

Tuberculosis Related Sudden Death - An Unusual Case of Sudden Death

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AIM:- To be aware of an Unusual Cause of Sudden Death on Acute Medical Unit (AMU) - Tuberculosis related sudden death

METHODS

A man in his mid-30s presented to the Acute Medical Unit following a 3-week history of productive cough, weight loss, haemoptysis and general malaise. He has been a resident in the UK and visited Bangladesh a year ago. Despite 2 courses of antibiotics from his GP, there was no improvement. Apart from being an asthmatic and current non-intravenous heroin user there was no other medical history of note.

On examination he was very frail, dehydrated, hypotensive with evidence of haemoptysis. On admission, he was commenced on intravenous fluids, antibiotics, and planned to be investigated along the lines of tuberculosis and adrenal insufficiency.

OUTCOMES

While awaiting investigations, he deteriorated rapidly on the second day of admission and had a cardiac arrest on the ward. Despite 45 minutes of CPR, he died. Post-mortem examination revealed a diagnosis of myocardial tuberculosis. Post-mortem myocardial histology showed florid necrotizing granulomatous inflammation with associated multinuclear giant cells in the left ventricle wall. There was no extra cardiac evidence of tuberculosis on autopsy.

CONCLUSION

Although sudden death related to tuberculosis (TB) has been described in the literature, this presentation may be easily overlooked [1]. This case demonstrates one of the rarer causes of sudden death in patients with suspected TB [2]. It highlights the importance of a high-index of suspicion in coming to a diagnosis as presentation is non-specific, and poses questions on whether there is any possibility for earlier diagnosis leading to intervention to prevent sudden death.

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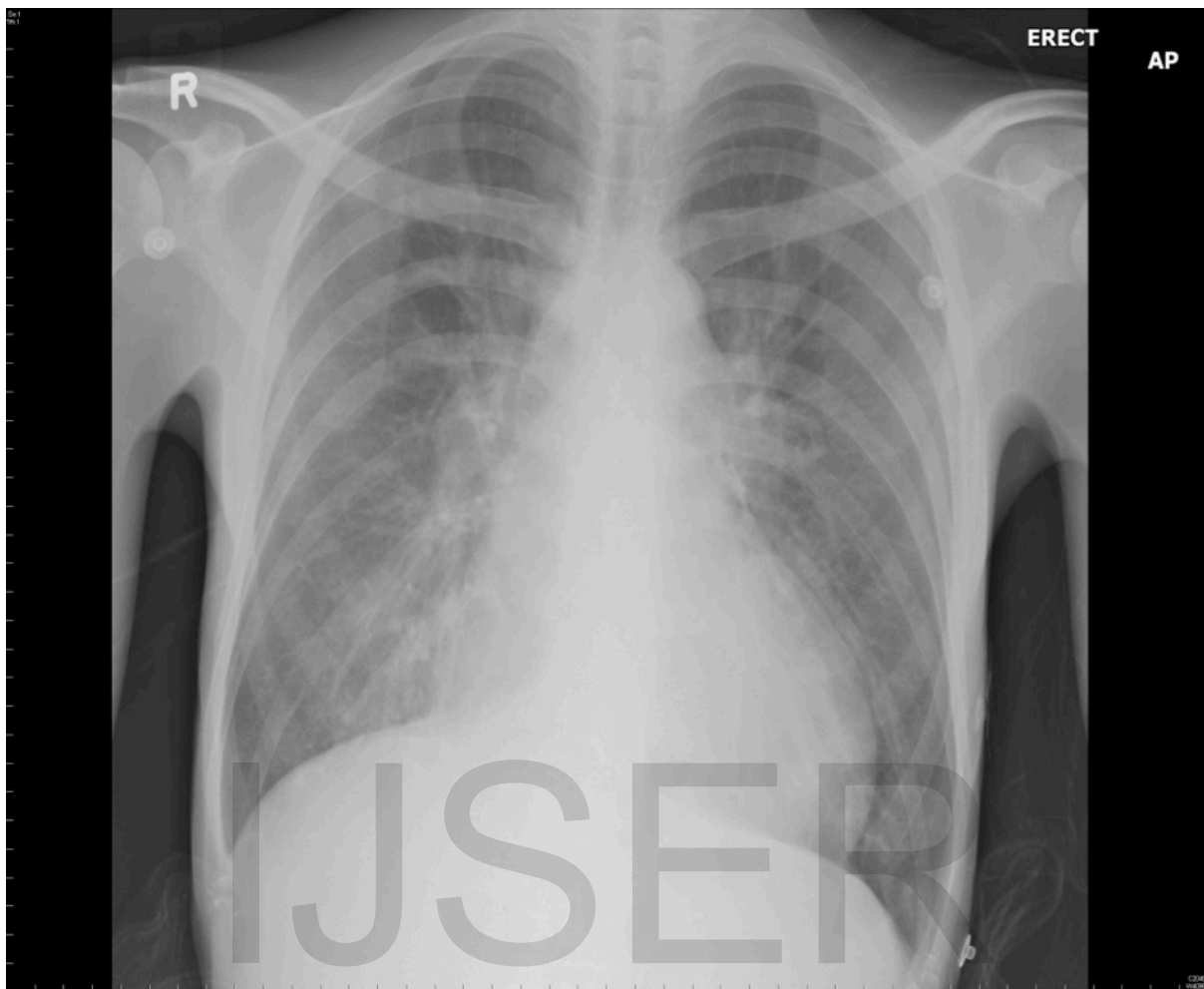


Figure 1 – Chest X-Ray on admission showing enlarged cardiac shadow

KEY POINTS

TB can present as sudden death and high index of clinical suspicion and early treatment may help in preventing this outcome.

Myocardial TB may present without any clinical or radiological findings suggestive of current or old TB.

If present, the most common clinical presentation of myocardial TB is cardiac arrhythmia.

CASE REPORT

He however deteriorated the next day and suffered a cardiac arrest (PEA) on the ward. Despite attempts to resuscitate him for 45 minutes, he died.

Initial bloods revealed hypoglycaemia (blood glucose 2.6), coagulopathy (INR 3.9), deranged liver function tests (alanine transaminase (ALT) of 468, alkaline phosphatase 80), and mildly deranged urea and creatinine (urea 16.5, creatinine 110). Arterial blood gas demonstrated a metabolic acidosis. Chest X-Ray (Figure 1) on admission revealed right pericardiac and right middle lobe haziness, along with cardiomegaly. ECG showed right ventricular hypertrophy with non-specific intraventricular block.

DISCUSSION

Based on evidence from current literature that exists, tuberculosis related sudden death (TBRSD) can be attributed to 4 major causes. The majority of patients die from bronchopneumonia (64%). This is followed by massive haemoptysis (30%), tuberculous myocarditis (4%) and tuberculosis of both adrenal glands (2%) [3].

Myocardial tuberculosis (TB) is often a diagnosis that is made on post-

mortem. We have failed to find a report so far of myocardial TB that was diagnosed before death [2]. In cases that have been reported, patients typically present with a cardiac arrhythmia, most commonly a monomorphic ventricular tachycardia (VT) or ventricular fibrillation (VF). Involvement of the right atrium can also sometimes lead to a supraventricular tachycardia (SVT) on presentation. Other clinical features that have been seen in myocardial TB are valvular dysfunctions, congestive cardiac failure or coronary arteritis [4, 5].

In our case, the possibility of acute hepatitis was also taken into consideration as the patient had progressively worsening liver function tests with coagulopathy. Subsequent hepatitis serology and ultrasound scan of the abdomen however did not support this diagnosis. HIV serology was also normal.

Myocardial tuberculosis remains one of the rarer causes of TB related sudden death and can easily be missed. Diagnosis is almost always retrospective and reflects the difficulty that clinicians are faced with in diagnosing someone before death. Patients rarely present with cardiac symptoms, of which arrhythmia is the most common [4].

Myocardial spread of TB arises as a result of either prior pericardial involvement, haematogenous spread, or retrograde spread from mediastinal lymph nodes [4, 5]. CT scans, ECG findings and positive sputum culture for AFB may help point to the diagnosis but most of the time these investigations are inconclusive in myocardial TB. Therefore, a high index of clinical suspicion, use of transoesophageal echocardiography, endomyocardial biopsy and molecular

biological techniques can help us to diagnose more cases of this curable disease [6]. In our case on hindsight, the ECG changes of right ventricular hypertrophy and non-specific intraventricular conduction block coupled with the patient's ethnicity and presentation would have probably raised the suspicion of myocardial TB and to start empirical TB treatment. However whether this will change the eventual outcome is debatable.

REFERENCES:

- 1] Wallis PJW, Branfoot AC, Emerson PA. Sudden death due to myocardial tuberculosis. *Thorax* 1984; 39: 155 – 6.
- 2] Behr G, Palin HC, Temperley JM. Myocardial tuberculosis. *British Medical Journal* 9 April 1977.
- 3] Alkhuja S, Miller A. Tuberculosis and sudden death. *Heart and Lung* 2001; 30; 388-91.
- 4] Agarwal R, Malhotra P, Awasthi A, et al. Tuberculous dilated cardiomyopathy: an under-recognized entity? *BMC Infect Dis* 2005; 5:29.
- 5] Agarwal N, Sharma SK. Concomitant endobronchial tuberculosis, myocarditis and congestive heart failure. *Ind J Tub* 2000; 47: 169-70.
- 6] Silingardi E, Rivasi F, Santunione AL, et al. Sudden death from tubercular myocarditis. *J Forensic Sci* 2006; 51: 667-9.

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