

PERICARDIAL EFFUSION IN A NONDESCRIPT DOG - A CASE REPORT

R.B. Vishnurahav, S. Ajithkumar, Usha Narayana Pillai and N. Madhavan Unny

Department of Veterinary Clinical Medicine, Ethics and Jurisprudence, College of
Veterinary and Animal Sciences, Mannuthy, Thrissur - 680 651

Received: 31-11-2017 Accepted: 11-12-2017

ABSTRACT

Pericardial effusion is defined as the abnormal accumulation of fluid inside the pericardial sac. It is a life threatening complication which needs immediate intervention. A twelve year old female nondescript dog was presented to teaching veterinary clinical complex, Mannuthy with the history of abdominal distension, difficulty in respiration, anorexia and weakness. Clinical examination revealed open mouth breathing, weak pulse, tachypnoea and fluid thrill in the abdomen on percussion. Muffled heart sounds were heard on auscultation. On radiography the cardiac silhouette was masked with fluid. ECG showed low voltage QRS complex. Echocardiography revealed anechoic area below the left ventricular posterior wall which is suggestive of pericardial effusion.

Keywords: Pericardial effusion, echocardiography, radiography

INTRODUCTION

An abnormal accumulation of fluid inside the pericardial cavity is called as pericardial effusion. Cardiac tamponade is a condition where excessive fluid accumulation inside the pericardium, further increases the intrapericardial pressure over right ventricle and atrium leads to functional impairment by collapse

of right ventricle. Middle to old age dogs are commonly affected with an unknown etiology (Idiopathic). Neoplasms are also common cause of pericardial effusion in dogs.

CASE HISTORY AND OBSERVATIONS

A twelve year old female nondescript dog was presented to Teaching Veterinary Clinical Complex, Mannuthy with the history of abdominal distension, difficulty in respiration, anorexia and weakness. Clinical examination revealed pale mucous membrane, open mouth breathing, weak femoral pulse, prolonged capillary refilling time (CRT), retching, tachypnoea and fluid thrill in the abdomen on percussion. The rectal temperature was 103.1°F.

Auscultation revealed muffled heart sounds and rales over lungs area. On radiography the cardiac silhouette was masked with fluid. Electrocardiography (ECG) had low voltage QRS complex which is suggestive of fluid in thoracic cavity. Two dimensional echocardiography revealed anechoic area below the left ventricular posterior wall which is suggestive of extensive pericardial effusion. Left atrial enlargement was evidenced. Excessive effusion leads to diastolic collapse of right atrium and ventricle which is suggestive of cardiac tamponade. Two dimensional

echocardiographic parameters were LA-3.71cm, Ao-1.46cm, LA/Ao-2.54. Left atrial enlargement was observed. M-mode echocardiographic indices were RVIDd-13.4mm, LVIDd-35.8mm, LVIDs-20.6mm, FS- 43 per cent, IVSd-7mm, IVSs-7.2mm, LVPWd-10mm, LVPWs-15.3mm, EDV-53.9ml, ESV-13.6ml, EF-75 per cent. Hyper dynamic movements of interventricular septum and left ventricular posterior wall were observed. Pericardiocentesis is the only treatment option to relieve diastolic collapse of right ventricle. Fluid splashing sound on percussion over abdomen suggestive of ascites was confirmed with ultrasonography.



Fig. 1. Animal in sternal recumbency with extended head and distended abdomen

TREATMENT AND DISCUSSION

Pink coloured serosanguinous inflammatory exudate was removed by abdominocentesis. The animal was treated with systemic antibiotic amoxicillin and sulbactam @ 20 mg/kg IV for five days followed by diuretic furosemide @ 2mg/kg IV orally twice daily and angiotensin converting enzyme inhibitor enalapril @ 0.5mg/kg orally twice daily.

Pericardial effusion was most commonly reported in the age group of 9-11 years. In some animals pericardial effusion was reported in the median age of 7 years and young age of 3 years. Most common cause

of pericardial effusions were idiopathic haemorrhagic pericarditis, congestive heart failure (dilated cardiomyopathy and mitral valve disease), cardiac neoplasia, trauma, infectious agents and left atrial rupture. Common neoplasms reported in dogs were haemangiosarcoma, heart base tumors and mesothelioma. Haemangiosarcoma is a malignant neoplasm of vascular endothelium most commonly reported in dogs followed by heart base tumors (aortic body and main pulmonary artery). Diffuse neoplasm of pericardium and other serosal surfaces were called as mesothelioma. Pericardial effusion caused by haematoma also reported (Tilley *et al.*, 2008; Lee *et al.*, 2015).

Pericardial effusion was occasionally caused by infectious agents like bacteria, virus and fungi. Higher incidence rate of pericardial effusion was reported in giant dog breeds like Golden Retrievers, German Shepherd, Saint Bernard, Labrador Retriever and Newfoundland. Typical physical examination findings reported in pericardial effusion were muffled heart sounds, depression, weak femoral pulse, abdominal distension (ascites) and jugular distension. Thoracic radiographic features that support the diagnosis of pericardial effusion were globoid cardiac silhouette with widening of caudal vena cava and tracheal elevation. However these typical radiographic findings were consistent with chronic cases of pericardial effusion. Mild effusions does not show these typical changes (Tilley *et al.*, 2008). Most of the cases of pericardial effusions were showed normal sinus rhythm. Sinus tachycardia, supra ventricular arrhythmias, low voltage QRS complexes and electrical alternans were reported in some cases of pericardial effusion. Echocardiography is a non-

invasive technique used for confirmatory diagnosis which provide more information over radiography. It is a highly sensitive method for the diagnosis of pericardial effusion even with the minimal fluid in the pericardial sac (Gugjoo *et al.*, 2014). Pericardiocentesis is an ideal method for draining of excess fluid in pericardial cavity. It might be guided with ultrasonography (Adeyanju *et al.*, 2012). The right thorax is most commonly preferred over left thorax due to presence of cardiac notch. The site commonly used for pericardiocentesis was fifth or sixth intercostal space at the level of costochondral junction. Electrocardiography is advised during pericardiocentesis for monitoring ventricular arrhythmias.

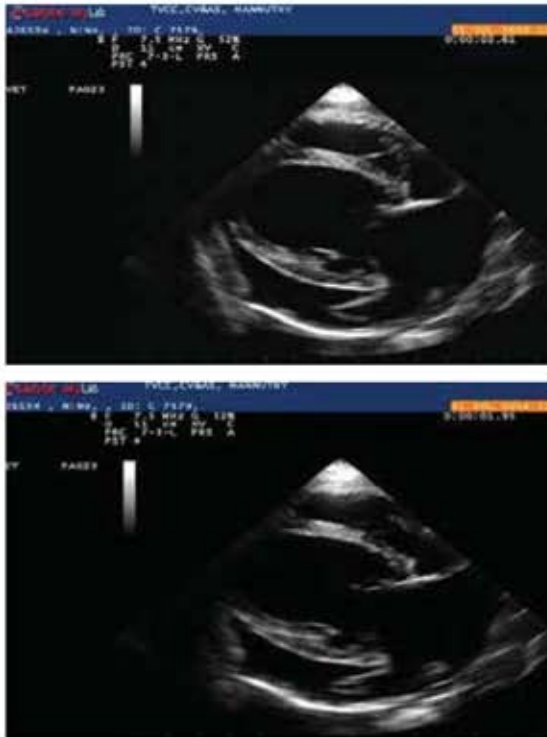


Fig. 2 and 3. Pericardial effusion (an echoic area between left ventricular posterior wall and pericardium) in two-dimensional echocardiography (right parasternal long axis view)



Fig. 4. Hyperdynamic walls (an echoic area between left ventricular posterior wall and pericardium) observed in M- mode echocardiography (right parasternal long axis view).



Fig. 5. Mitral regurgitation (mosaic pattern) in two-dimensional echocardiography (left apical view)

REFERENCES

- Adeyanju, J.B., Perry, R., Yakubu, A.S., Jibril, A. and Hassan, A.S. 2012. Idiopathic pericardial effusion in 2 year old Labrador managed with ultrasound-guided pericardiocentesis: Case report. *Sokoto J. Vet. Sci.* **10** (1): 36-39.
- Gugjoo, M.B., Saxena, A.C., Hoque, M., Mahendran, K. and Zama, M.M.S.

2014. Pericardial effusion in a Labrador retriever dog. *Asian J. Anim. Sci.* **8**(1): 34-37.
- Lee, J.H., Chung, T.H., Yoon, S.T., Kim, S.H., Kim, M.S. and Park, C. 2015. Cardiac Hematoma with Pericardial Effusion in a Dog. *J. Vet. Clin.* **32**(5): 433-435.
- Tilley, L.P., Smith Jr, F.W.K., Oyama, M.A. and SLEEPER, M.M. 2008. *Manual of Canine and Feline Cardiology*. 4th ed. Saunders, Philadelphia, USA. 464p.

