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Pericarditis in buffalo: A case report

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Abstract

A buffalo aged 4 years presented to department of Veterinary clinical complex with the history of decreased feed intake, open mouth breathing, passing pelleted faeces, clinical examination revealed increased rectal temperature, forceful expiration, impacted rumen with absence of contractions, on auscultation of heart muffled heart sounds were noticed, electrocardiography revealed monomorphic ventricular tachycardia, leucocytosis and anaemia was evident on haematological examination, biochemically increased levels of ALT, AST, total protein, creatinine and decrease in the levels of albumin and calcium was recorded. Cardiac troponin-I (cTn-I) concentration was increased indicating myocardial damage, ultrasonographic evaluation revealed pericardial effusions and upon post mortem examination abdominal fluid with fibrin strands was noticed.

Keywords: Electrocardiography, tachycardia, haematology, cTn-I and ultrasonography

Introduction

Pericarditis is a most common cardiac disorder in bovines, it is the inflammation of pericardium and pericardial sac leading to accumulation of inflammatory fluid inside the parietal and visceral pericardial layers (Reef and McGuirk 2002) [8], this is due to the indiscriminate feeding habit of cattle and buffaloes mainly because of long prehensile tongue, they grasp feed non-selectively, hence metal objects such as nails or wire that have been accidentally incorporated into feed and ingested penetrate to heart through diaphragm leading to pericarditis (Purohit *et al*, 2015; Gugjoo *et al*, 2021) [7, 3]. Clinical manifestations in buffaloes suffering from pericarditis are characterised by anorexia, sudden drop in milk yield, depression, elevated rectal temperature, respiration rate, abducted elbows, arched back, mild brisket oedema, tachycardia, scanty semisolid faeces, dyspnoea, abdominal respiration and muffled heart sounds (Sumeet and Gosal, 2012) [10]. It is the disease of economic importance mainly due low production, cost of treatment and loss due to death of valuable animals. These economic losses can be prevented or reduced to some extent by early diagnosis and initiation of suitable treatment or culling of the animal (Buczinski *et al.*, 2010) [2]. Diagnosis of pericarditis can be arrived by using various diagnostic modalities like cardiac auscultation, wither pinch test, ferrospectroscopy, electrocardiography, estimation of levels cardiac troponin-I, radiography and ultrasonography (Buczinski *et al.* 2010; Singh *et al.* 2021) [2, 9].

Case History

A 4-year-old buffalo was presented to department of Veterinary clinical complex (VCC), Veterinary college nandinagar Bidar (KVAFSU) with the history of not taking feed properly from 8 days, passing pelleted faeces, open mouth breathing, clinical examination revealed rectal temperature 102.3°F, impacted rumen, absence of ruminal contractions, forceful expiration and on auscultation revealed muffled heart sounds, diagnostic modalities like hematobiochemical analysis, electrocardiography, ultrasonography and post mortem examination were used for diagnosis.

Diagnosis

Haematology revealed leucocytosis and neutrophilia with shift to left ($21.7 \times 10^3 / \mu\text{L}$), reduced erythrocyte count ($5.3 \times 10^6 / \mu\text{L}$), haemoglobin (8.2 g/dL) and PCV (27.5 %) indicating anaemia Biochemically there was increase in the serum concentrations of AST (62.6 U/L), ALT (90.5 U/L), TP (12.4 g/dL), creatinine (2.56 g/dL) and decrease in the levels of albumin (1.5 g/dL) and calcium (7.11 mg/dL), the concentration of Cardiac troponin-I (0.85 ng/dL). Monomorphic ventricular tachycardia was evident of electrocardiographic evaluation (Figure

1) and upon echocardiography pericardial effusions (2.3 cm) with pericardial fluid was noticed (Figure 2), the animal died

next day and on post mortem examination found abdominal fluid with fibrin strands and effusions on heart (Figure 3).



Fig 1: ECG of buffalo affected with pericarditis showing monomorphic ventricular tachycardia

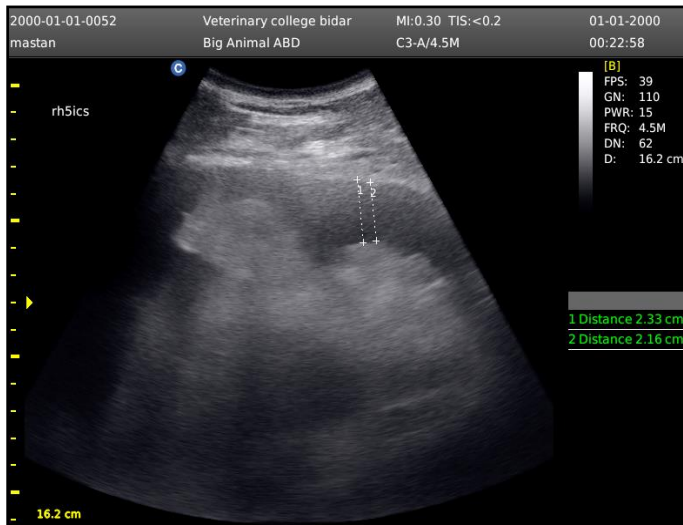


Fig 2: Echocardiograph of buffalo affected with pericarditis showing pericardial effusions



Fig 3: Post mortem examination of buffalo affected with pericarditis showing abdominal fluid with fibrinous strands

Discussion

Anorexia, fever, impacted rumen, absence of ruminal contractions, forceful expiration and muffled heart sounds were the important clinical findings in this study similar signs were recorded by Sumeet and Gosal, (2012) [10]. Leucocytosis and anemia were recorded on haematological examination these findings were in accordance Attia (2016) [1], leucocytosis might be due to inflammatory response to the invading pathogen and anaemia could be due to chronic nature of disease. Increase in the activity of ALT and AST was seen similar findings were recorded by Sumeet and

Gosal, (2012) [10] and Attia (2016) [1] this could be attributed to hepatic damage. Increased concentration of total protein (TP) was the finding in this study similar records were recorded by Khalphallah *et al.* (2017) [4] the hyper-proteinemia may be due inflammatory changes and activation of immune response of host following infection. Hypoalbuminemia was seen in buffalo affected with pericarditis similar results were recorded by Khalphallah *et al.* (2017) [4] could be due to hepatic damage leading to decreased albumin synthesis. Appreciable decrease in the levels of serum calcium was recorded this was in agreement with Patel *et al.* (2018) [6] which might be due to anorexia/starvation leading to low absorption from small intestine. The levels of creatinine were elevated in this case study similar results were recorded by Sumeet and Gosal (2012) [10] this may be due to reduction in the glomerular filtration. The concentration of cardiac troponin-I was increased this finding was in accordance with Attia (2016) [1], this could be attributed to myocardial damage. Electrocardiography revealed monomorphic ventricular tachycardia, pericardial effusions were the important findings of echocardiography similar findings were recorded by Mohamed (2010) [5] and Khalphallah *et al.* (2017) [4]. On post mortem examination presence of inflammatory fluid in the abdomen with fibrin strands.

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