

# PICTORIAL CASE PRESENTATION

## A HEART CAGED IN TUBERCULOSIS

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### ABSTRACT:

Though pericardial calcification is not a frequently associated chest X-ray feature in constrictive pericarditis but when present, it can be a “diagnosis clinching” classic finding. Here we are presenting a Chest X-ray picture of a middle aged man which showed rim of pericardial calcification encasing the heart, giving an appearance of a “Caged Heart.” During admission, the patient was diagnosed to be a acidfast bacilli positive case of pulmonary tuberculosis.

**Keywords:** Caged Heart; Pericardial calcification; Tubercular constrictive pericarditis

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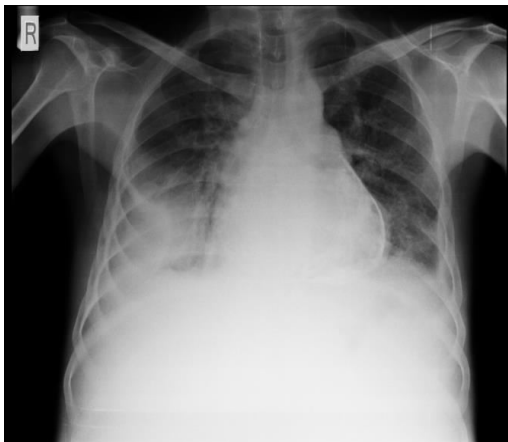
### THE CASE PROFILE

A 42-year-old electrician, presented to medical emergency with an eight month history of worsening exertional dyspnea and abdominal distension (figure 1). On examination, he was conscious, his blood pressure was 100/60 mm of Hg, pulse rate was 102/minute, irregularly irregular. He was afebrile at presentation with respiratory rate of 24/min, regular. He had mild pallor. His jugular venous pressure was raised and Kussumual’s sign was present along with prominent y descent. There was mild edema of bilateral lower limbs. On examination of abdomen, he had massive ascitic distension, umbilical hernia and prominent paraumbilical veins (figure 1). On cardiovascular system examination, heart sounds were muffled with presence of pericardial knock. His respiratory examination revealed decreased breath sounds in right basal region with decreased vocal resonance. Blood analysis read hemoglobin as 9 gm/dl, SpO<sub>2</sub> 92% on room air and ESR was 108 mm at the end of first hour. Other laboratory investigation revealed no significant abnormality. The ECG showed low voltage complexes with atrial fibrillation. On his chest X-ray, a rim of calcification was present along the entire left border and base in full continuation. There was collapse and consolidation of lower lobe of right lung and mild right sided pleural

effusion. Bilateral mediastinal lymphadenopathy was also noted (figure 2). The diagnosis of pulmonary tuberculosis was confirmed by sputum examination which was positive for acid fast bacilli. The 2-D echocardiography showed ejection fraction of 50%, pericardial thickening with specks of calcification throughout the pericardium with thrusting of interventricular septum against left ventricle, diastolic dysfunction and characteristic ‘square root sign.’



**Figure 1:** Patient having massive ascitic distension, umbilical hernia and prominent paraumbilical veins



**Figure 2:** X-ray of patient showing pericardial rim of calcification and right sided pleural effusion

### DISCUSSION

Constrictive pericarditis occurs when a thickened fibrotic pericardium, of whatever cause, impedes normal diastolic filling. This usually involves the parietal pericardium, although it can involve the visceral pericardium. This often leads to pericardial inflammation, chronic fibrotic scarring, calcification, and restricted cardiac filling.<sup>1</sup> All forms of pericarditis may eventually lead to pericardial constriction. They may be broadly classified into common, less common and rare forms. The top 3 causes of constrictive pericarditis are idiopathic (presumably viral), cardiothoracic surgery and radiation therapy<sup>2</sup> in the west while tuberculosis remains a common cause of constrictive pericarditis in developing countries, where it constitutes 38%–83% of all cases of constrictive pericarditis.<sup>3,4</sup>

Radiographic findings are commonly unremarkable. However, certain classic findings, though not sensitive for the presence of constrictive pericarditis, are strongly suggestive of the diagnosis. Severe pericardial calcification is found in 20-30% of the patients.<sup>5</sup> Chest X-ray in our presentation is unique because it shows a continuous rim of calcification around the entire left border and base of the heart, unlike other pictures available in literature where calcification is patchy. Also, the “tell tale signs” of tuberculosis like consolidation/collapse of right lower lobe with mediastinal lymphadenopathy; are evident in the film. It appears as if the heart has been enclosed in a “tubercular cage!” Echocardiography shows typically shows diastolic dysfunction and square root sign.<sup>6</sup> Complete pericardiectomy is the definitive therapy and is a potential cure.<sup>7</sup> Hence the patient was referred to PGIMER Chandigarh for further management.

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