CASE REPORT

Prolonged Fever and Unremitting Back Pain in Elderly Patient: A Case of Disseminated Tuberculosis with Spondylodiscitis

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Keywords
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ABSTRACT

Disseminated tuberculosis (DTB) is a life-threatening condition caused by the hematogenous spread of Mycobacterium tuberculosis. As the clinical presentation is often nonspecific, it leads to late diagnosis. We reported a case of a 75-year-old man who presented with intermittent fever for one month and lower back pain for four months. Bronchoscopy with bronchoalveolar lavage revealed low-level of Mycobacterium tuberculosis, leading to a diagnosis of smear-negative pulmonary tuberculosis. Magnetic resonance imaging of the thoracolumbar spine showed multiple enhancing skip lesions involving thoracic and lumbar vertebrae bodies with a T8/T9 paravertebral abscess compressing onto the spinal cord, suggestive of tuberculous spondylodiscitis and confirming a diagnosis of DTB. The patient's condition improved with anti-tuberculosis therapy. This case emphasizes the need for high clinical suspicion in patients with multisystem involvement and the importance of timely, targeted investigations to confirm the diagnosis.

INTRODUCTION

Tuberculosis (TB) is endemic in Malaysia. Malaysia aims to reduce TB deaths to fewer than 85 deaths per year by year 2035.[1] The global incidence of disseminated tuberculosis (DTB) is unclear, but it accounts for less than 2% of all TB cases and up to 20% of extrapulmonary TB cases.[2] DTB is characterized by Mycobacterium tuberculosis infection at two or more non-contiguous sites due to lymphohematogenous spread.[3] While DTB is rare, its severity necessitates prompt diagnosis and treatment.[4]

There is a rising trend in disseminated tuberculosis (DTB) diagnoses, largely attributed to the increasing prevalence of immunocompromising conditions such as diabetes, malignancies, HIV/AIDS, and the use of immunosuppressive medications.[2] Diagnosing DTB remains highly challenging due to several factors, such as nonspecific symptoms, atypical clinical presentations, difficulties in obtaining appropriate samples, and the possibility of false-negative test results, of which can delay treatment and increase the risk of mortality.[4] Although untreated DTB is often fatal, an early intervention significantly improves outcomes.[4]

Case presentation

A 75-year-old gentleman with pre-fibrotic primary myelofibrosis (PMF), hypertension, and hyperlipidemia presented with a one-month history of intermittent fever associated with chills and rigors. He also complained of intermittent lower back pain for the past four months, with no cough, tuberculosis contact, seizures, or headaches. He also reported an unintentional weight loss of three kilograms due to poor appetite.

He was treated twice at our center for similar complaints within the past month. He was initially treated for acute pharyngitis with tablet augmentin 625mg three times per day and later for viral fever with supportive care. Three days prior to the current presentation, he sought emergency care for fever and left-sided pleuritic chest pain. His chest X-ray revealed patchy opacities at the right middle zone and consolidation at left lung apices (figure 1). He then was diagnosed with community-acquired pneumonia (CAP) and treated with tablet augmentin 625 mg three times per day and tablet azithromycin 500 mg once daily. Despite the complete courses of the prescribed antibiotics, his fever persisted.

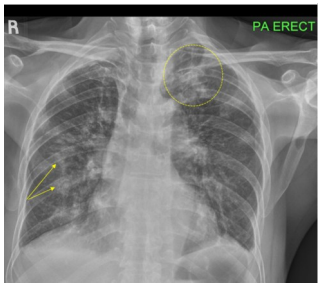

Figure 1: Chest radiograph shows patchy opacities at right middle and lower zone (yellow arrow) and consolidation at left lung apices (yellow circle).

On examination, he appeared cachectic but stable with a temperature of 37.3°C. Respiratory, cardiovascular, and abdominal examinations were unremarkable. His full blood count (FBC) revealed leucocytosis (total white cell (TWC) count of 13.45 x10^9/L), anaemia (haemoglobin level of 10.2 g/dL), and thrombocytosis (platelet count of 637 x10^9/L). He was scheduled for follow-up in one week for further investigation.

A week later, he remained febrile, with temperatures ranging from 38°C to 39°C. His sputum cultures and sensitivity (C&S), acid-fast bacilli (AFB), and urinalysis was all negative. Repeated FBC revealed normal TWC count (10 x10^9/L) and anaemia (haemoglobin of 10.4 g/d). His inflammatory markers were elevated with C-reactive protein (CRP) of 84.5 mg/L and erythrocyte sedimentation rate (ESR) of 101 mm/h. He was then admitted for further evaluation.

In the ward, he remained febrile despite intravenous (IV) ceftazidime and IV meropenem. Repeated AFB sputum, sputum C&S, Sputum Mycobacterium tuberculosis C&S, and blood culture were negative. Further investigation with bronchoscopy with bronchoalveolar lavage by GeneXpert MTB/RIF test revealed low-level Mycobacterium tuberculosis with rifampicin resistance not detected, leading to a diagnosis of smear-negative pulmonary tuberculosis. He began anti-tuberculosis therapy, tablet Akurit 4 (isoniazid + rifampicin+ethambutol+ pyrazinamide) 3 tablets daily and tablet pyridoxine 20mg daily leading to fever resolution and improvement in thrombocytosis (615 x10^9/L to 217 x10^9/L). After 16 days of ward admission, he was discharged with follow-ups scheduled for orthopaedic and respiratory clinics including daily observed therapy (DOTS) at the primary clinic.

Figure 1 **Figure 2**

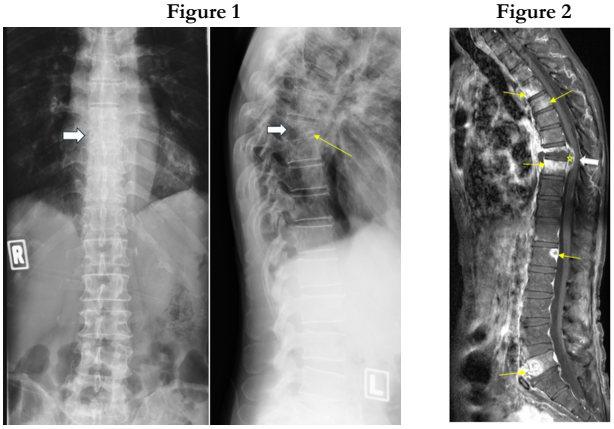

Figure 2: Thoracolumbar radiograph in AP and lateral view shows reduced height of T8 vertebrae body (white arrow) associated with irregularity and sclerosis at inferior end plate of T8 vertebrae (yellow arrow).

Figure 3: MRI thoracolumbar shows abnormal enhancement involving T4, T5, T9, L1 and L5 vertebrae bodies (yellow arrows) associated with T8 vertebrae plana and paravertebral collection at T8/T9 vertebrae body (yellow star). Noticed epidural cord compression at T8/T9 level (white arrow).

At the orthopedic clinic appointment, he reported intermittent back pain. Examination revealed mid-thoracic kyphosis with no neurological deficits. Thoracolumbar radiograph showed total T8 vertebrae collapse with irregularity and sclerosis (figure 2) , while MRI revealed enhancing skip lesions in thoracic and lumbar vertebrae bodies with T8/T9 paravertebral abscess compressing the spinal cord (figure 3), consistence with tuberculous spondylodiscitis. The current diagnosis is disseminated tuberculosis with tuberculous spondylodiscitis at T8-T9, with no neurological deficits. Conservative management was chosen.

At subsequent follow-up, the patient demonstrated marked clinical improvement. His appetite had returned to normal, his back pain had resolved, and he was afebrile. His haemoglobin level also improved, reaching 11.2 g/dL.

DISCUSSION

The World Health Organization (WHO) reports a steady decline in global TB incidence and mortality, aiming for a 90% reduction by 2035.[5] Despite this progress, cases of DTB, particularly in immunocompetent adults, remain rare but clinically significant.[2]

Its variable presentations like fever, weight loss, and night sweats, along with manifestations such as anorexia and, in severe cases, multiorgan failure, will occur, depending on the affected organs.[6] These symptoms mimic other infectious and non-infectious diseases, causing delays in diagnosis. In this case, the patient's advanced age and PMF on treatment complicate his clinical picture. He presented with persistent fever, weight loss, and cachexic with negative sputum tests for acid-fast bacilli, sputum culture, and sputum MTB C&S, further complicated the diagnosis.

Despite advancements in diagnostic techniques, clinicians must consider risk factors, clinical symptoms, systemic involvement, laboratory results, and imaging studies when evaluating DTB.[7] Chest radiography remains a key diagnostic tool for TB.[2] The initial chest radiograph of our patient revealed patchy opacities at the right middle zone with consolidation at left lung apices, which were initially interpreted as CAP.

DTB diagnosis is established if a patient has any of the following: (1) Isolation of Mycobacterium tuberculosis from bone marrow, liver biopsy or ≥ 2 non-contiguous organs; (2) Isolation of Mycobacterium tuberculosis from one organ and histopathological demonstration of caseating granulomas from the bone marrow, liver biopsy specimen or another non-contiguous organ; (3) Isolation of Mycobacterium tuberculosis or histopathological identification of caseating granulomas from one organ and radiographic finding of miliary lung lesions.[2]

In this case, the diagnosis of smear-negative pulmonary TB was confirmed by a bronchoalveolar lavage (BAL) specimen sent for GeneXpert MTB/RIF, which revealed low-level Mycobacterium tuberculosis with no rifampicin resistance.

Given the patient's persistent back pain, tuberculous spondylodiscitis should have been considered earlier in the diagnostic process. In any patient presenting with abnormal chest X-ray findings and back pain, clinicians should maintain a high index of suspicion for spinal tuberculosis, as early diagnosis and intervention are critical to prevent severe complications such as vertebral collapse, neurological deficits, or permanent spinal deformity.[10] Furthermore, establishing a diagnosis of spinal TB has significant implications for management. International guidelines recommend 6-9 months of treatment (2EHRZ/4-7HR) for bone and joint tuberculosis.[1] Extrapulmonary TB, including musculoskeletal involvement, can be overlooked if clinicians focus solely on pulmonary findings. Given that imaging plays a crucial role in diagnosis, prompt MRI should be performed in suspected cases to confirm spinal involvement and initiate appropriate treatment without delay. MTB typically affects the thoracic spine.[8] Radiographs often show anterior vertebral body destruction, loss of disk height, end plate erosion, vertebral geodes, bone sequestration, sclerosis, and paravertebral masses.[8] Imaging, in this case, revealed thoracolumbar involvement with T8 vertebral collapse, skip lesions, and a paravertebral abscess consistent with tuberculous spondylodiscitis. A previous study identified three key indicators of TB spine: subligamentous spread, vertebral collapse over 50%, and large thin-wall abscess, with subligamentous spread having the highest predictive value (97.5%). MRI is, therefore one of the best diagnostic methods for TB spondylodiscitis.[9]

In this case, the diagnosis of DTB was obtained after about 10 weeks of presentations. The delay in reaching the final diagnosis in this case highlights the complexities involved, including the need for more advanced investigations such as bronchoscopy and spine MRI when standard tests yield negative results.

Following the diagnosis, the patient was initiated on anti-tuberculosis. Treatment for DTB depends on the affected organ/system,[1] which in this case is musculoskeletal. Thus, the patient was planned for a 2-month intensive phase with tablet Akurit 4, 3 tablets daily, followed by a 4 -month maintenance phase with tablet isoniazid and rifampicin.

Despite advancements in supportive care, DTB mortality remains high, between 25% to 30%.[2] Predictors of poor outcomes include meningismus, liver cirrhosis, variations in white blood cell counts, older age, pre-existing health conditions, altered mental status, and persistent night sweats.[2] In this case, the elderly patient has multiple pre-existing health conditions, increasing the risk of poor outcomes. The spine was involved in our case, making early diagnosis and prompt treatment crucial to avoid complications.

CONCLUSION

Greater awareness can improve clinical suspicion and prompt the timely use of imaging and microbiological or histopathological tests. Immunosuppressed patients with prolonged fever, weight loss, and abnormal blood indices should be evaluated for DTB to enable prompt management and reduce mortality risk.

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CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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