

## ATYPICAL PRESENTATION OF CARDIAC TAMPONADE WITH A NORMAL ECG

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### ABSTRACT

Pericardial Tb is one of the common causes of cardiac tamponade. Many patients develop rapid collection of fluid in the pericardial cavity causing symptoms. We present a case of 50 year old male presenting with classic signs of cardiac tamponade (Beck's triad). ECG was found to be normal. Further evaluation with 2D ECHO revealed cardiac tamponade. We encourage clinicians to evaluate the patients promptly with bedside 2D echo when cardiac tamponade features are present even in the presence of a normal ECG.

**Keywords:** ECG, cardiac tamponade, echo

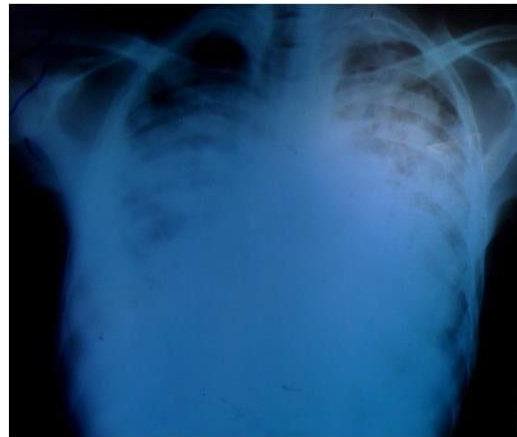
### INTRODUCTION:

Pericardial effusion is considered when there is an accumulation of fluid in the space created between the visceral and parietal layers of the serous pericardium [1]. The most common cause of the condition is infection. A more serious form of pericardial effusion is Cardiac tamponade [2]. This can be of 2 types. In cases like trauma to the chest wall, there is a rapid accumulation of blood in the pericardial space which presses the heart rapidly causing cardiac tamponade [3]. In chronic causes of pericardial effusion, the fluid accumulates slowly over a period of time eventually leading to cardiac tamponade [4]. Cardiac tamponade is a medical emergency and must be rapidly treated with pericardiocentesis [5].

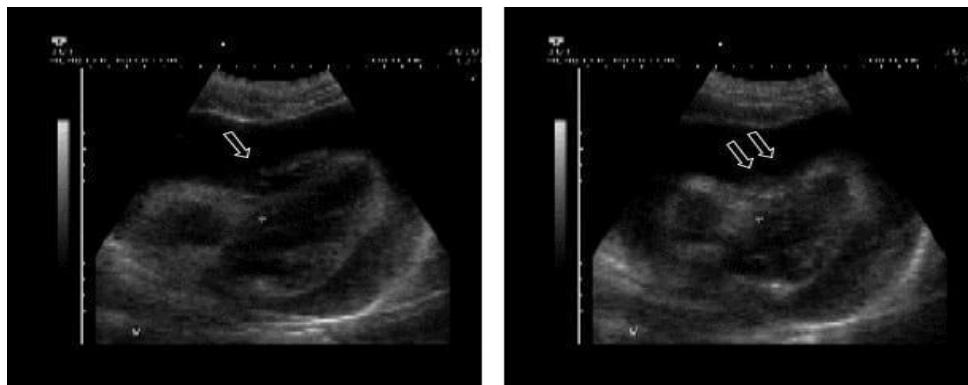
### CASE REPORT:

A 50 year old male from south India Chennai, came to the general medicine OPD with complains of breathlessness (NYHA grade 3) associated with left sided chest pain which was intermittent each episode lasting for 30 seconds. The patient's BP was found to be 70/40 mmhg with cold peripheries and was immediately rushed to the casualty and was started on bolus IV fluids. On physical examination the patient had pallor, dyspneic and oriented to time, place and person. Pulse was 115/min regular rhythm but feeble in nature. Patient had a respiratory rate of 36/min. Patient had b/l lower limb pitting pedal edema. On cvs examination apical impulse could not be appreciated on inspection but a precordial bulge could be seen. JVP was found to be elevated midway between angle of mandible and medial end of clavicle. On auscultation, heart sounds were found to be muffled with no added murmurs or sounds. The Abdomen was soft, non-tender without any evidence of organomegaly.

ECG taken revealed a rate of 110/min with regular rhythm with mild left axis deviation. The p wave, pr segment, qrs complex, st segment, t wave were all found to be normal. X ray of the patient showed an enlarged silhouette of the heart (Fig. 1). Cardiac troponins were found to be negative.



**Figure 1: X Ray chest showing cardiomegaly**



**Figure 2: 2D ECHO revealing pericardial effusion**

IV fluids were stopped and a cardiologist was consulted and bedside ECHO (Fig. 2) was done and diagnosed as cardiac tamponade. Emergency pericardiocentesis was done under USG guidance via subxiphoid approach and 80ml of serous fluid was aspirated following which the needle got blocked. After the removal of fluid, the vitals of the patient improved and BP increased to 140/100 mmhg. The pericardial fluid was found to be smear positive for acid fast staining and the patient was started on anti TB drugs. The course of antibiotics was continued for 6 months after which repeat ECHO showed no residual pericardial effusion

**DISCUSSION:**

Cardiac tamponade can be considered as one of the most fatal complication of TB pericarditis(3).Once the patient has progressed to stage of cardiac tamponade, the prognosis becomes very poor(8).This can be prevented by high degree of clinical suspicion and diagnosis of TB by diagnostic tests and prompt treatment [7].

Pericarditis presents with. Dyspnea and chest pain which is sudden, catchy type of pain and relieved by sitting forward. A close DD is pleuritic chest pain which is aggravated on inspiration. A pericardial friction rub can be heard in the presence of minimal fluid [6]. Classical ECG changes of pericarditis include concave ST segment elevation with PR segment depression. Reciprocal changes can be seen in lead avR. Normalization of these changes occurs in 1 to 3 weeks associated with T wave flattening. Later t wave becomes inverted for several weeks.(5) None of these hangers were noted in this patient. The common causes of pericarditis are, infections, immunological (sle, rheumatic fever), uraemia, Dressler’s syndrome, drugs, radiotherapy, trauma,

paraneoplastic syndromes [7].

When fluid accumulates in the pericardial space faster than the rate of drainage it leads to accumulation of fluid compressing on the heart which interferes with the expansion of the ventricular muscles leading to cardiac tamponade. Causes include infection like TB (as seen in the above case), malignancies which may be primary or secondary, trauma, iatrogenic during surgery, acute MI, collagen vascular diseases, radiation, idiopathic. The three classical triad for cardiac tamponade is BECK'S TRIAD (Raised JVP, hypotension, muffled heart sounds) [8]. Hypotension occurs due to high pressure compressing on the heart which prevents blood from IVC and SVC from entering the heart. Muffled heart sounds occur due to impaired conduction of sound through pericardial fluid. Pulses paradoxes may also be seen in these patients. Chest X Ray in these patients shows an enlarged cardiac silhouette. ECG of a patient with cardiac tamponade normally shows low voltage qrs complexes and tachycardia with electrical alternans. Electrical alternans refers to the presence of qrs complexes that alternate in height which occurs due to the back and forth swinging movement of the heart in pericardial fluid.

**CONCLUSION:**

TB is one of the causes of pericardial effusion and tamponade and must be ruled out if pericardial effusion is detected. Clinicians must be on the lookout for the presence of beck's triad (muffled heart sounds, elevated JVP, hypotension) in hemodynamically unstable patients presenting to the OPD. Presence of a normal ECG does not rule out the possibility of cardiac tamponade/pericardial effusion.

**REFERENCES**

1. Little WC, Freeman GL. Contemporary Reviews in Cardiovascular Medicine: Pericardial Disease. *Circulation*. 2006; 113: 1622-1632.
2. Khandaker MH, Espinosa RE, Nishimura RA, et al. Pericardial Disease: Diagnosis and Management. *Mayo Clinic Proc*. 2010 June; 85(6):572-593
3. Mayosi BM, Burgess LJ, Doubell AF. Tuberculous Pericarditis. *Circulation*. 2005;112:3608- 3616
4. Sagrista-Sauleda J, Permanyer-Miralda G, Soler-Soler J. Tuberculous pericarditis: ten-year experience with a prospective protocol for diagnosis and treatment. *J Am Coll Cardiol*. 1988;11:724 –728.
5. Heller T, Lessells RJ, Wallrauch C, Brunetti E. Tuberculosis Pericarditis with Cardiac Tamponade: Management in the Resource-Limited Setting. *Am J Trop Med Hyg*. 2010 December 6; 83(6): 1311–1314.
6. Fowler NO. Tuberculosis pericarditis. *J Am Med Assoc*. 1991; 266: 99–103.
7. Mayosi BM, Wiysonge CS, Ntskhe M, et al. Mortality in patients treated for tuberculous pericarditis in sub-Saharan Africa. *S Afr Med J*. 2008. Jan; 98(1):36-40.
8. Reuter H, Burgess LJ, Louw VJ, Doubell AF. The management of tuberculous pericardial effusion: experience in 233 consecutive patients. *Cardiovasc J S Afr*. 2007 Jan-Feb; 18 (1):20- 25.