An unusual cause of shortness of breath and fever

Edward Despott, Mario J Cachia

Abstract

A case of a 57 year old man who presented with shortness of breath and fever is discussed . The patient was suffering from multiple lung abscesses. As a right sided cardiac source of septic emboli was suspected, the patient underwent transthoracic echocardiography; this revealed a right atrial myxoma. The case, its complicated course and outcome are presented. This is followed by a discussion on infected atrial myxomas and the importance of early echocardiography in cases with a similar presentation.

Case Presentation

A 57 year old gentleman was admitted to St. Luke's Hospital with complaints of severe shortness of breath, cough productive of brown phlegm and right sided pleuritic chest pain. The patient also described chills and rigors.

He had recently undergone an amputation of his left lower limb above the knee because of intractable osteomyelitis of the femur which had complicated a compound fracture. He had been discharged from hospital about 3 weeks before this presentation. The patient had also suffered from severe osteoarthritis of his left knee as a complication of congenital deformity and shortening of the same limb. The rest of the past medical history was otherwise unremarkable. He was not on any long term medication and did not suffer from any drug allergy. The patient had never smoked and did not give any history of intravenous drug abuse. The family history was unremarkable.

On examination, the patient looked very unwell; he was pale, had a respiratory rate of about 30 breaths per minute and was running a fever of 104° F. Examination of the chest revealed signs of consolidation over the right mid zone and diffuse coarse crepitations which were more prominent over the right lung. The patient was tachycardic and had a JVP of 8cm. The rest of the cardiovascular examination was normal. The abdomen was normal and a neurological examination was unremarkable. The amputation stump showed no signs of local infection and was healing well.

Key Words

Right atrial myxoma, lung abscess, infective endocarditis, echocardiography

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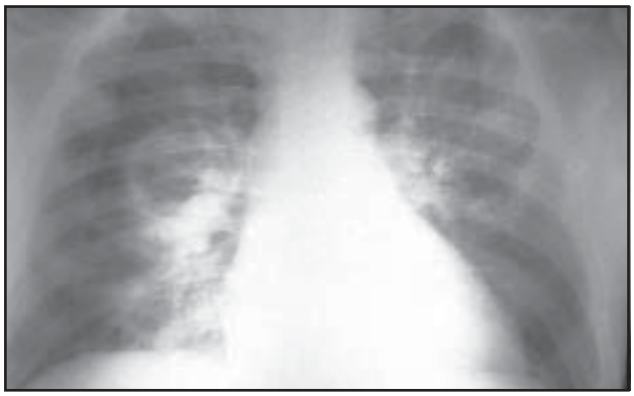

Figure 1: *Lung abscesses on CXR*

Blood investigations on admission revealed severe type I respiratory failure, a white cell count of 13.8 x 10^9/litre, haemoglobin 9.0 g/dl (normochromic, normocytic anaemia), platelet count 250 x 10^9/l, ESR 76 mm/hr (Westegren), CRP 180 mg/l, albumin 29 g/l, bilirubin 13 micromol/l, gamma glutamyl transferase 66 U/litre, alkaline phosphatase 272 IU/litre, alanine aminotransferase 23 IU/l. The rest of the blood investigations, including renal function, glycaemia and clotting times were normal. Urinalysis showed microscopic haematuria.

The chest X-ray showed a lung abscess affecting the lower segment of the upper lobe of the right lung (about 4.5 cm in diameter). There were also numerous radio opaque lesions about 1.5 to 2.0 cm in diameter and regions of patchy consolidation scattered throughout both lung areas (Figure 1). A CT scan of the chest confirmed the above findings and also showed a number of other small abscesses involving the parenchyma of both lungs. The electrocardiogram showed a sinus tachycardia and a partial right bundle branch block but was otherwise normal.

A diagnosis of multiple lung abscesses was made and a cause for this sought. The presence of numerous lesions in both lungs made exclusion of a cardiac source of septic emboli by echocardiography the most urgent consideration.

Blood cultures were sent as was sputum for microbial culture and sensitivity, including acid fast bacilli studies. The patient was put on high flow oxygen and was started empirically on broad spectrum antibiotics. In view of his poor general condition, the patient was transferred to the intensive care unit.

At the intensive care unit, the patient's general condition improved. Blood and sputum cultures grew *Klebsiella pneumoniae* and this was sensitive to the antibiotics being given.

Transthoracic echocardiography was performed and showed a large, right atrial mass, in keeping with an atrial myxoma. It was described as a large, lobular, pedunculated mass, rooted to the free atrial wall (Figure 2). The myxoma protruded across the tricuspid valve during atrial systole and was not attached to the tricuspid valve (Figure 3). The echocardiogram also showed evidence of pulmonary hypertension with evidence of right ventricular hypertrophy and dilatation.

In view of the echocardiographic findings a team of cardiothoracic surgeons was consulted and a date was set for urgent surgical intervention. In the interim, the patient's condition suddenly deteriorated. This was found to be due to the development of a right sided tension pneumothorax secondary to rupture of a right lung abscess. The patient was promptly managed by intercostal tube drainage. However, an air leak persisted despite suction, making it clear that a bronchopleural fistula had formed, complicating the case further. His condition deteriorated despite constant supportive care and the patient succumbed to his illness about three weeks after admission.

Discussion

The above case illustrates the presentation of a rare condition by common symptoms. The presence of multiple, bilateral septic infiltrates and abscesses made the exclusion of a cardiac embolic source imperative. A transthoracic echocardiogram performed to exclude right sided endocarditis revealed the rare finding of a right atrial myxoma as the likely cause of the patient's pulmonary condition.

Although atrial myxomas are the commonest primary tumours of cardiac origin, their prevalence is still very rare, approximately 0.0017%-0.33% in autopsy series.[1] Cardiac myxomas are usually sporadic although up to 10% can be familial or form part of the Carney Syndrome. They occur more commonly in females (71% female; 29% male in one series[4]) and have a propensity to involve the left atrium (75%-80%), with far fewer found in the right atrium (15%-20%) and ventricles.[1,5,6] Infected cardiac myxomas occur even more rarely and only forty one cases are reported in the literature.[7]

In 1998, Revankar and Clark proposed diagnostic criteria for infected cardiac myxoma.[8] These are based on clinical findings and/or pathological examination of the tumour and involve classification into three categories of definite, probable and possible infected cardiac myxoma as follows:

Criteria for definite infected cardiac myxoma

1. Documented myxoma by pathology and
   2.a. Microorganisms seen on pathology or
   2.b. Positive blood cultures and inflammation on pathology.

Criteria for probable infected cardiac myxoma

1. Documented myxoma by pathology and
2. Positive blood cultures or inflammation on pathology.

Criteria for possible infected cardiac myxoma

1 Characteristic appearance by transthoracic or transesophageal echocardiography and
2. Positive blood cultures.

Using these criteria, our case classifies as *possible* infected cardiac myxoma and was managed as such.

The case highlights how atrial myxomas can live up to their notorious reputation of great mimickers as their symptom manifestations are protean.[8,9] The classical auscultatory finding of a 'tumour plop' is in fact rare (15% in one series) .[10] The main differential diagnosis of a right atrial myxoma, however, must remain that of right sided infective endocarditis as the picture presented can be essentially identical. As in endocarditis, embolic phenomena are very common as the tumours are very friable and thus embolize easily. Our patient's findings showed evidence of numerous septic emboli to both lungs (radiological evidence and documented pulmonary hypertension on echocardiography).

Thus, short of pathological examination, echocardiography remains the only way of distinguishing the two conditions.[7] Virtually all cases can be diagnosed routinely by this noninvasive procedure, transthoracic echocardiography having a sensitivity of 95% and transoesophageal echocardiography having a sensitivity of 100%.[8]

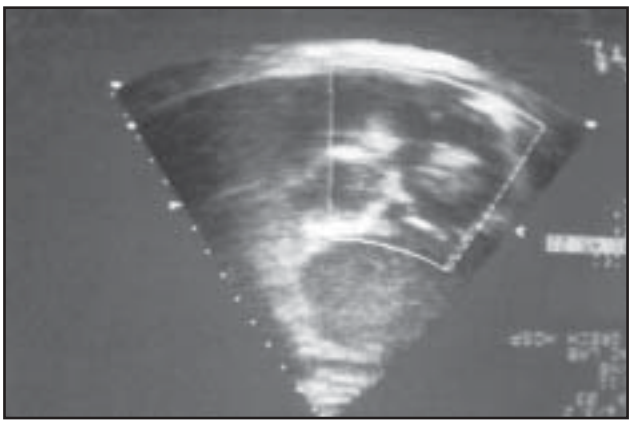

Figure 2: *Right atrial myxoma*

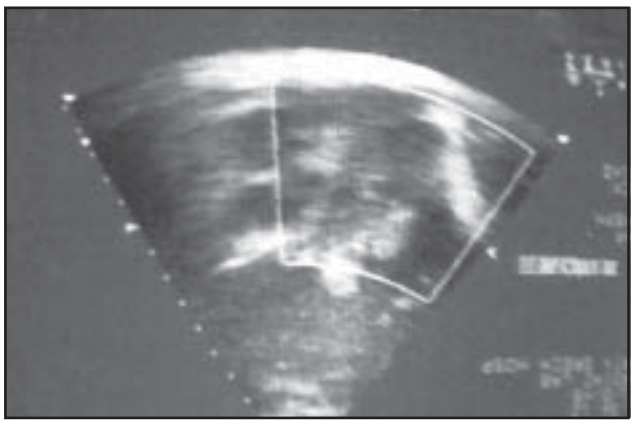

Figure 3: *Right atrial myxoma passing through tricuspid valve*

The management of cardiac myxomas is that of urgent surgical resection.[2,5,6,8,9] The overall mortality for infected myxomas is 21%[8] and sudden death may occur in 15% of patients.[2] In our unfortunate patient, the complications suffered from the multiple embolic lesions worsened the prognosis further and contributed to the patient's demise before curative surgery could be performed. The importance of diagnostic echocardiography in suspicious and not infrequent presentations as the one described in the above case cannot be overemphasised.

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