

SUCCESSFUL FIELD MANAGEMENT OF ADVANCED TRAUMATIC RETICULOPERICARDITIS IN A DAIRY COW BY RUMENOTOMY AND PARTIAL PERICARDIECTOMY

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ABSTRACT

Traumatic reticulopericarditis (TRP) is a common problem in cattle and can lead to serious complications if diagnosis is delayed. In this case, a 3-year-old non-descriptive female bovine was presented with an 8-day history of reduced feed intake. On examination, brisket edema, jugular distension, mild pyrexia (102.5°F), and absence of ruminal motility were noted, suggesting advanced disease. Rumen fluid findings indicated poor rumen activity. Ultrasonography revealed fluid accumulation around the pericardial region, while radiography confirmed the presence of a metallic foreign body (wire). Based on these findings, the case was diagnosed as TRP with pericardial involvement. The animal was managed surgically by rumenotomy for removal of the foreign body. Due to the presence of fibrinous pericarditis, partial pericardiectomy was subsequently performed to relieve pericardial involvement. Postoperative treatment with dicrysticine and prednisolone was given, and the animal showed gradual recovery. A notable feature of this case was the successful performance of partial pericardiectomy under field conditions, which is rarely reported under field condition in bovine practice.

Keywords: Traumatic reticulopericarditis. Bovine. Rumenotomy. Foreign body syndrome. Brisket edema. Ultrasonography, Partial pericardiectomy.

INTRODUCTION

Traumatic reticulopericarditis is seen in cattle following ingestion of sharp metallic objects such as nails or wires. In most cases, these objects settle in the reticulum, but in some animals, they gradually penetrate the reticular wall, pass through the diaphragm, and reach the pericardial sac. Eventually this process leads to inflammation around the heart along with accumulation of fibrin and fluid, which interferes with normal cardiac function. Although ingestion of foreign material itself is quite common, extension into the pericardial sac indicates a more advanced condition and is generally associated with a poorer prognosis (MSD Veterinary Manual, 2024). The occurrence of this condition is closely related to management practices at the farm level. Cattle do not selectively avoid

metallic objects, especially when feed is contaminated or when animals graze in areas where waste materials are present. Under such conditions, ingestion of wire pieces or nails becomes more likely. For this reason, traumatic reticulopericarditis is often considered an indicator of deficiencies in feed hygiene and waste handling.

The clinical course is usually gradual. In the early stage, animals may show reduced appetite and decreased ruminal activity, often accompanied by reluctance to move. As the condition progresses, signs such as tachycardia, muffled heart sounds, jugular vein distension, brisket edema, and weakness become more apparent. These changes reflect the combined effect of cardiac involvement and ongoing systemic disturbance, and at this stage

the prognosis is usually guarded. In field situations, diagnosis is largely based on clinical findings, but imaging plays an important supportive role. Radiography is useful for identifying metallic foreign bodies, whereas ultrasonography helps in detecting fluid accumulation and fibrin within the pericardial sac. Using both methods together provides a better understanding of the extent of involvement and aids in planning further management.

Apart from its clinical importance, this condition also points to broader management issues. The presence of metallic debris in feed or grazing areas suggests lapses in waste disposal and feeding practices. From a One Health perspective, such factors highlight how environmental management directly influences animal health outcomes. In the present case, a three-year-old nondescript dairy cow was brought with noticeable brisket swelling and jugular distension. These findings suggested that the condition had progressed beyond uncomplicated reticulopericarditis. The diagnosis was supported by radiographic and ultrasonographic examination and later confirmed during exploratory rumenotomy. The case is noteworthy because the extent of involvement required management beyond routine intervention under field conditions.

CASE HISTORY AND CLINICAL EXAMINATION

A 3-year-old non-descriptive female bovine was brought to the veterinary clinical complex with a history of reduced feed intake and anorexia for about 8 days. According to the owner, the condition developed gradually, with the animal showing dullness, decline in productivity, and noticeable swelling in the brisket region. There was no record of similar illness in the past, and no recent treatment had been given. The animal was reared under a semi-intensive system, where accidental ingestion of metallic foreign material through feed or surroundings could not be ruled out. On examination, the animal appeared dull and slightly febrile, with a rectal temperature of 102.5°F. A soft, fluctuant swelling was present in the brisket area, indicating edema. Jugular veins were visibly

distended, suggesting impaired venous return. Ruminant movements were reduced on auscultation, and the animal showed discomfort on deep palpation of the cranial abdomen. It was also reluctant to move and occasionally exhibited mild arching of the back, indicating pain. Considering the history and clinical findings, a provisional diagnosis of traumatic reticulopericarditis with possible extension to the pericardium was made, and further diagnostic procedures were undertaken to confirm the condition.

DIAGNOSTIC INVESTIGATIONS



Figure 1. Thoracic radiograph (lateral view) demonstrating a radiopaque foreign body in the pericardial region with suspected localized tissue reaction



Figure 2. Brisket edema observed as prominent ventral subcutaneous swelling in a bovine affected with traumatic reticulopericarditis.

DISCUSSION

In this case, the animal was presented after about eight days of reduced feed intake and gradual dullness, which already suggested that the condition was not in an early stage. On examination, the combination of brisket edema, distended jugular

veins, and absence of ruminal motility pointed towards more than a simple reticular problem. While these signs can be seen in traumatic reticulopericarditis, the extent of edema and venous distension made pericardial involvement more likely, especially in a case with this duration.

Differential diagnoses included uncomplicated traumatic reticuloperitonitis, congestive heart failure, and septic peritonitis. In this case, the detection of a metallic foreign body on radiography, along with pericardial fluid on ultrasonography and associated clinical signs such as brisket edema and jugular distension, strongly indicated traumatic reticulopericarditis. The diagnosis was subsequently confirmed during exploratory rumenotomy, and based on intraoperative evidence of fibrinous pericarditis, partial pericardiectomy was performed to relieve pericardial constriction and improve cardiac function.

The rumen findings supported this impression. Reduced motility along with altered rumen fluid characteristics indicated that the reticulorumen was functionally compromised. These changes are commonly seen in prolonged inflammatory conditions, so when taken together with the clinical signs, the case appeared to be in an advanced stage. This assumption was later confirmed during surgery, where fibrinous involvement of the pericardium was evident.

In many field cases, diagnosis is often made based only on clinical signs, and treatment decisions are taken accordingly. In this animal, however, ultrasonography gave additional clarity. The presence of fluid around the pericardial region helped in anticipating the extent of the lesion before surgery. Radiography was useful in identifying the metallic foreign body, but ultrasonography provided better information about soft tissue changes, which made a practical difference in planning the approach. Reports by Prajapati et al. (2024) and Nasr et al. (2024) describe similar clinical findings in advanced cases, particularly brisket edema and jugular distension, often associated with poor outcomes. In many of those cases, treatment was either conservative or limited to rumenotomy. In

contrast, Braun (2024) also noted that once pericardial involvement develops, prognosis becomes guarded and response to routine treatment is often unsatisfactory. The present case differed in that surgical management was extended beyond routine intervention based on intraoperative findings.

Rumenotomy through the left flank allowed removal of the wire and confirmation of the primary lesion. In this case, we decided to go beyond routine rumenotomy and perform a partial pericardiectomy. This is not commonly attempted under field conditions because cases with pericardial involvement usually carry a guarded prognosis. However, removal of the fibrinous material appeared to relieve cardiac compression and was followed by gradual clinical improvement. What was different here was the need to go further and manage the pericardial involvement. Partial pericardiectomy is not routinely performed in field conditions, mainly because such cases are often considered to have an unfavorable prognosis. In this instance, removal of fibrinous material appeared to relieve cardiac restriction, which likely contributed to the animal's recovery. Most reported cases of advanced traumatic reticulopericarditis are either managed conservatively or limited to rumenotomy, often with poor outcomes. In contrast, the present case demonstrates that selected cases can benefit from surgical intervention at the level of the pericardium. The response after surgery was gradual but consistent. Improvement in appetite, return of rumen motility, and reduction in brisket edema indicated that the combined approach was working. Along with surgery, antimicrobial and anti-inflammatory therapy supported recovery by controlling infection and limiting further inflammatory changes. This case also reflects a practical issue commonly seen in semi-intensive systems. Animals are more exposed to contaminated feed or surroundings, and preventive practices like the use of magnets are not always followed. As a result, such conditions are often detected only after they have progressed. Similar observations have been mentioned in field-based studies, where delayed presentation was a common factor

influencing disease severity. Overall, this case shows that even when traumatic reticuloperitonitis has extended to the pericardium, recovery is still possible if the condition is properly assessed and managed without delay. It also suggests that, in selected cases, going beyond routine rumenotomy and addressing associated complications can make a meaningful difference in outcome. A notable feature of this case was the successful performance of partial pericardiectomy under field conditions, which is rarely reported in bovine practice.

TREATMENT AND SURGICAL MANAGEMENT

The animal was stabilized prior to surgery and prepared for standing rumenotomy under aseptic conditions. Feed was withheld and the left paralumbar fossa was prepared by clipping, shaving, and scrubbing with povidone-iodine solution. Rumenotomy was performed with the animal in a standing position using local anesthesia. An inverted L-block was achieved with 2% lignocaine. A vertical skin incision was made in the middle of the left paralumbar fossa, followed by blunt and sharp dissection through the subcutaneous tissue and abdominal muscle layers (external abdominal oblique, internal abdominal oblique, and transversus abdominis) to enter the peritoneal cavity. The rumen was exteriorized and secured to the skin using a Weingarth's rumenotomy frame and stay sutures with vulsellum forceps to prevent contamination. A 10–15 cm incision was made on the rumen wall, allowing escape of gases and ingesta. The ruminal contents were partially evacuated, and thorough exploration of the rumen and reticulum was carried out. A metallic foreign body (wire) was identified and removed. The reticulum was carefully palpated to rule out additional foreign bodies. Following removal, the rumen was lavaged and medicated with intraruminal preparations. The rumen incision was closed using a double-layer inverting suture pattern (Cushing followed by Lembert) with chromic catgut No. 2. The abdominal wall was closed in layers using simple continuous sutures, and the skin was

sutured using horizontal mattress pattern with nylon.

Based on intraoperative findings of fibrinous pericarditis, partial pericardiectomy was performed to relieve pericardial constriction and remove fibrinous exudate, thereby improving cardiac function

Post-operative Management

Postoperative care included:

Inj. Ceftriaxone – 1.5 g IV For 3 days

Inj. Meloxicam – 8 ml IM For 3 days

Fluid therapy based on dehydration level

CONCLUSION

In the present case, traumatic reticulopericarditis had progressed to involve the pericardium, which was reflected by clinical signs such as brisket edema, jugular distension, and reduced ruminal motility. These findings highlight the importance of correlating clinical examination with diagnostic imaging, especially radiography and ultrasonography, to better understand the extent of the condition. Rumenotomy helped in removal of the foreign body and confirmation of the primary lesion. Further extension of treatment to manage pericardial involvement played an important role in the outcome. The animal showed gradual improvement, with better appetite, return of rumen motility, and reduction in edema over time, indicating a positive response to the combined surgical and medical management. This case shows that even advanced cases can be managed successfully when intervention is timely and appropriately planned. The use of partial pericardiectomy under field conditions, though not commonly attempted, proved beneficial in this instance and may be considered in selected cases.

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