia, tachypnoea, positive venous stasis and dehydration. Haematological examination showed elevated PCV, leucocytosis with neutrophilia and decreased lymphocyte count. Serum biochemistry revealed decreased protein, phosphorous levels and increased calcium and AST values than the normal range (Table-1). Radiography revealed the presence of linear foreign body in the reticulum (Fig-2). The ultrasonography revealed presence of anechoic fluid with fibrin strands in the peritoneum (Fig-3) and mixed echogenic mass on the serosal side of the reticulum suggestive of reticular abscess (Fig-4). Thoracic ultrasonography was performed to rule out pericarditis. Based on the above findings the case was diagnosed as TRP.



Fig.1: Brisket edema

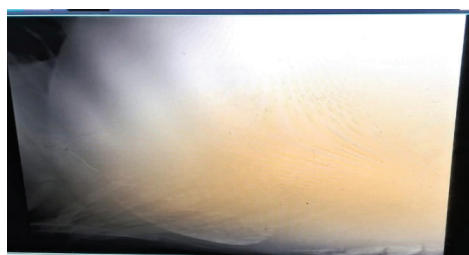


Fig.2: Linear foreign body in the reticulum



Fig.3: Fibrin strands in the peritoneal fluid



Fig.4: Reticular abscess

Table-I Haematobiochemical parameters

Parameters	Cattle with TRP	Normal range
Haemoglobin (g/dl)	9.3	8.0–15.0
Packed cell volume (%)	55	24-46
RBC (m/cmm)	6.9 m	5.0-10.0
WBC/ cmm	21,000	4.0-12.0
PLATELETS /cmm	3,51,000	1.0-8.0
Neutrophils (%)	70	14-45
Lymphocytes (%)	30	48-75
Monocytes (%)	4	2-7
Eosinophils (%)	2	2-15
Basophils (%)	-	0-2
Glucose mg/dl)	74	45-75
Total protein (g/dl)	5.2	6.7-7.4
Albumin (g/dl)	2.7	3.0-3.5
Calcium (mg/dl)	14.6	9.7-12.4
Phosphorous (mg/dl)	3.7	5.5-8.0
ALT (U/L)	35	11-40
AST (U/L)	186	78-132
GGT (U/L)	15	6.0-17.4
BUN (mg/dl)	27	20-30
Creatinine (mg/dl)	1.2	1.0-2.0

The cow was conservatively managed with confinement, broad-spectrum antibiotic streptopenicillin (@20,000 IU/kg B.wt, IM), meloxica (@ 0.5 mg/kg B.wt, IM), and furosemide (@ 2 mg/ kg B.wt, IM) for three days. Rumenotomy (Fig-5) was performed standing

position under paravertebral nerve block and inverted L block using 2% lignocaine. On exploration of reticulum, the foreign body (Fig-6) was removed successfully. All the incision made was closed as per standard technique and the cow had uneventful recovery.

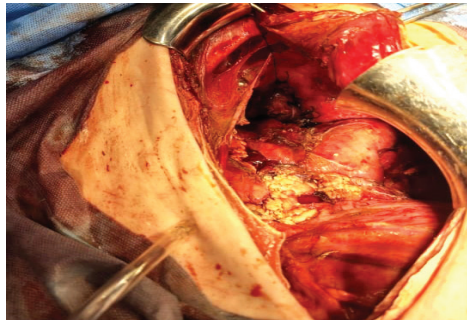


Fig.5: Rumenotomy



Fig.6: Metallic foreign body recovered from cow

Predisposing factors for hardware disease include the indiscriminate feeding behaviour of cattle, as well as conditions like phosphorus deficiency, which can lead to pica (Divers and Peek, 2008). Common symptoms include anorexia, reduced milk production, fever, tachypnea, reluctance to move, and a characteristic stance with an arched back and outwardly spread elbows (Fubini *et al.*, 2008). Other signs may include abdominal pain, fever, toxemia, and a decrease in faecal output (Radostits *et al.*, 2007). Abdominal ultrasonography proved to be an excellent diagnostic tool (Braun *et al.*, 2018). The treatment of TRP can be either surgical or conservative (Orpin and Harwood, 2008). Surgical treatment is considered the gold standard for managing TRP. In this study, the cow was treated with both medical and surgical interventions. A proactive strategy, which includes thorough risk assessments, careful culling decisions, and both clinical and postmortem evaluations, is essential for early identification and preventing further issues within the herd.

References

- Abdelaal, A.M., Floeck, M., El Maghawry, S. and Baumgartner, W. 2009. Clinical and ultrasonographic differences between cattle and buffaloes with various sequelae of traumatic reticuloperitonitis. *Vet. Med.*, **54**(9): 399-406.
- Aiello, S.E., Mosesand, M.A. and Allen, D.G. 2016. The Merck Veterinary Manual 11th ed., Merck and Co Inc., Kenilworth, NJ, pp.3177-3181.
- Braun, U., Warislohner, S., Torgerson, P., Nuss, K. and Gerspach, C. 2018. Clinical and laboratory findings in cattle with traumatic reticuloperitonitis. *Vet. Res.*, **14** : 66.
- Divers, T. J. and Peek, S.P. 2008. Rebhun's disease of dairy cattle. 2th Edition, Elsevier Inc, United States America. pp. 141-145.
- Fubini, S. and Divers, T.J. 2008. Noninfectious diseases of the gastrointestinal tract. In Rebhun's diseases of dairy cattle pp.130-199.
- Mousavi, G., Hassanpour, A., Tabrizi, A. and Rezaie, A. 2007. Electrocardiographic changes in buffaloes with Traumatic reticuloperitonitis. *Ital. J. Anim. Sci.*, **6**(sup2):1029-1031.
- Orpin, P. and Harwood, D. 2008. Clinical management of traumatic reticuloperitonitis in cattle. *In Pract.*, **30**: 544-551.
- Radostits, O.M., Gay, C.C., Hincheliffand, K.W. and Constable, P.D. 2007. Veterinary medicine. A textbook of the diseases of the cattle, horses, sheep, pigs and goats. 10 edn. Saunders Elsevier, Philadelphia. pp. 189-382