Surgical Management of Traumatic Reticulopericarditis in a Cow

M. Shiju Simon, B. Justin William and R. Suresh Kumar
Department of Veterinary Surgery and Radiology
Madras Veterinary College
Tamil Nadu Veterinary and Animal Sciences University
Vepery, Chennai -560 007 (Tamil Nadu)

History and Diagnosis
A four and half year old jersey crossbred cow was presented with the history of swelling in the brisket and submandibular region since ten days and the animal was treated locally. The cow showed the symptoms of reduced feed intake, reluctance to walk and reduced milk yield. Clinical examination revealed engorgement of jugular vein, venous stasis, muffled heart sound and enlarged prescapular lymphnodes. Pain was evinced while palpation of the brisket region. Plain radiography revealed a linear foreign body at the reticular region. Doppler echocardiography confirmed fibrous pericarditis/traumatic reticulo-pericarditis. Laprotomy followed by rumenotomy was performed. Exploration of the reticulum revealed a linear metallic foreign body which penetrated the reticulum. On immediate post-operative day pericardiocentesis was performed and an indwelling catheter was placed for 3 days to facilitate drainage and lavage. The animal showed progressive clinical improvement and was discharged.

Introduction
In cattle, pericarditis is usually caused by long, thin sharp foreign bodies (wire, needles and nails) that penetrate the reticulum, diaphragm and pericardium resulting in traumatic reticulo-pericarditis. Cattle are more likely to ingest foreign bodies than small ruminants since they do not use their lips for prehension. The majority of affected cattle (87%) are dairy cattle than beef cattle because they are more likely to be fed with chaffed fodder and 93% are older than 2 years of age (Rebhun, 1995). The predisposing factors are tenesmus or a gravid uterus that causes migration of the foreign body through the reticular wall. The characteristics signs of pericarditis are tachycardia, muffled heart sounds, asynchronous abnormal heart sounds, distension of the jugular veins, submandibular, brisket and ventral abdominal oedema. The present case discusses the successful surgical management of traumatic reticulo-pericarditis in a cow.

Treatment
On the first day under local infiltration using 2% lignoquine, pericardiocentesis was performed and around two liters of fibrinopurulent fluid was drained. Inj. Streptomycin 4gm and Tribivet-10ml were administered intramuscularly. Inj. Dextrose, normal saline, ringer lactate and Lasix were administered intravenously. On the next day...
Surgical correction was resorted to. The animal was stabilized using fluids. Inj. Prednisolone was administered @ 1mg/kg, 30 min prior to rumenotomy intramuscularly. Left flank was prepared aseptically and inverted L block was made using 2% lignocaine. Laprotomy followed by rumenotomy was performed, one third of the ruminal contents were removed and right hand was introduced into the reticulum. Exploration of the reticulum revealed a linear metallic foreign body which penetrated the reticulum. The foreign body was removed; it was around 9.4 cm length. One kilogram of wheat bran, half kilogram of jaggery and 4 bolus Provita were mixed and filled into the rumen. Rumen was apposed by two layers pattern, cushing followed by utrect using No.2 catgut. Muscles and skin were apposed using No.2 catgut and silk. On the first post-operative day, pericardial drainage was provided by introducing a blunt metallic catheter through the 4th left intercostals space, 6" above the costochondral junction and about 2.5 liters of pus was drained and during the drainage, the metallic catheter was replaced by a stilette guided flexible fenestrated PVC tube. The indwelling catheter was fixed through subcutaneous tunneling and pericardial lavage was carried out for three days. Post-operatively the animal was administered with parental antibiotics, injection Intacef Tazobactam 25mg/kg intravenously (Ceftriaxone and Tazobactam) for five days, analgesic injection Melonex 0.5mg/kg intravenously for four days, injection Tribivet 10ml intramuscularly for four days and injection Ringer lactate 3 liters/day and dextrose one liter/day intravenously for four days were administered. The animal showed progressive clinical improvement and was discharged.

Discussion

Mostly the linear metallic foreign body is mixed with the feed. After entering into reticulum, it might penetrate cranially and puncture the pericardium. Sometimes it could infect the mediastinum or puncture the lung lobe. Both the foreign body and the tract of its migration could ‘wick’ bacterial contamination into the pericardial fluid, resulting in fibrinopurulent pericarditis. This might lead to progressive disturbance in heart function resulting in death.

The primary clinical sign is tachycardia and its severity depends on the degree of compression of the heart by pericardial effusion (Jesty et al., 2005). The heart sounds are muffled because of pericardial effusion and fibrinous changes in the pericardial sac (Thomas, 1995). In the present case also the animal had muffled heart sound. There will be a varying degree of distension of the jugular veins depending on the degree of cardiac tamponade and oedema of the submandibular region, brisket and ventral abdomen. Oedema and jugular vein distension may not be present if pericardial fluid drains into the reticulum via a patent foreign body tract (Jesty et al., 2005). In the present case the animal had distended jugular vein, submandibular and brisket oedema.

Surgical and medical treatment can improve the chances of recovery from 60%. Sobti et al., 1989 reported that pericardiocentesis and pericardial lavage is ineffective, but in the present case it was effective, could be due to the fibrinous pericardial content. Prognosis is always poor with pericardiocentesis because pericardial effusion is usually fibrinopurulent in cows. Traumatic reticulopericarditis should be treated depending upon the value of the animal. Treatment should be attempted only for valuable animal or animal carrying a high value embryo other wise it should be humanely euthanized as quickly as possible.

Preventive measures include avoiding use of baling wire, passing feed over magnets to remove metallic objects, keeping cattle away from the site of new construction, and placing a prophylactic magnet in the reticulum over one year of age (Rebhun, 1995).

References


