

Echocardiographic diagnosis of fibrinous pericarditis in a Saanen goat

Gollapalli Nagarjuna, *Bhavanam Sudhakara Reddy and Sirigireddy Sivajothi

Department of Veterinary Medicine, College of Veterinary Science, Proddatur - 516360

Sri Venkateswara Veterinary University, Andhra Pradesh, India

Abstract

Pericarditis refers to the inflammation of the pericardial sac and is classified into three types based on its morphology: fibrinous, purulent, and constrictive. A case involving a nine-month-old female Saanen goat was presented to the hospital which exhibited symptoms of cough, weight loss, anorexia, reluctance to move or stand and difficulty in respiration. Clinical evaluation indicated respiratory distress, difficulty in walking and thoracic auscultation revealed dull sounds. Microscopic examination of stained blood smears revealed the presence of *Pasteurella* organisms. Thoracic ultrasonography revealed pericardial fluid accumulation. On the day of presentation, it was died and necropsy revealed presence of fibrotic layers in the thoracic cavity and around the pericardium which confirms the case of fibrinous pericarditis. This study concludes that pericarditis in this goat was associated with pasteurellosis, highlighting echocardiography as a crucial diagnostic tool for identifying pericarditis in small ruminants.

Keywords: Fibrinous pericarditis, cough, Saanen goat, *Pasteurella*

Pericarditis is defined as inflammation of the pericardium with an accumulation of serous or fibrinous exudates. Pericarditis is generally caused by penetration of foreign materials like fine wires, nails into the reticulum, diaphragm and pericardial sac finally leads to traumatic pericarditis (Constable *et al.*, 2016). Pericarditis attributable to hematogenous spread of infectious diseases like colibacillosis, pasteurellosis, salmonellosis and anaerobic infections are much less common and is usually masked by signs of septicemia (Catry *et al.*, 2013).

Nine months old female Sannon goat was presented to the Department of Veterinary Medicine, College of Veterinary Science, Proddatur with a history of cough, progressive weight loss, anorexia, reluctance to ambulation, nasal discharges and dyspnoea (Fig.1). Clinical examination revealed the respiratory distress, difficulty in walk, dull sounds on thoracic auscultation. Clinical parameters included rectal temperature of 104.8°F, pink mucus membranes, capillary refill time below 2 seconds, heart rate of 122 bpm, respiratory rate is 48/min and dull sounds on thoracic auscultation. Peripheral blood smears were collected and stained by Giemsa method for examination of haemoprotozoans. Thoracic and abdominal ultrasonography was carried out by keeping the goat in lateral recumbency with Esoate My Lab Gold 40 Vet ultrasound system with 3.0 to 5.0 MHz multi frequency curvilinear transducer. Peripheral

blood smear examination revealed the presence of *Pasteurella* organisms.

Ultrasonographic examination revealed fibrous strands in the pericardial cavity (Fig.2A, 2B). Goat was administered with ceftiofur sodium (@ 2 mg/kg body weight), flunixin meglumine (@ 2 mg/kg body weight), furosemide (@ 0.5 mg/kg body weight) on the day of presentation. Animal died on the third day of therapy and necropsy was done. Necropsy revealed fibrinous pericarditis.

Fibrinous pericarditis usually occurs as the result of haematogenous microbial infections, but it may be caused by lymphatic infiltration from an inflammatory process in an adjacent tissue (Jubb *et al.*, 2016). In fibrinous pericarditis, there is rarely significant effusion, so distension of the pericardial sac is not expected (Vogiatzidis *et al.*, 2015). Three key infectious agents known to cause pericarditis in small ruminants are *Pasteurella*, *Mycoplasma* species, and *Staphylococcus aureus* (Constable *et al.* 2016). Bacterial pericarditis typically arises from hematogenous spread, infection spreading from adjacent tissues such as the lungs and empyema, progression from myocarditis and endocarditis, or direct inoculation following trauma (Sawaya *et al.*, 2009). Regular vaccination and early detection of clinical signs due to pericarditis can be useful to prevent the mortality in goats.

*Corresponding author : bhavanamvet@gmail.com

Acknowledgements

The authors are thankful to the authorities of Sri Venkateswara Veterinary University, Tirupati for providing the facilities to carry out the research work.



Fig.1. Goat showing the extended head and neck with respiratory discharges

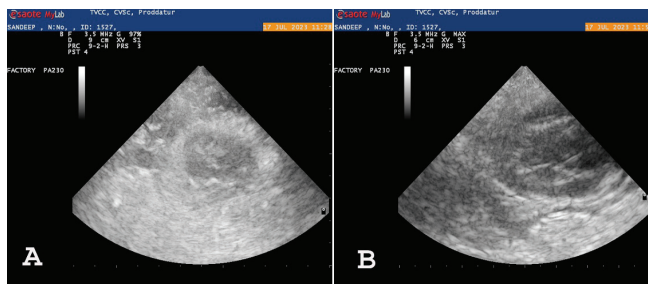


Fig.2A. Cross section of heart 2B. Longitudinal section of heart – Pericardial effusions



Fig.3. Necropsy – Presence of fibrinous material around heart

References

- Catry, B. (2013). Fatal peritonitis caused by *Pasteurella multocida* capsular type F in calves. *Journal of clinical microbiology*, 43 (3): 1480-1483.
- Constable, P. D., Hinchcliff, K. W., Done, S. H., and Grunberg, W. (2016). *Diseases of the cardiovascular system in veterinary medicine* (11th ed., pp. 707–709). Saunders Elsevier.
- Jubb, K. V. F., Kennedy, P. C. and Palmer, N. (2016). *Cardiovascular system in pathology of domestic animals* (6th ed., pp. 24–27). Academic Press.
- Sawaya, F. J., Sawaya, J. I., Gharzuddine, W., Eid, E. V. and Kanj, S. S. (2009). Cardiac tamponade caused by polymicrobial Gram-negative organisms. *International Journal of Infectious Diseases*, 13(6): 483–484.
- Vogiatzidis, K., Zarogiannis, S. G., Aidonidis, I., Solenov, E. I., Molyvdas, P. A., Gourgoulanis, K. I. and Hatzoglou, C. (2015). Physiology of pericardial fluid production and drainage. *Frontiers in physiology*, 6, 62.