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CASE REPORT

An unusual presentation of Tuberculosis

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A young Somali gentleman presented to the Emergency Department with unrelated symptoms and was noted to have a large, soft pre-sternal mass. He denied cough, night sweats, lethargy or fever but on closer inspection was noted to be malnourished and had pale conjunctivae. The lump was drained and the fluid was sent to culture and sensitivity and microscopy. Lateral chest x-ray revealed a soft tissue pre-sternal mass. A CT scan was done and revealed a cavitating lesion in the left upper lobe. A diagnosis of Tuberculosis was done and he was started on standard therapy; Isoniazid, Rifampicin, Ethambutol and Pyrazinamide. The patient was discharged from hospital and was followed up at outpatients by a tuberculosis specialist.

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CASE PRESENTATION

A 29-year-old irregular migrant from Somalia presented to the Emergency Department following a fall for investigation of a suspected fracture of the hip and ankle. An interpreter accompanied him as he spoke limited English. On systemic examination he was noted to have a large (approximately 11cm by 8cm) lump over his sternum, which was soft and had no overlying skin changes, similar to Figure 1 below. The interpreter reported that this was of growing concern to the patient, as it had been growing progressively for the previous three months. While lower limb X-rays ruled out fractures, a bedside ultrasound of the lump on his chest showed it to be fluid-filled and 100ml of pus was drained using aseptic technique and sent to the lab for culture and sensitivity, as well as acid fast bacilli smear and culture (AFB) in view of his country of origin. This prompted a review of a prior chest x-ray taken 5 days before (Figure 2) which revealed nodular changes in the left upper lobe along with apical pleural thickening, highly suspicious for tuberculosis (TB). The chest x-ray taken 5 days prior was not originally reviewed because the initial presentation was that of lower limb injury, and the patient did not mention this lump, nor complained of any other symptoms, at triage.

Figure 1: Photo of a pre-sternal mass with no overlying skin changes, adapted from Saifudheen, K et al. (2010)

Figure 2: Lateral Chest X-ray taken of patient demonstrating soft tissue pre-sternal mass

The possibility of TB was further increased by the fact that he was significantly underweight with a BMI of 16.6 kg/m2, had a raised C-reactive protein (CRP) of 117 mg/l (0-5mg/L), and an iron deficiency anaemia with a Hgb of 10.9 g/dL (12.0-15.5g/dL). Thus, he was admitted to an isolation room for further investigation, and all contact precautions and appropriate nursing care protocols were initiated.

A CT scan of the thorax two days later revealed the following: a cavitating lesion in the left upper lobe with associated smaller cavitating nodules, diffuse peri-bronchial micro-nodules with tree in bud appearance in the left lobe, multiple enlarged lymph nodes in the lower neck, right axilla and mediastinum (some of which were necrotic) and a pre-sternal subcutaneous fluid collection with enhancing peripheral walls measuring 4.3cm (Figures 3, 4 and 5). This pre-sternal fluid collection was the same one which had been drained two days before in the Emergency Department. This result was assumed to be pulmonary TB and the patient was commenced on quadruple anti-TB treatment, namely Isoniazid, Rifampicin, Ethambutol, and Pyrazinamide. He was also concomitantly given Pyridoxine, Iron and calorific supplementation.

Figure 3: A cavitating lesion in the left upper lobe with associated smaller cavitating nodules

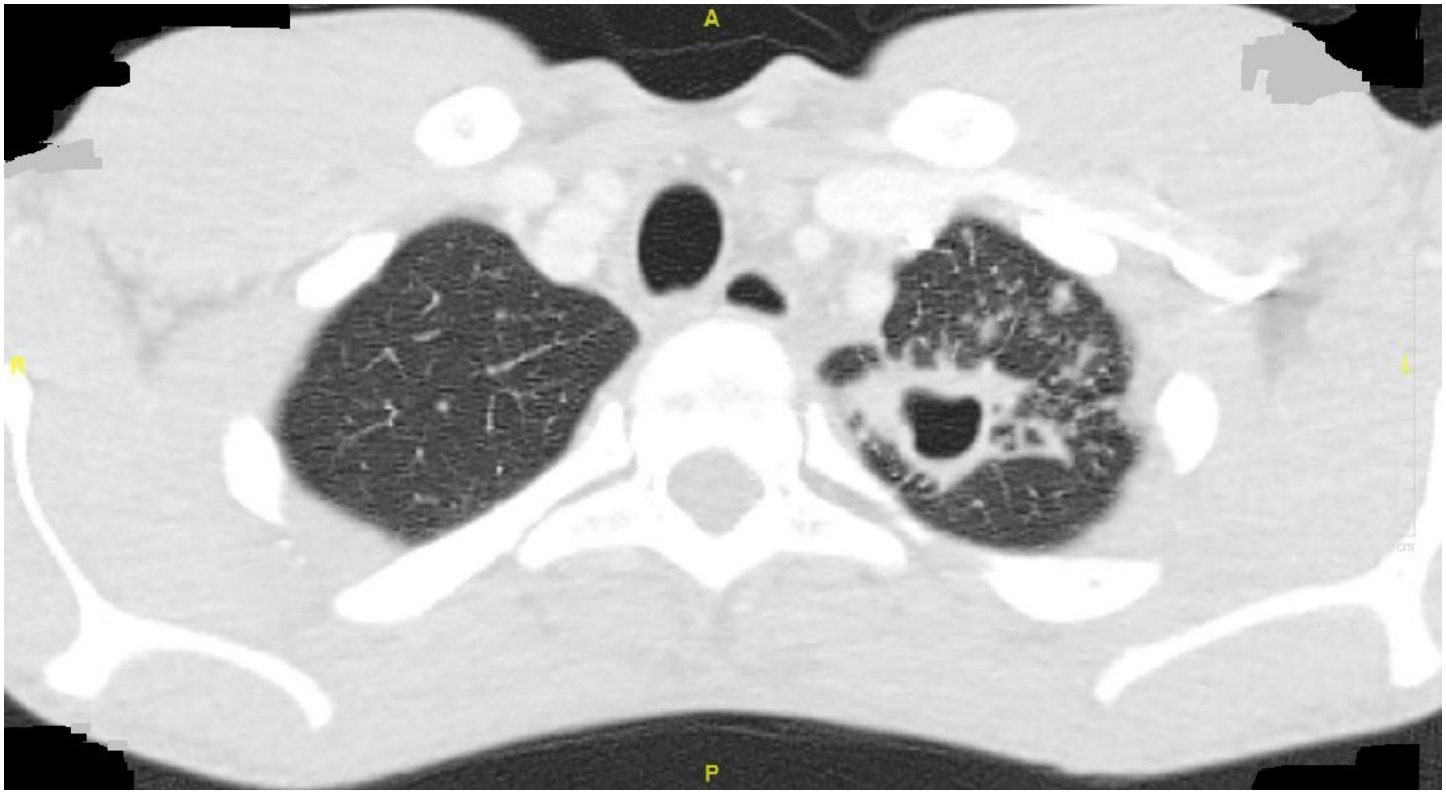


Figure 4: Diffuse peri-bronchial micro-nodules with tree in bud appearance

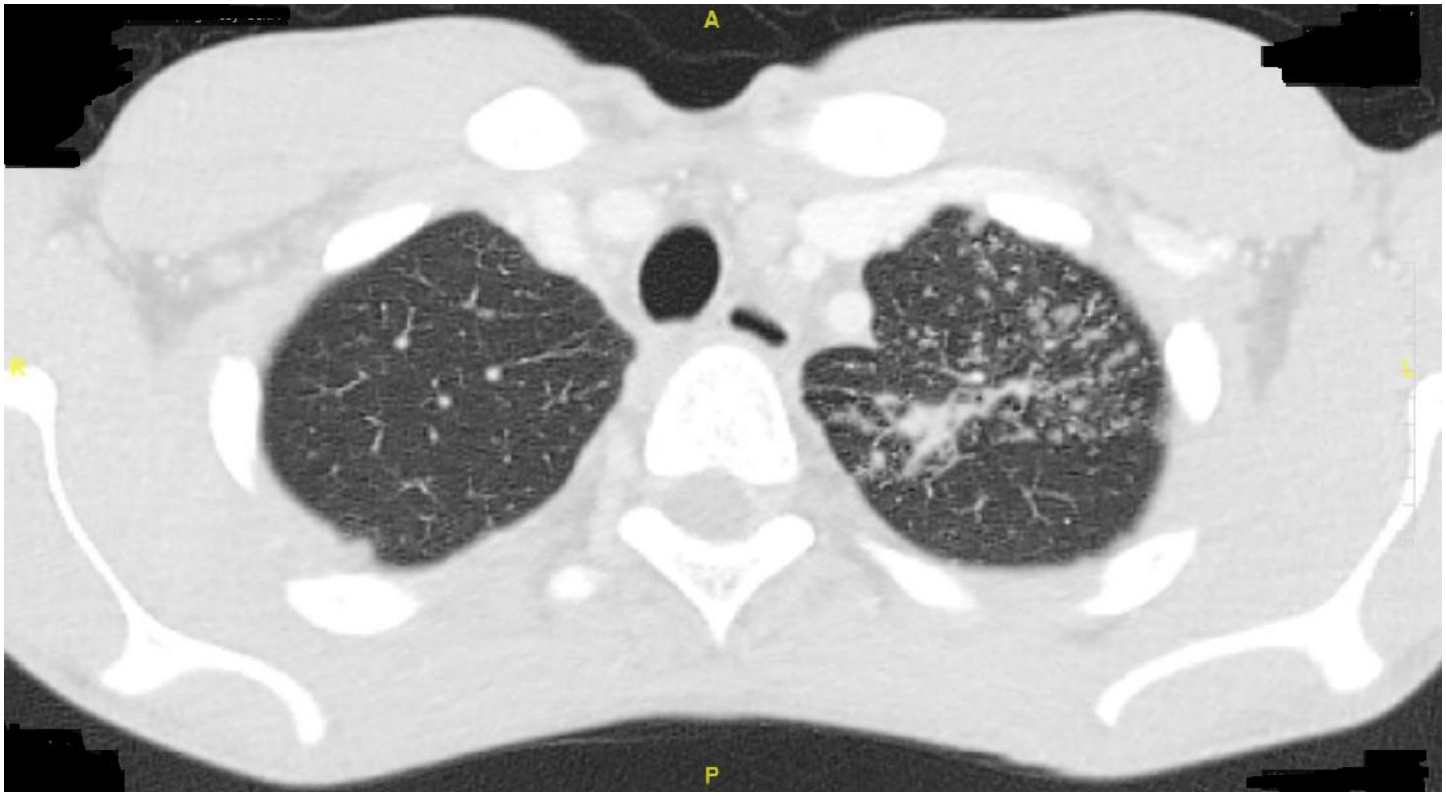
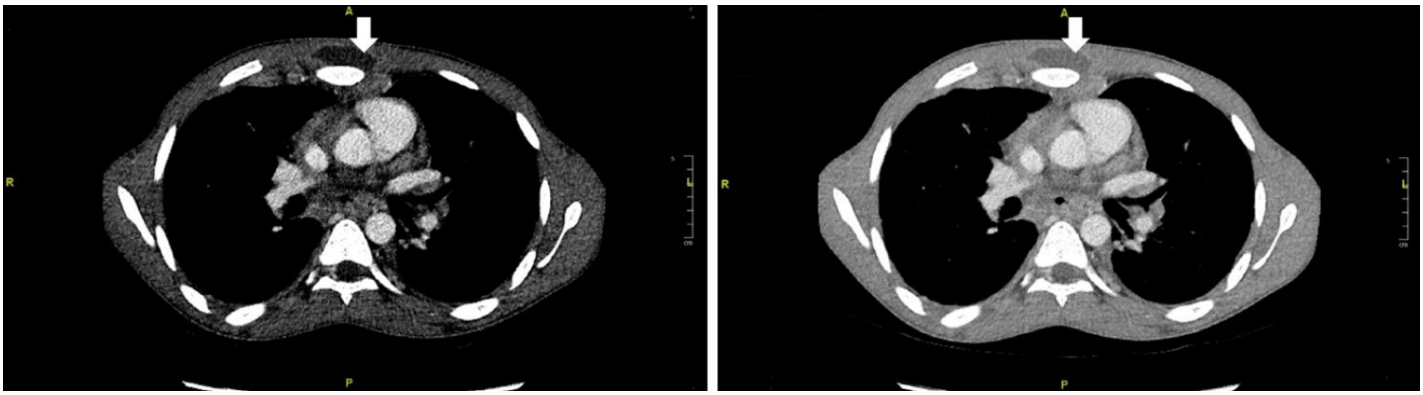


Figure 5: Pre-sternal subcutaneous fluid collection with enhancing peripheral walls measuring 4.3cm



Further samples were sent for mycobacterial investigation, including sputum, blood cultures, gastric lavage and a nasal respiratory screen. Human Immunodeficiency Virus (HIV) and Hepatitis screens were negative, while both Immunoglobulin (Ig) A and IgG levels were elevated at 6.78 g/L (0.70-4.00g/L) and 33.2 g/L (7.01-16.0g/L) respectively.

He was kept in hospital to improve his nutritional status and continue anti-TB treatment while awaiting the results of the samples taken for culture of mycobacterium. His interpreter was also unavailable (due to other commitments) during the majority of reviews by his caring firm. The language barrier was noted to have a negative effect on his mental wellbeing due to his inability to fully

comprehend what the caring physicians were telling him and the subsequent plan of action.

Over the course of his first week in hospital, the pre-sternal fluid collection was noted to be increasing in size after the initial drainage procedure performed at the Emergency Department. The general surgeons were consulted and carried out incision and drainage under general anaesthesia, revealing greenish pus-like fluid, which was again sent to the laboratory for culture. A surgical drain was left in-situ. The drain continued to drain pus and blood over the first day, but there was no further drainage on the second day and the drain was removed. The drain contents were also sent for culture and sensitivity. There were no further issues with the pre-sternal fluid collection, nor any other symptoms, and the patient's weight and treatment continued to be reviewed.

OUTCOME AND FOLLOW-UP

The patient's details were passed on to the Public Health Department for disease notification and contact tracing.

The initial pus sample taken yielded Mycobacterium tuberculosis detected on polymerase chain reaction (PCR), with no resistance to Isoniazid or Rifampicin. Sputum and all other samples of pus yielded no growth of any bacteria, with the exception of the gastric lavage samples which also cultured *M. tuberculosis*.

While the initial CT scan result prompted the caring firm to commence standard quadruple anti-TB treatment, the results of the cultures confirming the diagnosis of tuberculosis confirmed the need for such treatment, for 6 months with associated monitoring. This was continued in the community after discharge.

The patient spent a total of 18 days in hospital, and prior to discharge was educated on how he was to continue taking his antituberculous medication together with vitamin and calorific supplementation. His details were passed on to the community TB specialist for directly observed therapy (DOT). The patient was discharged once the caring firm had taken all necessary steps to handover the case to the community clinics, and the patient had improved his nutritional status. He was followed up in the community by a TB specialist.

DISCUSSION

TB is common in malnourished patients and in those who come from countries with a high prevalence such as Somalia.[7] There is very limited literature with patients exhibiting pre-sternal fluid collection as the initial presentation of TB.[4 5] Apart from the classic presentation with coloured sputum, fever, night sweats and upper zone changes on chest x-rays,[8 9] some case reports have shown TB to present as pleural effusions,[2] osteomyelitis of the sternum[1 6] and as chronic infections of the sternal wounds in patients who underwent coronary artery bypass grafting (CABG) procedures.[3 7] Anaemia is common at presentation[2] and the presence of hypergammaglobulinemia occurs in late-stage disease.

In this case, the patient did not inform a doctor of the increasing lump on his sternum and therefore this was initially not noted by the triage of the Emergency Department. It was fortuitous that he injured his leg and came to the Emergency Department and reported the symptom to the attending physician. The patient denied the usual respiratory symptoms which are seen in pulmonary TB which he clearly had radiological evidence of.

Locally, the standard protocol is for all irregular migrants to have a screening Chest X-ray. Upon further review it was noted that the patient had had 2 prior chest X-rays 1 month and 1 week prior to admission. Although the radiologist had reported them abnormal, the requesting physician was not aware of these changes. This could have facilitated an earlier diagnosis. Due to the delay in presentation there was a high probability that he was infective towards the other migrants in the same residence as these are open migrant centres, and he may have therefore spread disease.

The usual workup of TB needed to exclude HIV as a co-existing disease as this is more likely to result in multi-drug resistant (MDR) TB and would also require concurrent treatment.[10]

The delay in incision and surgical drainage was not optimal as it was ultimately needed as his abscess increased in size. Moreover, the standard duration of in-hospital stay was exceeded due to the fact that there were communication issues between the caring physicians and the patient, alongside the process of application for free TB treatment. The application had to be finalized during his inpatient stay in order for him to receive them after his discharge from hospital. Due to the increasing influx of irregular migrants who speak different languages and dialects, it is difficult to find interpreters when they are ill. Moreover, if an interpreter is found, they are not always available during the standard hours of ward rounds and patient reviews, posing a challenge to both the patient and the firm.

Conclusion

This case highlighted how occasionally TB may present in an unexpected fashion. This patient's chest lump had been present for three months but had progressively worsened. The importance of the general medical assessment must be emphasised as part of a patient's complete assessment; without it, this gentleman's chest lump may have been missed completely in the context of his presenting complaint of a fall and associated hip pain.

Learning Points/Take Home Messages

- Tuberculosis may present in a variety of ways.
- Unusual presentation. This case highlights the difficulty of diagnosing disease in patients who have a language barrier. The fact that he was residing in a local detention centre for irregular migrants who do not have easy access to medical care delayed the diagnosis.
- This patient was investigated for tuberculosis based on his origins from an endemic area.
- A number of samples should be collected for investigation of tuberculosis but few, if any, yield positive results.

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