

Management of pericarditis in bovines through pericardiocentesis

Brihaspati Bharti¹

District Veterinary Hospital, Satna-485 001 (Madhya Pradesh)

¹Veterinary Surgeon

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The study included seven clinical cases bovines with traumatic pericarditis. A thorough physical, clinical and ultrasound examinations were performed. All the animals were presented with the history of variable duration of brisket oedema and anorexia. Auscultation of heart revealed muffled, splashing and frictional sounds. Under local infiltration analgesia, pericardiocentesis was performed by using 16-G spinal needle through a puncture at the level of 5th intercostal space just dorsal to the elbow, and the pericardial fluid was drained and lavaged. The pericardial fluid was purulent and its volume was e"1 L in the 1st or subsequent pericardiocentesis in all cases. Brisket oedema decreased in four cases and the appetite restored partially in three cases and completely in two cases the pericardiocentesis procedure. The survival period of animals after pericardiocentesis ranged from 5 days to 9 weeks. It can be concluded that pericardiocentesis can be used as an emergency procedure for the management of traumatic pericarditis in bovines even under field conditions.

Key words: Bovine, Pericardiocentesis, Pericarditis

Ingestion of sharp object is one of the most common causes of traumatic pericarditis (TP) in cattle and buffaloes (Bexiga *et al.*, 2008; Rajput *et al.*, 2018). Cattle are more prone to foreign body syndrome than small ruminants, because they do not use their lips for prehension and are likely to choose chopped feed (Braun, 2003). Honeycomb like structure of reticulum helps foreign body to fix in and reticular contraction facilitates foreign body to get through the wall and cause pericarditis. Death after foreign body penetration of pericardium is usually caused by progressive fibrotic, constrictive pericarditis and epicarditis (Buczinski *et al.*, 2010). The present paper describes the outcome of pericardiocentesis for treatment of pericarditis in seven bovines.

The work was carried out during the period from February 2023 to July 2024 at District Veterinary Hospital, Satna (MP). A total seven animals (5 cattle and 2 buffaloes) were diagnosed for traumatic pericarditis. All the cattle reported were pregnant and buffaloes were presented after the calving.

Diagnosis of traumatic pericarditis is always challenging, especially in the field conditions. Clinical examination, cardiac auscultation and ultrasonography can help diagnose the condition. In the present study, all the animals showed clinical signs of tachycardia, muffled heart sounds, dyspnoea,

distended jugular veins, jugular pulsation and brisket oedema (Fig. 1). Distension of jugular veins might be attributed to right-sided cardiac insufficiency, the most important cause of which is traumatic pericarditis, apart from valvular endocarditis, cardiomyopathy and cardiac lymphosarcoma (Grunder, 2002). Increased fluid volume in the pericardial sac can cause cardiac compression, resulting in tachycardia and distension of jugular veins (Braun, 2008). Pleural effusions without cardiac disease must be considered in cattle with muffled heart sounds while differentiating from pericarditis (Braun, 2008). Most of the animals appeared reluctant to move and had abducted elbows. The clinical signs of brisket oedema and jugular engorgement were less prominent in buffaloes as compared with cattle,



Fig. 1: Cattle with traumatic pericarditis showing brisket oedema.

which may be attributed to differences between the species.

Blood samples were collected from all the animals for haematological and biochemical evaluation. Decreased haemoglobin and moderately increased total leukocyte count with shift to left was noticed, which might be attributed to toxemia (Manjunatha *et al.*, 2018). Ultrasonographic examination was done in two cattle to assess the internal condition. The area over the reticulum on the left and right sides of the thoracic cavity up to the level of elbow joints were

[†]Correspondence; E-mail: brihaspati.vet@gmail.com,

clipped and prepared for ultrasonography by applying Gel. Heart was examined by scanning both sides of the costal part between 4th and 5th intercostals space by 3-5 MHz curvilinear ultrasonic transducer. A large amount of anechoic, hypoechogenic to echogenic pericardial fluid, and echogenic deposits and strands of fibrin were seen on the epicardium (Fig. 2). Ultrasonography of the abdomen revealed decreased reticular contraction. These findings were



Fig. 2: In a case of traumatic pericarditis, hyperechoic dots indicate the presence of fibrinous and purulent exudate.

similar to earlier reports (Ashwani Kumar *et al.*, 2012; Premkumar *et al.*, 2019).

Under local infiltration analgesia (2% lignocaine HCl), pericardiocentesis was performed by inserting a 16-G spinal needle through puncture at the level of 4th/5th intercostal space just dorsal to the elbow from cranial to caudal direction. In 6 animals, 5th intercostal space on the left side and one animal right side approach was used for pericardiocentesis. Ultrasound guided pericardiocentesis was performed in two cows. The pericardial fluid was drained, which was yellowish, reddish, or whitish in colour with different viscosity according to the severity of the disease condition. The pericardial fluid was found purulent (with offensive odour) and its volume ranged from one to more than one Litres in all cases. In one cattle, 16G Foleys catheter was placed into the pericardial space and fixed to the skin for providing continued drainage. Pericardial cavity was flushed with one litre of normal saline followed by 100 mL of metronidazole once daily for three days (Jesty *et al.*, 2005). Rumenotomy was also performed under left paravertebral nerve block by Weingarh's ring rumenotomy (WRR) methods (Tranquilli *et al.*, 2007) in all the cattle and buffaloes, and the foreign bodies were retrieved in two cattle employing standard surgical procedure.

Postoperatively parenteral antibiotic, anti-inflammatory drug, diuretic and fluid therapy was

given for 3-5 days. Brisket oedema decreased in four cases and the appetite restored partially in 3 cases and completely in 2 cases after the pericardiocentesis procedure. The survival period of animals after pericardiocentesis ranged from 5 days to 9 weeks. One of the five cattle treated for pericarditis had normal delivery, but the calf could not survive. Whereas both buffaloes had normal delivery and the calves survived.

From this study it can be concluded that pericardiocentesis can be used as an emergency procedure for the management of traumatic pericarditis in bovines even under field conditions. Early diagnosis and treatment may increase the recovery rate.

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