

## Pericardial tuberculosis

Published on 18.12.2017

**DOI:** 10.1594/EURORAD/CASE.15209

**ISSN:** 1563-4086

**Section:** Cardiovascular

**Area of Interest:** Cardiac Lymph nodes

**Procedure:** Diagnostic procedure

**Imaging Technique:** CT-Angiography

**Imaging Technique:** MR

**Special Focus:** Infection Case Type: Clinical Cases

**Authors:** Farnaz Torkzadeh, Indrajeet Das, Praveen Rao

**Patient:** 29 years, female

### Clinical History:

A 29-year-old female presented to the hospital with a 5-weeks history of chest pain, fever, night-sweats, and weight-loss. She moved to the UK some years ago, from an endemic area for tuberculosis (TB). Initial investigations suggested diagnosis of myopericarditis. However, as patient didn't respond to primary management, more investigations were undertaken.

### Imaging Findings:

Initial CXR was normal (Fig.1). Second CXR showed subtle loss of left cardiac silhouette (Fig.2).

She had a CT Pulmonary Angiogram (CTPA), which revealed no pulmonary embolism, but showed paracardiac mass along the base and apex of the heart measuring 8.9x6.2cm, iso-attenuating to myocardium on the pulmonary arterial phase (Fig.3) along with left-axillary lymphadenopathy (Fig.4). Possibility of a paracardiac tumour considered, however, no nodule was seen within the lung-parenchyma. Pleural spaces were clear.

A CT chest abdomen pelvis was performed the next day in the portal venous phase (Fig.5). In this phase, the visualised lower-thorax better delineated the mass which was pericardial, primarily cystic, multi-loculated and demonstrated avid pericardial enhancement. Histology study of biopsies of lymph nodes indicated caseous granuloma.

A presumed diagnosis of pericardial TB was made and treatment was commenced.

The patient had a thoracic MRI for follow up, which demonstrated substantial resolution in pericardial changes (Fig.6 and 7).

### Discussion:

Tuberculosis pericarditis is seen in nearly 1-2% of patients with pulmonary tuberculosis [1], the diagnosis of which is usually delayed or missed. It can occur by spreading of an infection from the lung or tracheobronchial tract, from infected close structures such as adjacent lymph nodes, spine, sternum, or via miliary spread. In many patients, tuberculosis pericarditis may present in the absence of a primary focus of tuberculosis elsewhere.

Tuberculosis pericarditis usually presents non-specific symptoms such as cough, dyspnoea, chest pain, night

sweats and orthopnea [2]. However, it rarely shows up with symptoms of constrictive pericarditis in late stages. On clinical examination, signs would include high temperature, tachycardia, a pericardial friction rub and distant heart sounds on auscultation, as well as features of cardiac failure (raised jugular venous pressure, hepatomegaly, ascites, and peripheral oedema).

Important complications of tuberculosis pericarditis include constrictive pericarditis, effusive pericarditis and cardiac tamponade [2].

In teaching point of view, tuberculosis pericarditis should be considered as one of the differential diagnosis in patients with non-self-limiting pericarditis, particularly in patients with previous exposure to TB [3]. The diagnosis can be made by detection of Acid Fast Bacilli (AFB) in pericardial fluid and/or detection of tubercle bacilli or caseous granuloma on pericardial histology [4]. Presence of TB elsewhere in the body, lymphocytic pericardial exudate and elevated adenosine deaminase (ADA) level will make the diagnosis of tuberculosis pericarditis more likely.

Initial investigations for tuberculosis pericarditis consist of:

- \* ECG: commonly shows non-specific ST segment changes.
- \* CXR: Looking for evidence of pulmonary TB (present in 32-72% of cases), evidence of cardiomegaly (seen in 90% of patients) and also presence of pericardial calcification in chronic cases (4, 5).
- \* Evaluation of sputum for acid-fast bacilli (AFB) smear and culture (3).

The following tests might also be required in order to make diagnosis:

- \* Trans-thoracic echocardiogram
- \* Computed Tomography /Magnetic Resonance Imaging
- \* A tuberculin skin test (TST) and/or interferon gamma release assay (IGRA)
- \* Pericardiocentesis and evaluation of pericardial fluid for cell count, protein concentration, lactate dehydrogenase concentration, acid-fast smear/culture, Gram stain and bacterial culture, adenosine deaminase concentration, and cytology.
- \* Pericardial biopsy especially in non-endemic areas for TB, for patients whose symptoms lasted more than 3 months and definitive diagnosis has not been achieved through use of the above tests.

Treatment includes:

- \* Anti-tuberculosis medication.
- \* Corticosteroids mainly in patients with high risk of progression to constrictive pericarditis.
- \* Pericardiectomy in patients with persistent constrictive pericarditis not responding to anti-tuberculosis medication.

**Differential Diagnosis List:** Tuberculous pericarditis, Paracardiac tumour, Other infectious pericarditis, Non-infective pericarditis

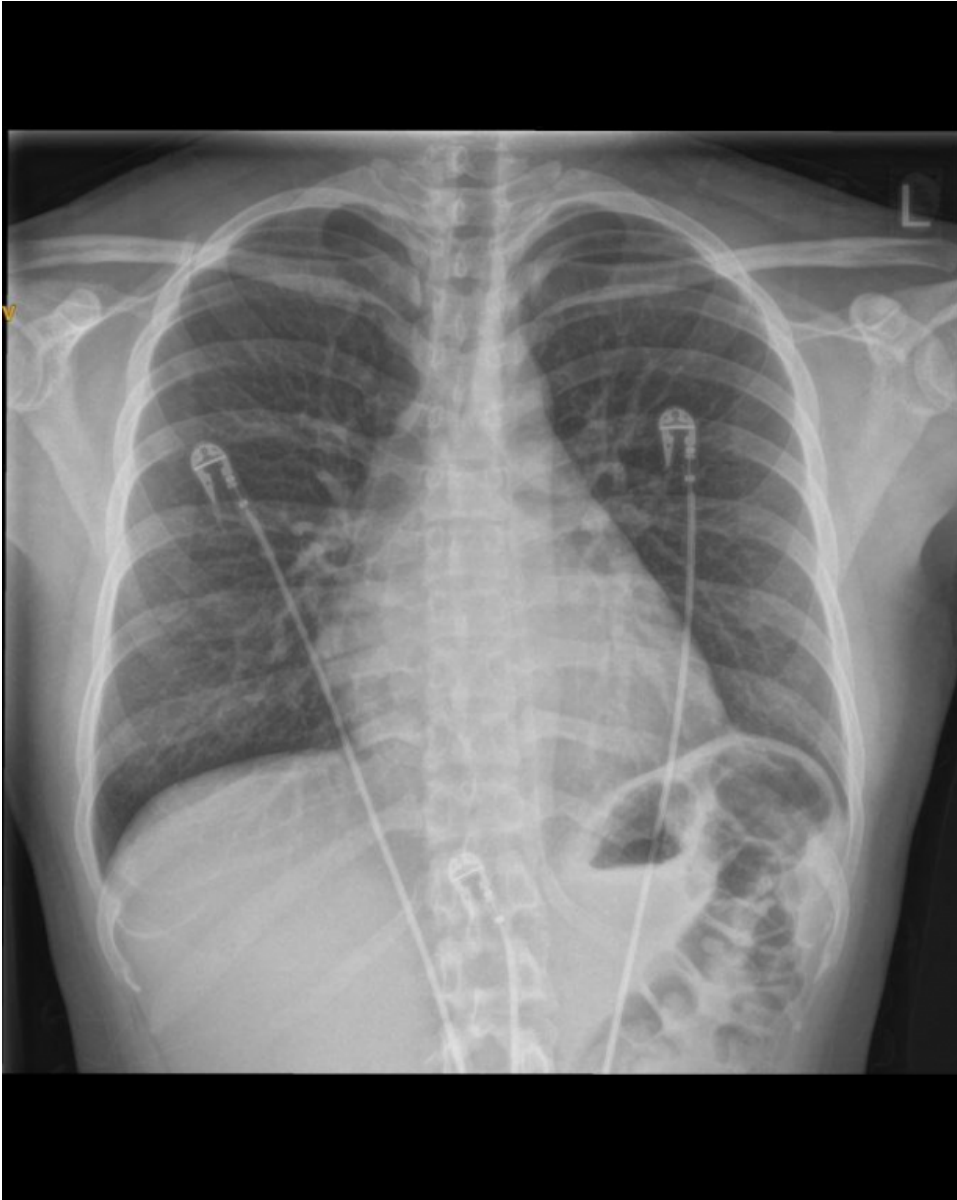
**Final Diagnosis:** Tuberculous pericarditis

## References:

- Larrieu AJ, Tyers GF, Williams EH, Derrick JR. (1980) Recent experience with tuberculous pericarditis. *Ann Thorac Surg* 29(5):464-8. (PMID: [7377888](#))
- Mayosi BM, Burgess LJ, Doubell AF (2005) Tuberculous pericarditis. *Circulation* 112(23):3608-16 (PMID: [16330703](#))
- Fowler NO, Manitsas GT. (1973) Infectious pericarditis. *Prog Cardiovasc Dis* 16(3):323-36 (PMID: [4593515](#))
- Sagristà-Sauleda J, Permanyer-Miralda G, Soler-Soler J. (1988) Tuberculous pericarditis: ten year experience with a prospective protocol for diagnosis and treatment. *J Am Coll Cardiol* 11(4):724-8. (PMID: [3351140](#))
- Strang JI, Kakaza HH, Gibson DG, Allen BW, Mitchison DA, Evans DJ, Nunn AJ, Fox W. (1988) Controlled clinical trial of complete open surgical drainage and of prednisolone in treatment of tuberculous pericardial effusion in Transkei. *Lancet* 2(8614):759-64 (PMID: [2901610](#))

**Figure 1**

a



**Description:** Initial Chest X-Ray was normal. **Origin:** Glenfield hospital, Leicester, UK

**Figure 2**

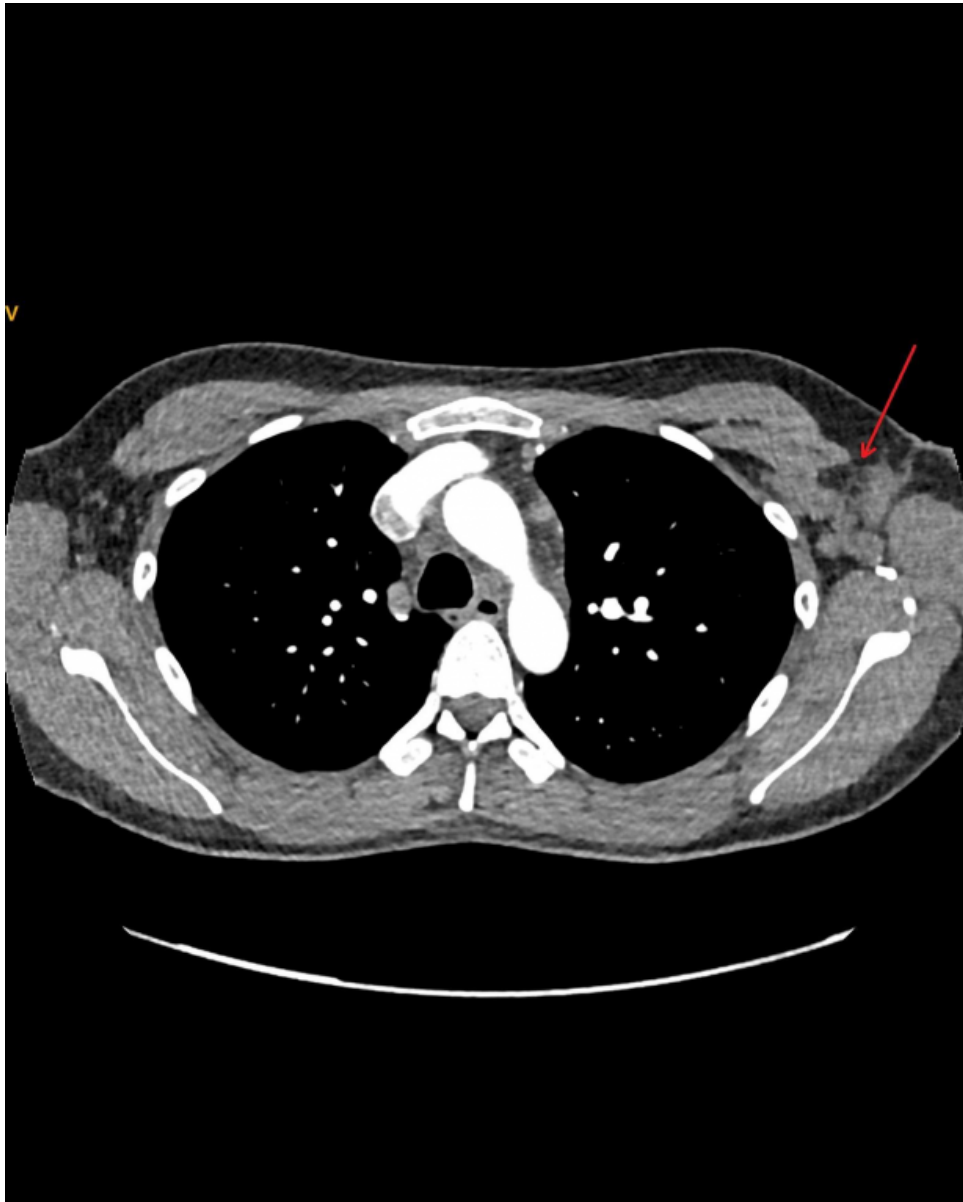
a



**Description:** Initial CTPA shows paracardiac mass along the base and apex of the heart measuring 8.9x6.2cm, iso-attenuating to myocardium on the pulmonary arterial phase. **Origin:** Glenfield hospital, Leicester, UK

**Figure 3**

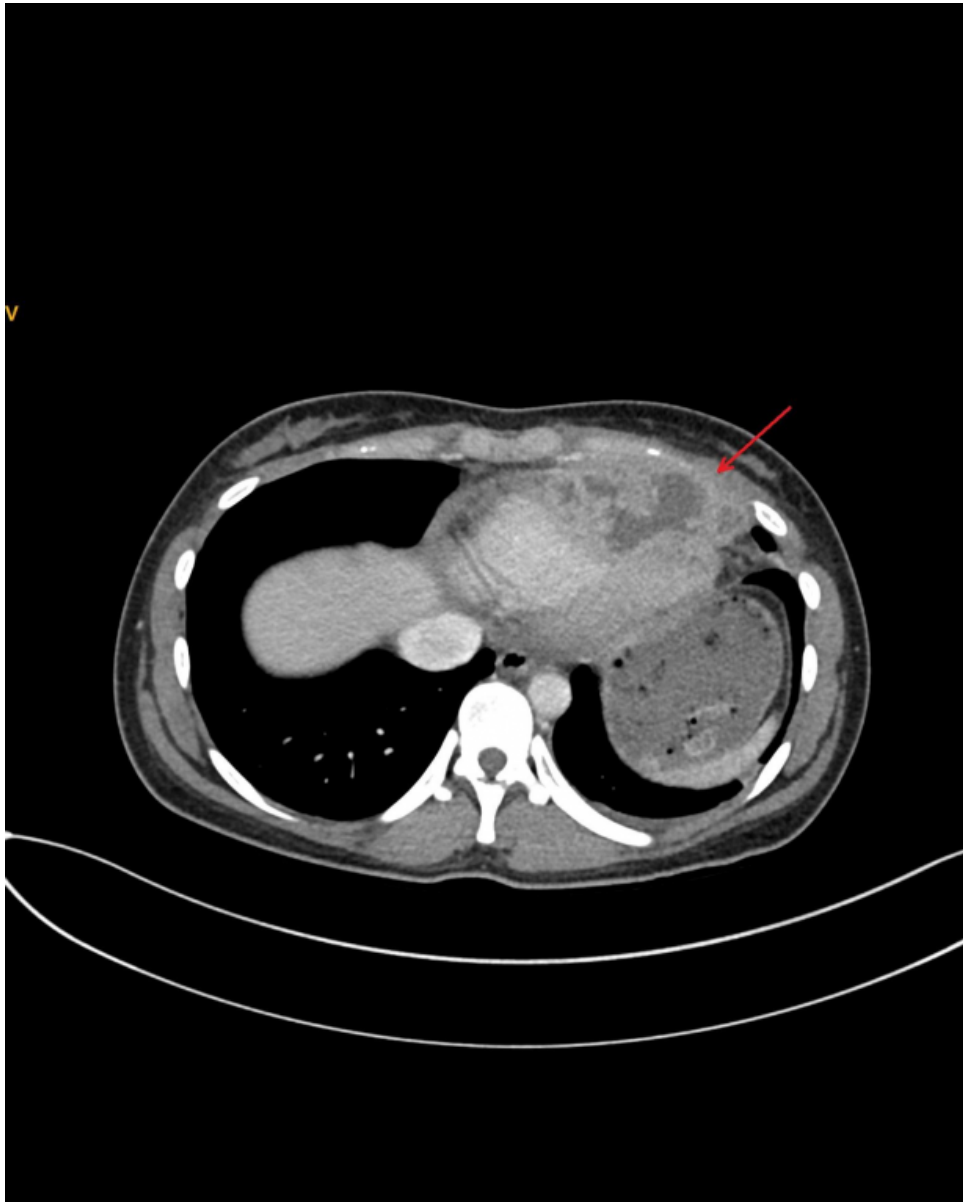
a



**Description:** CTPA shows left-axillary lymphadenopathy, which did not have any enhancement and was iso-intense to muscle. **Origin:** Glenfield hospital, Leicester, UK

**Figure 4**

a



**Description:** CT chest abdomen pelvis shows pericardial mass, primarily cystic, multi-loculated and demonstrated avid pericardial enhancement. **Origin:** Glenfield hospital, Leicester, UK

**Figure 5**

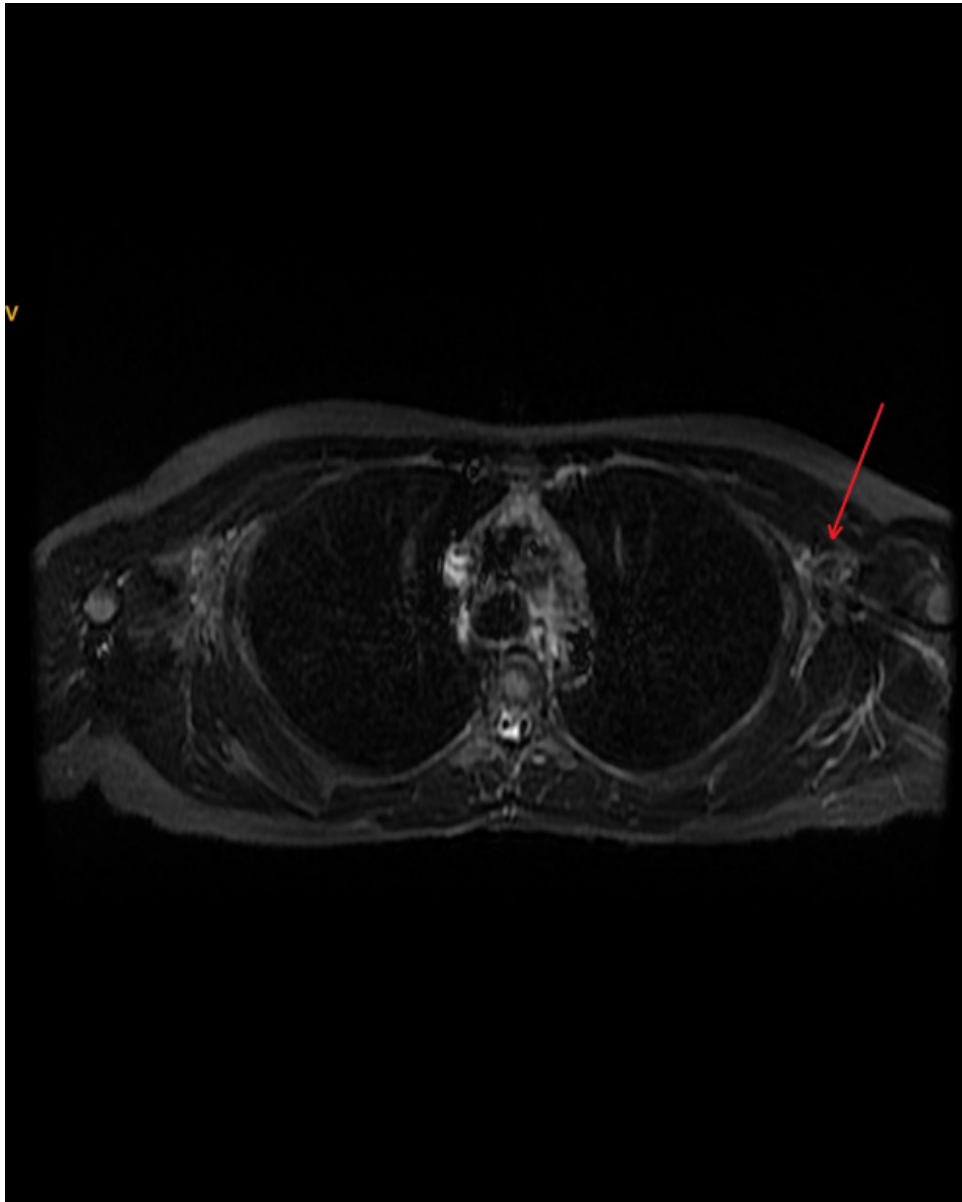
a



**Description:** Axial T1 sequence shows substantial resolution of pericardial changes. **Origin:** Glenfield hospital, Leicester, UK

**Figure 6**

a

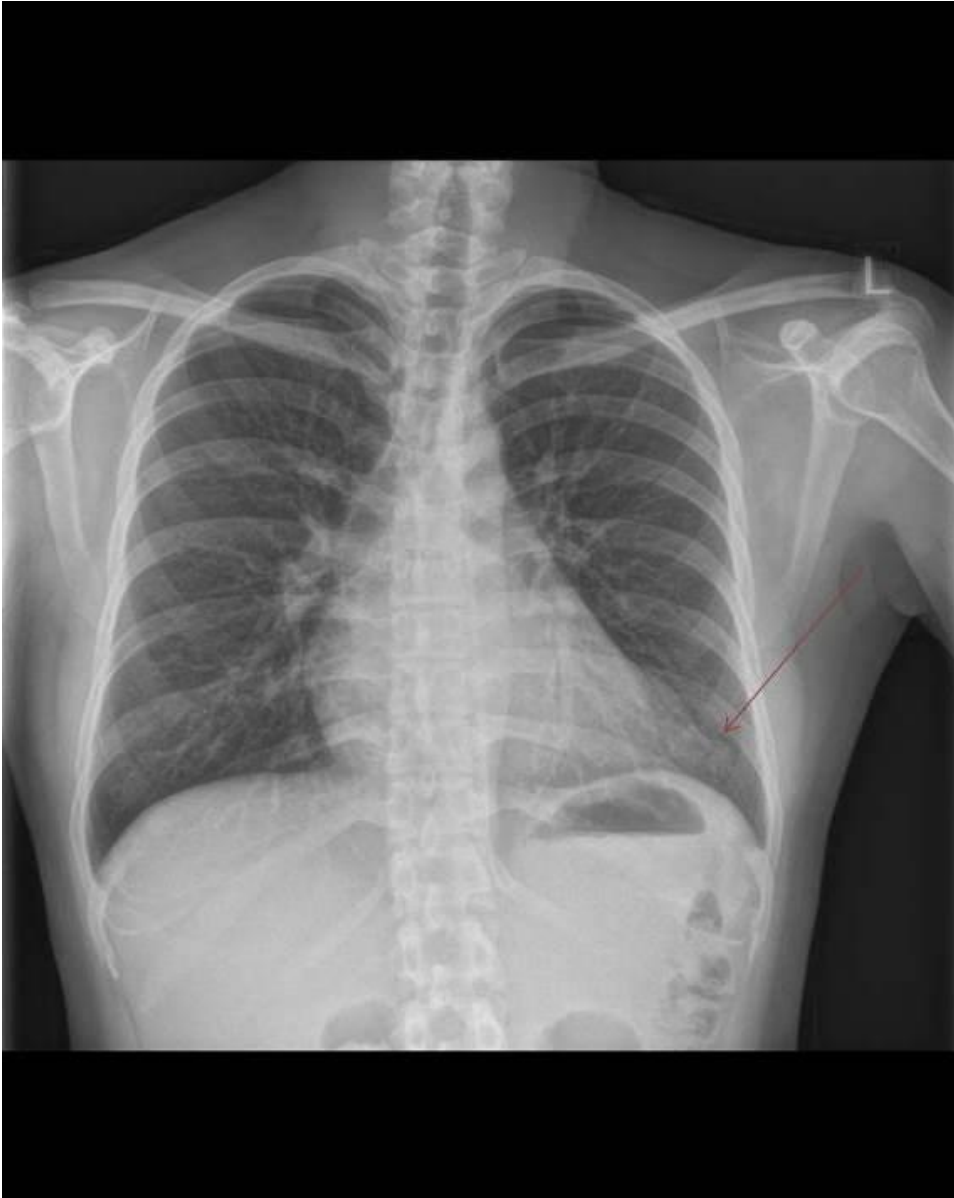


**Description:** Axial T2 STIR sequence shows residual oedema in the para-cardiac fat, but resolution of the collection and lymphadenopathy. **Origin:** Glenfield hospital, Leicester, UK



**Figure 7**

a



**Description:** Second CXR, obtained 3 weeks after initial CXR, shows loss of left cardiac silhouette.

**Origin:** Glenfield hospital, Leicester, UK