International Journal of Livestock Research, Vol. 14 (10) Oct' 2024
http://www.ijlr.org
eISSN: 2277-1964
NAAS Score:4.31

Case Report

Pericardial Abscessation - A Sequelae of Traumatic Reticuloperitonitis

Swethasri P. T.[1], Gurpreet Singh Preet[2*], Asmita Narang[3], Adil Majid Bhat[3], Harmanpreet Singh Sodhi[4]

[1]PhD Scholar, Department of Veterinary Medicine, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana-141004 INDIA
[2]Assistant Professor, Department of Teaching Veterinary Clinical Complex, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana-141004 INDIA
[3]Assistant Professor, Department of Veterinary Medicine, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana-141004 INDIA
[4]Assistant Professor, Department of Veterinary Surgery and Radiology, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana-141004 INDIA

*Corresponding Author: gurpreet754@gmail.com

How to cite this paper
Swethasri. P. T.., Preet, G. S., Narang, A., Bhat, A. M., & Sodhi, H. S. (2024). Pericardial Abscessation - A Sequelae of Traumatic Reticuloperitonitis *International Journal of Livestock Research*, 14 (10), 45-49.

Received : Sep 19, 2024
Accepted : Sep 26, 2024
Published : Oct 31, 2024

Abstract

A seven-year-old lactating non-descript cow was presented to the Teaching Veterinary Clinical Complex, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, with a history of recurrent fever, inappetence, pain, sudden weight loss, and decreased milk yield for one month. Initial treatment by a local veterinarian, including antibiotics and supportive care, was ineffective. Upon presentation, the cow exhibited a body condition score of 2, lethargy, and depressed mentation. Clinical examination revealed cranial abdominal pain, bilateral jugular engorgement, increased cardiac auscultation area, and other vital signs suggestive of systemic illness. Diagnostic procedures included blood work, radiography, and ultrasonography. The cow showed signs of severe suppurative inflammation, with blood tests revealing moderate anemia and neutrophilic leukocytosis. Radiographs indicated a suspicion of diaphragmatic hernia and the presence of a linear foreign body. Ultrasonography identified a pocket of pericardial abscess & confirmed by ultrasound-guided pericardiocentesis yielding purulent material. The abscess was drained aseptically, and the cow was treated with antibiotics, anti-inflammatories, and supportive care. Post-drainage, ultrasonography confirmed a reduction in abscess size. This case highlights the importance of comprehensive diagnostic and management approaches, combining physical examination, hemato-biochemical tests, ultrasonography, and radiography, for effective management of traumatic pericarditis and associated sequelae due to linear metallic foreign body ingestion.

Keywords: Cow, Foreign body, Pericardial Abscess, TRP, Ultrasound.

Introduction

Cows as well as buffaloes have non-discriminate feeding habits that lead to ingestion of metallic or non-metallic foreign objects along with feed resulting in the lodging of linear metallic foreign bodies in the reticulum as the most common sequelae. Foreign body syndrome or traumatic reticuloperitonitis is one of the major problems encountered in cattle resulting in greater economic loss to the farming community and high mortality. Metal objects such as pins, nails, fence staples or tire wire can inadvertently contaminate pasture, silage and complete mixed diets (Orpin and Harwood, 2008). The honeycomb pattern of reticular mucosa and muscular contractions can cause metal objects to penetrate the reticular wall (Malmo *et al*., 2010). A sharp decline in milk production and a positive Withers pinch test (indicative of thoracic or cranial abdomen pain) result are typical clinical manifestations of traumatic reticuloperitonitis as tachycardia, poorly digested food in faeces and a decreased appetite with bloat (Braun *et al.* 2007; Bexiga *et al*. 2008 and Buczinski *et al.* 2010). Traumatic reticuloperitonitis can cause a variety of sequelae, such as abscessation, peritonitis, vagal indigestion, pleuritis, pericarditis, and bacteraemia, depending on the severity of the condition and the possible penetration of the causative agent (Parkinson and Merrall, 1999; Malmo *et al.*, 2010).

Case Presentation

A seven-years-old lactating non-descript cow was presented to the Large Animal Primary Unit of Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana with a history of recurrent fever (104 °F), inappetence, pain, sudden weight loss and dropped milk yield from last one month. It was earlier treated locally with a course of antibiotics (ceftiofur @ 2mg/kg body weight, oxytetracycline @ 10mg/kg body weight), fluids (NSS- 8 litres, RL 8 litres), other symptomatic and supportive drugs (Syrup Belamyl, Bolus Nimesulide and Paracetamol) but no improvement was recorded so it was referred to university hospital. On presentation, a complete physical and clinical examination was carried out. The animal's body condition score was around 2, general state was lethargic with depressed mentation. Clinical examination revealed a positive withers pinch test suggestive of cranial abdominal or caudal thoracic pain, bilateral jugular engorgement (Fig 1), increased area of cardiac auscultation, rectal temperature 101.8 F, heart rate 102/minute, respiration rate 30/min, normal palpable lymph nodes, slightly pale mucous membrane and rumen motility of 3/3 minutes with doughy consistency on palpation. The animal was further subjected to laboratory and diagnostic findings.

Materials and Methods

A whole blood sample was collected into an EDTA-coated tube for a complete blood count. The lateral radiography of the reticulum in standing was performed (Misk and Semieka, 2001). Ultrasonography (USG) scanning of the thoracic and abdominal area was done at Large Animal Primary Unit, Department of Veterinary Medicine. Using the surgical scrub solution, transmission gel was applied, the regions above the reticulum and the left and right sides of the thorax up to the elbow joints (from 3–10 ICS) were shaved, and an ultrasonographic examination was performed using a 3.5 MHz curvilinear array transducer. Thoracic ultrasonography was carried out using standardised examination techniques. To assess the pleura, pulmonary tissue, and any pleural effusion, each lung was checked by firmly positioning the transducer parallel to the ribs at each ICS, stretching from the third to the eleventh ICS. To assess the pericardium, myocardium, endocardium, and the presence of fluid and/or fibrin inside the pericardial sac, the right thorax was checked first, followed by the left side at the third to fifth ICS. Abdominal ultrasonography included reticulum, rumen, spleen, liver, kidneys, omasum, abomasum, intestinal segments, and peritoneum were examined for any alteration in their normal structure.

Results and Discussion

Clinical signs found in this case such as jugular engorgement, brisket and intermandibular edema, and abnormal heart sounds are common in congestive heart failure due to TRP in cows (Hussein *et al,* 2014). Many of the clinical findings reported in this are sensitive but not specific to the diagnosis of TRP, pleurisy, or mediastinal abscess (Braun, 2009). Laboratory tests included a complete blood count, revealing moderate anemia (Hb=5.2 g/dL), neutrophilic leukocytosis (TLC=18800/cu mm, Neutrophils=80%) with a significant left shift, thrombocytosis, and juvenile activated platelets, indicative of severe suppurative inflammation (Braun, 2009). Radiography indicated an unclear diaphragmatic line and a linear, potential radiopaque foreign body measuring 5.4 cm cranial to the diaphragmatic line. As per (Dor *et al,* 2007), a radiographically identified penetrating reticular foreign body is a

near-certain cause of traumatic reticulitis, traumatic pericarditis, para-reticular abscessation, or traumatic reticuloperitonitis. It is important to constantly interpret radiographic results in light of clinical findings.

Fig. 1: Jugular distension in cow suffering from pericardial absces

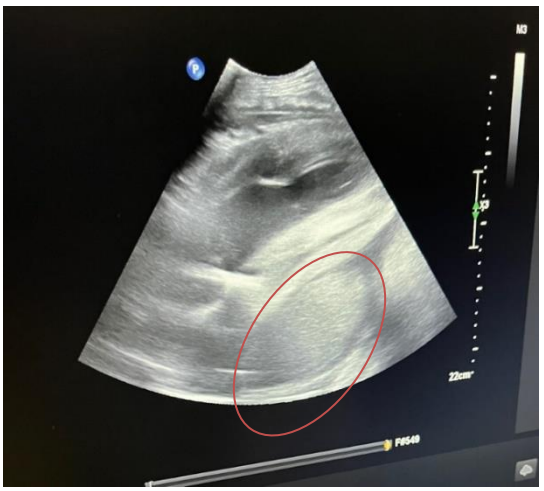

Fig. 2: Ultrasound guided diagnosis of pericardial abscess compressing right ventricle at fourth inter-coastal space from left side (encircled in red)

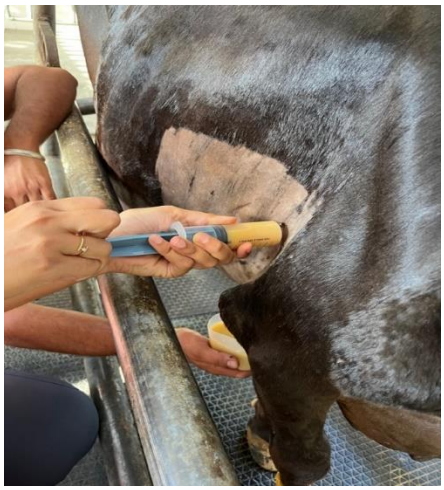

Fig. 3: Ultrasound guided draining of pericardial abscess contents at 4th ICS from right side

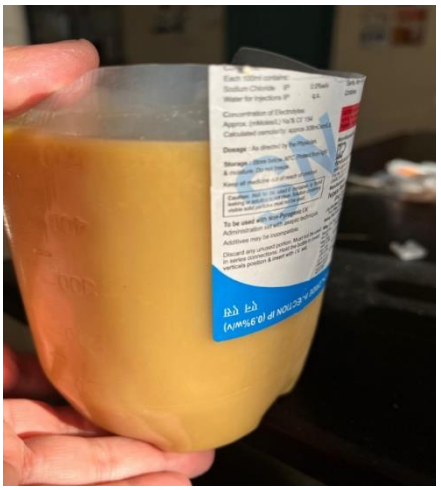

Fig. 4: Demonstration of the collected abscess content from 4th ICS

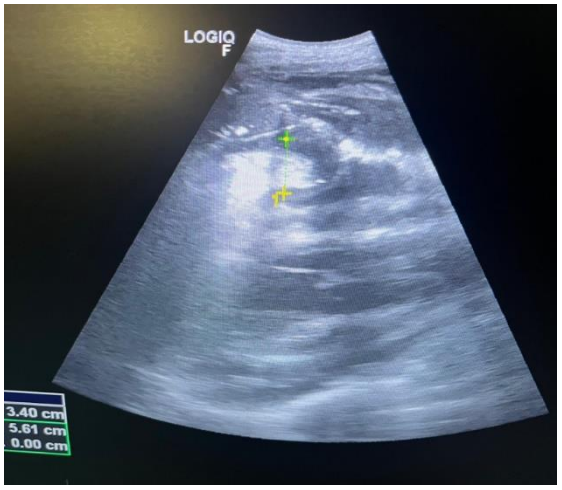

Fig. 5: Ultrasound image showing post drainage reduction in abscess size along with expansion of right ventricle at 4th ICS from right side

In the event that a foreign body is seen on the radiograph and there are characteristic clinical indications, traumatic reticuloperitonitis may be diagnosed as the cause (Braun, 2009). Thoracic ultrasonography revealed a left-sided abscess (6.11 x 9.20 cm) medial to the heart, compressing the right ventricle, and a right-sided abscess (4.94 x 10.4 cm) at the 4th intercostal space. The exudates varied from anechogenic to hypoechogenic contents with hyperechogenic particles, suggesting suppurative pericarditis or pericardial abscess (Figure 2) The pleura appeared as two echogenic lines under the thoracic wall, representing the parietal and visceral pleura without effusion. A half-moon-shaped reticulum with a smooth surface and consistent biphasic contractions was seen on the abdominal USG. The diaphragm, abomasum, rumen, and craniodorsal and ventral sacs all looked normal on USG. The diagnosis was confirmed by USG-guided pericardiocentesis using a sterile four-inch stainless steel needle, which yielded 750 mL of abscess material (Fig 3 and 4). Ultrasonography is a reliable, non-invasive diagnostic tool for identifying thoracic and abdominal disorders in animals, providing critical information for effective management and treatment (Raouf *et al,* 2020). Post-drainage ultrasonography confirmed a reduction in abscess size (3.40 x 5.61) (Fig 5). Treatment included administration of cefquinome (1 mg/kg B.wt IM daily for five days), gentamicin (6 mg/kg B.wt SC daily for six days), metronidazole (15 mg/kg IV twice daily for three days), flunixin meglumine (2.2 mg/kg IM daily for three days), and multivitamins (10 mL IM daily for six days). A prophylactic peroral magnet was administered to prevent future foreign body syndrome. Reports regarding treatment for TRP have described few cattle with a positive outcome and long-term survival (Grisneaux and Fecteau, 2001). TRP-induced sequelae present a significant challenge in veterinary medicine, often resulting in poor prognosis (Braun *et al,* 2007). Pericardiotomy associated with pericardial lavage, followed by closure of the pericardium with insertion of a passive drain in the pericardial cavity, has also been described (Gavali *et al,* 2003, six cases) but there were no survivors and the short-term prognosis can therefore be considered as poor.

Conclusion

The outcome of clinical investigation and management of traumatic pericarditis cases is a combination of physical examination, clinical findings, hematobiochemical tests, ultrasonography and radiography. In summary, the amalgamation of these diverse techniques holds significant utility in the identification and management of the sequelae of linear metallic foreign body ingestion.

Contribution by Authors

Equal contribution. All authors declared that ‘written informed’ consent was obtained from the approved parties for the publication of this article and accompanying images.

Conflict of Interests

There is no conflict of interest.

Publisher Disclaimer

IJLR remains neutral concerning jurisdictional claims in published institutional affiliation.

References

1. Bexiga, R., Mateus, A., Philbey, A.W., Ellis, K., Barrett, D.C. and Mellor, D.J. (2008). Clinicopathological presentation of cardiac disease in cattle and its impact on decision making. *Vet Rec* 162, 575–80.
2. Braun, U., Gotez, M. and Marmier, O. (1993b). Ultrasonographic findings in cows with traumatic reticuloperitonitis. *Vet Rec* 13: 416-422.
3. Braun, U., Lejeune, B., Schweizer, G., Puorger, M. and Ehrensperger, F. (2007). Clinical findings in 28 cattle with traumatic pericarditis. *Vet Rec* 161, 558– 63.
4. Braun, U. (2009). Traumatic pericarditis in cattle: Clinical, radiographic and ultrasonographic findings. *The Vet Journal 182(2), 176–186.*
5. Buczinski, S., Rezakhani, A. and Boerboom, D. (2010). Heart disease in cattle: diagnosis, therapeutic approaches and prognosis. The *Vet Journal* 184, 258–63.
6. Dor, E.G., Fecteau, G., Helie, P. and Francoz, D. (2007). Liver abscesses in Holstein dairy cattle: 18 cases (1992-2003) *J Vet Intern Med* 21: 853-856.

7. Farrow, C. (1999). Reticular foreign bodies. Causative or coincidence? *Vet. Clin. North Am. Food Animals* 15: 397-408.
8. Gavali, M.B., Aher, V.D. and Bhikane, A.U. (2003). Surgical management of traumatic pericarditis in bovine – a clinical study. *Indian Veterinary Journal* 80, 556–559.
9. Grisneaux, M. S. and Fecteau, G. (2001). Traumatic pericarditis. Pericardiostomy in a 2.5-year-old Holstein. *Le Point Veterinaire* 32, (213), 68-72
10. Hussein, H.A. and Staufenbiel, R. (2014). Clinical presentation and ultrasonographic findings in buffaloes with congestive heart failure. *Turk. J. Vet. Anim. Sci.*; 38(5):534–545.
11. Malmo, J., Vermunt, J. J. and Parkinson, T. J. (2010). Diseases of the gastrointestinal tract of Cattle in Australasia. WB *Vet learn* Pp 90–2.
12. Misk, N.A. and Semieka, M.A. (2001). The radiographic appearance of reticular diaphragmatic herniation and traumatic pericarditis in buffaloes and cattle. *Vet Radiol Ultrasoun* 42: 426-430.
13. Orpin, P. and Harwood, D. (2008). Clinical management of traumatic reticuloperitonitis in cattle. *In Practice* 30, 544–51.
14. Parkinson, T. J. and Merrall, M. (1999). Diagnosis and differential diagnosis of traumatic reticuloperitonitis. *Vet script* 12 (1), Pp 6–7.
15. Raouf, M.A.E., Elgioushy, M. and Ezzeldein, S.A. (2020). Congestive heart failure in cattle; etiology, clinical, and ultrasonographic findings in 67 cases. *Vet World*. 13(6):1145-1152.
16. Vermunt, J.J., Malmo, J. and Parkinson, T.J. (2010). Disorders of the cardiovascular system of Cattle in Australasia. WB *Vet learn* Pp 216–47.

****