Disseminated tuberculosis – diagnostic challenges of atrial tuberculoma masquerading as atrial myxoma

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Abstract

A 47-year-old female, with multiple comorbidities, presented with a cough of two months, loss of weight and appetite. She was treated for pneumonia. A chest X-ray showed bilateral reticulonodular opacities. She was noted to have a vague central abdominal mass and a systolic murmur over the mitral region. Ultrasonography and computed tomography of the abdomen showed an omental mass and loculated ascites. Oesophagoduedenoscopy showed antral gastritis and during colonoscopy the surgical team was unable to advance the scope beyond 40 cm due to external compression. An echocardiogram showed a right atrial mass and a pericardial effusion over the posterior wall. A possible diagnosis of atrial myxoma was made. Sputum acid-fast bacillus was negative. The patient was treated empirically for disseminated tuberculosis and scheduled for bronchoscopy by the pulmonology team.

The patient showed remarkable improvement after day 7 of anti-tuberculosis medication. GeneXpert study came back as positive. CT abdomen and echocardiogram repeated after 2 weeks of treatment showed reduction in the mass.

Keywords: disseminated tuberculosis, right atrial mass

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Disseminated tuberculosis comprises two or more non-contiguous sites resulting from lymphohaematogenous dissemination of *Mycobacterium tuberculosis*.[1,2] The symptoms are non-specific and it mimics a variety of diseases.[1,2] Misdiagnosis and delayed treatment contribute to a high mortality rate.

Case presentation

A 47-year-old Malay female, with known diabetes mellitus, hypertension, bronchial asthma and end stage renal failure, presented with a cough of two months' duration, loss of weight and appetite.

On examination, she had bibasal crepitations, a systolic murmur over the mitral region and a vague central abdominal mass. The patient was treated for pneumonia on the medical ward. Broad spectrum antibiotics (intravenous ceftriaxone 2 g once daily and oral azithromycin 500 mg once daily) were administered and escalated to tazocin as the patient had spiking temperatures and dyspnoea.

Her chest X-ray showed bilateral reticulonodular opacities (Figures 1 and 4). The case was referred to the surgical team. Ultrasonography and computed tomography of the abdomen showed an omental mass (Figure 2), loculated ascites and diffuse small bowel thickening. Oesophagoduodenoscopy showed antral gastritis. During colonoscopy the surgical team was unable to advance the scope beyond 40 cm due to external compression. A CT-guided biopsy was planned but was abandoned due to the high risk of the procedure. An echocardiogram showed a right atrial mass and a pericardial effusion (Figure 3) over the posterior wall. A possible diagnosis of atrial myxoma was made. Her white cell count was within normal range. Globulin, alkaline phosphatase, erythrocyte sedimentation rate and C-reactive protein were raised. Sputum was negative for acid-fast bacilli. Fungal blood cultures from the internal jugular catheter and the peripheries were negative.

The patient was referred to the pulmonology team for bronchoscopy and GeneXpert MTB/RIF test. The patient was treated empirically for disseminated tuberculosis and scheduled for a bronchoscopy. She was started on isoniazid (150 mg once daily), rifampicin (300 mg once daily), ethambutol (800 mg three times a week), T. azithromycin (500 mg once daily) and T. pyridoxine (10 mg once daily). She was started on a HREA (isoniazide, rifampicin, ethambutol, and azithromycin) regime to cover for atypical mycobacterium. The GeneXpert MTB/RIF study came back as positive

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Figure 1 Chest X ray

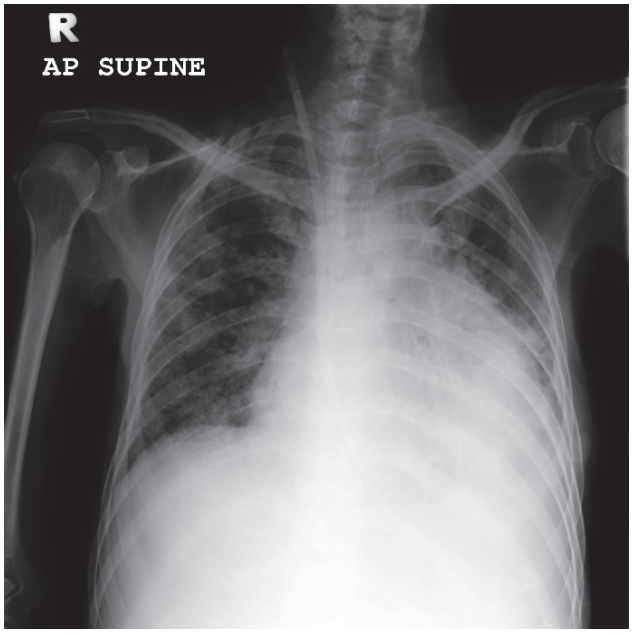


Figure 2 Omental mass

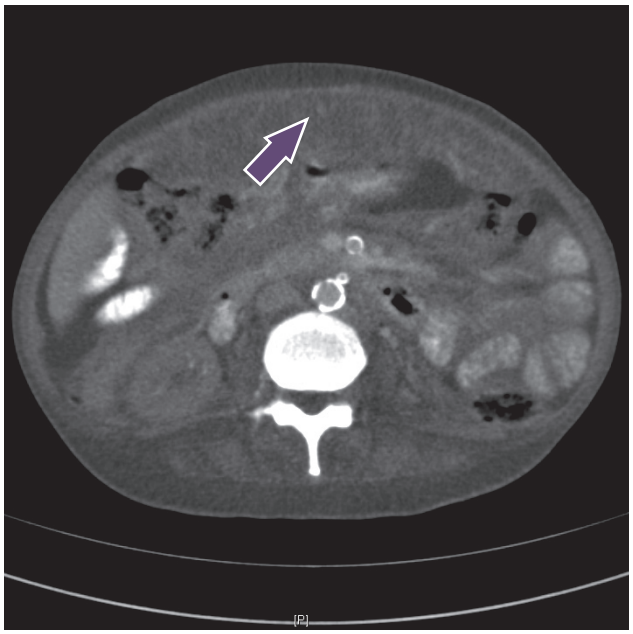


Figure 3 Pericardial effusion

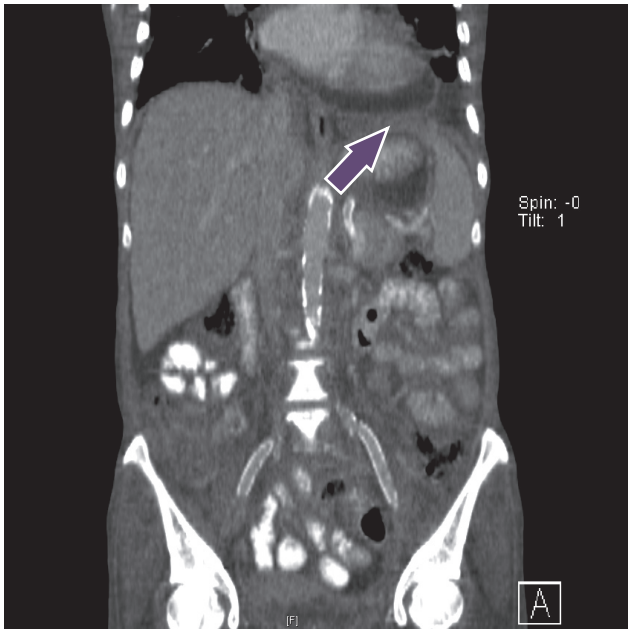
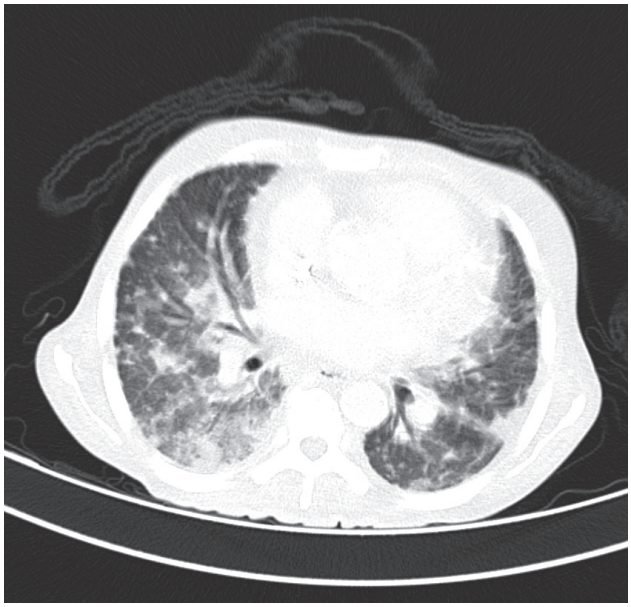


Figure 4 Extensive reticulonodular opacities with septal thickening involving whole lung



(*Mycobacterium tuberculosis* detected, rifampicin resistance not detected). Subsequently azithromycin was changed to pyrazinamide (1000 mg three times a week). She was then started on prednisolone 60 mg once daily, which was tapered over 2 months. The dosages of anti-tuberculosis treatment were started based on her body weight on admission which was 33 kg.

The patient showed remarkable improvement after day 7 of the anti-tuberculosis medications. Her fever subsided and she became less tachypnoeic. Bronchial washings grew *Mycobacterium tuberculosis* which was sensitive to all first line anti-tuberculosis medication. Repeat CT abdomen and echocardiogram after 2 weeks showed reduction of mass size. A CT brain to exclude asymptomatic central nervous involvement showed only small vessel ischaemic disease. A plan for year-long therapy was made, with 10 months of maintenance therapy (HR – isoniazide and rifampicin). The latest echocardiogram showed resolution of the atrial mass and pericardial effusion. CT thorax, abdomen and pelvis showed resolving reticulonodular opacities with septal thickening involving both lungs. The omental mass at the anterior upper abdomen appeared smaller. Currently she is well and her weight has improved significantly.

Discussion

Disseminated tuberculosis is a fatal disease if not diagnosed and treated early. Diagnosing it can be a challenging task. Clinical manifestations are non-specific and often a high

index of suspicion is required to avoid unwarranted invasive investigations.

In this case, typical chest X-ray findings were absent and the sputum was negative for acid-fast bacilli, which created a dilemma when diagnosing tuberculosis. The vague abdominal mass, right atrial mass and poor response on broad spectrum antibiotics did raise the suspicion of tuberculosis. Therefore additional tests including GeneXpert and mycobacterial cultures from bronchial washing were requested; they confirmed the diagnosis of tuberculosis.

Tuberculosis that presents as a cardiac mass is extremely rare. A cardiac mass often masquerades as a thrombus or myxoma. So far, three subtypes of myocardial tuberculosis have been reported, (i) nodular tubercles of myocardium, (ii) military tubercles of myocardium complicating the generalised military disease and (iii) diffuse infiltrative type which is usually associated with tuberculous pericarditis.[3,4] Pericarditis is the most common manifestation of cardiac tuberculosis.[4] Endocarditis caused by tuberculosis can affect any valve, together with military tuberculosis.

Bronchoscopy and a GeneXpert test confirmed the diagnosis of disseminated tuberculosis. A standard anti-tuberculosis therapy with regular follow up successfully treated the patient's condition.

Conclusion

This case illustrates the importance of interventional pulmonology and a high index of suspicion for disseminated tuberculosis, especially as atrial tuberculoma can mimic other diseases such as atrial myxoma. This case reinforces the importance of nucleic acid amplification test in the diagnosis of this potentially fatal disease.

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