VIA MEDICA

CASE REPORT

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Pott disease: when lumbar pain is not innocent

Abstract

Tuberculosis is a mycobacterial infection that can affect the lungs as well as other organs. The involvement of the spine, although rare, can have major consequences if not diagnosed and treated in a timely and effective manner, such as residual deformities and neurological deficits. On occasion, the atypical presentation of tuberculous spondylitis may cause a delay in treatment and therefore lead to less favorable outcomes. In this article, we present a rare case of progressed tuberculous infection involving the respiratory and musculoskeletal system in a 36-year-old patient whose main complaints were non-specific and mild, and started only two weeks before his diagnosis, despite the advanced disease.

Key words: Pott disease, tuberculous spondylitis, extrathoracic tuberculosis, lumbar pain, tuberculosis

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Introduction

Tuberculosis is a common disease worldwide, although the vast majority of cases are reported in developing countries [1]. Tuberculous spondylitis, also known as Pott disease, is rare, as only 1% of all tuberculosis cases has involvement of the spinal column [2]. However, tuberculous spondylitis is considered to be the most dangerous type of skeletal tuberculosis, as it can lead to deformity of the spine and cause neurological deficits or pulmonary insufficiency. Although tuberculous spondylitis is one of the oldest demonstrated diseases of humankind [3], it can easily be overlooked as the symptoms are often non-specific and insidious.

Case report

A 36-year-old South Asian male with a body mass index of 25.3 kg/m^2, presented with a persistent low-grade fever, weight loss, mild lumbar pain and cough over a period of approximately 2 weeks. He was a non-smoker, without known pathological medical condition. On clinical examination, the patient had normal blood pressure (120/65 mm Hg), a temperature of 37.4°C, mild tachycardia (102 beats/min), normal respiratory rate (14 breaths/min) and normal oxygen saturation. The lung sounds were normal on chest auscultation. The clinical examination of the central nervous system, abdomen, cardiovascular system, and lymph nodes was also without pathological findings.

Routine laboratory examinations results were insignificant. The white blood cell count was normal (8560 cells/mL, 67% of neutrophils, 22.3% of lymphocytes). His C-reactive protein was 2.2 mg/L. The urinalysis and urine culture for common pathogens were also normal. However, the chest radiograph on presentation showed diffuse alveolar infiltrates bilaterally, with an area of more dense consolidation and a possible cavitation in the right upper lung zone, as well as a small to medium size pleural effusion of the left lung (Figure 1A).

In order to clarify the exact nature of the radiological findings, a chest computed tomography (CT) was considered appropriate. It detected areas of consolidation in both lungs, multiple centri-

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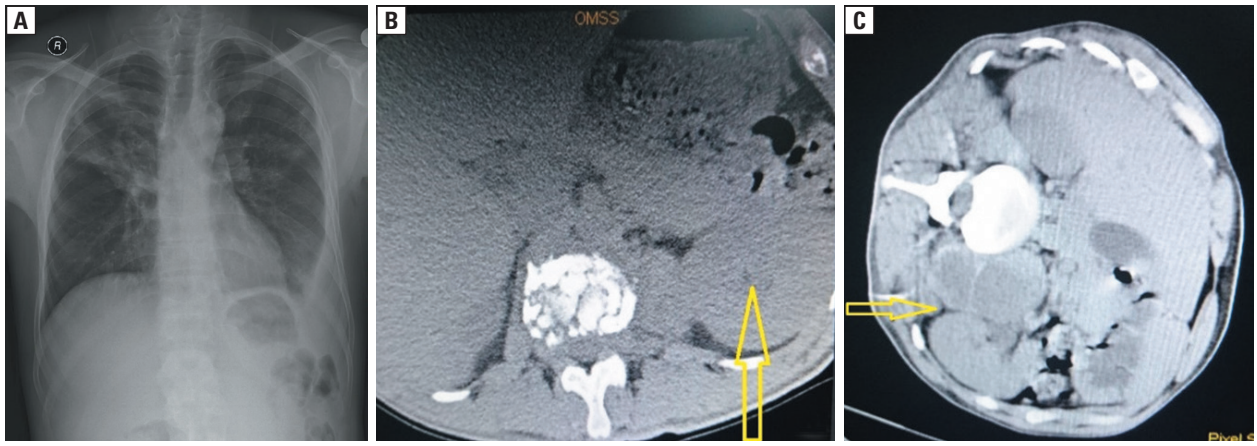

Figure 1. A. Chest radiograph on presentation: posteroanterior view; **B.** lumbar region computed tomography (CT); **C.** CT-guided abscess drainage

Table 1. Differential diagnosis of cavitary lung disease

Infectious diseases	Neoplastic diseases	Autoimmune and interstitial iiseases
Pulmonary abscess	Malignancies	Granulomatosis with polyangiitis
Septic emboli	Langerhans cell histiocytosis (LCH)	Rheumatic nodules
Mycobacterium tuberculosis infection	Lymphangioleiomyomatosis (LAM)	Sarcoidosis
Non-tuberculous mycobacterial infection (NTMB)		Lymphocytic interstitial pneumonia (LIP)
Aspergillosis		
Pneumocystis jirovecii infection		

lobular nodules with a tree-in-bud pattern, a large cavitation of 5.7 cm in diameter in the right upper lobe, a left-sided pleural effusion and enlarged mediastinal and axillar lymph nodes bilaterally.

The spectrum of differential diagnosis included other conditions that can cause cavitary lesions of the lung (Table 1) [4].

At the same time, a lumbar region CT was performed, given the patient's persistent lumbar pain (Figure 1B). It revealed multiple fractures in the lumbar 1 and 2 vertebrae and a stenosis of the intervertebral disc space with a destruction of the disc. No signs of spinal cord pressure were noted. A large cold psoas abscess was also present (6.3 × 4.2 × 8.5 cm).

Further laboratory evaluation was ordered. Sputum cultures for common pathogens were non-diagnostic. The tuberculin skin test (TST) was positive (15 mm). Sputum samples were collected for a full laboratory investigation for tuberculosis (TB), including acid-fast bacilli (AFB) smear, nucleic acid amplification testing and AFB cultures. Furthermore, the pleural effusion was investigated by thoracentesis. The fluid was an exudate with a clear predominance of lymphocytes (100%), and an adenosine deaminase (ADA) value of 59 U/mL, however, the pleural fluid sample did not provide bacteriological confirmation of tuberculosis. The sputum testing resulted in the confirmation of mycobacterium tuberculosis complex infection, with susceptibility to rifampicin (R) and isoniazid (H). The psoas abscess was drained under CT guidance (Figure C) and samples were sent for cytology, cultures for common pathogens, and AFB cultures. The results were also in favor of the TB infection. Testing for human immunodeficiency virus (HIV) infection was negative.

Complementary imaging of the lumbar region with MRI was performed so that more details could be obtained about the exact extent of the musculoskeletal involvement. In addition to the mentioned CT findings, a paravertebral abscess was discovered, in proximity to Lumbar 1 and 2 vertebrae.

The patient suffered from drug-susceptible TB that involved both the respiratory and musculoskeletal system. He had been receiving initially isoniazid, rifampicin, ethambutol (E), pyrazinamide (Z) for 2 months, and then contin-

Table 2. Notifications of tuberculosis cases (all forms and extrapulmonary, new and relapse cases) globally and for World Health Organization regions 2018 [8]

	Total notified	New and relapse	Extrapulmonary new and relapse [%]
Africa	1 402 743	1 372 748	15%
The Americas	248 135	233 549	15%
Eastern Mediterranean	537 761	526 379	24%
Europe	260 331	218 090	16%
South-East Asia	3 362 783	3 183 255	17%
Western Pacific	1 441 363	1 416 729	8%
Global	**7 253 116**	**6 950 750**	**15%**

ued treatment with HR. The total duration of the chemotherapy was 18 months. No surgical treatment was required, however, a lumbar support brace was used. The patient showed a slow but steady recovery over a period of several months after treatment.

Discussion

With regard to the extrathoracic TB, it is estimated that 15% of all TB cases globally concern extrapulmonary forms [8]. HIV infection plays a key role in the increase of the extrathoracic incidence (Table 2) [1, 5].

Tuberculous spondylitis can present with non-specific symptoms such as malaise, weight loss and night sweats. The spine can be painful on movement, or during sleep. Cold abscesses are also frequently present.

The goals of treatment include the eradication of the mycobacteria, the stabilization of the spine, the prevention and/or correction of deformities and neurological deficits. Chemotherapy remains the mainstay of management. Early recognition of the disease and beginning of appropriate treatment is crucial for the prevention of residual deformities.

There are several approaches to the anti-tubercular treatment. The use of non-steroidal anti-inflammatory drugs is very limited, although in selected cases with early disease, they may prevent lesions caused by synovial inflammation. Most protocols include 2 months of HREZ followed by a continuation phase, and the duration of treatment is variable between 6, 9, 12, and 18 months [1, 7]. The 2016 Index-TB guidelines on extrapulmonary tuberculosis in India of the World Health Organization Country Office for India recommend 2 months of HREZ and a continuation phase of 10 months that can be extended up to 18 months of treatment in total [9]. On the other hand, the United Kingdom NICE tuberculosis guidelines of 2016 suggest that patients with spinal TB should be treated with a six-month regimen, unless there is direct spinal cord impairment, in which case the regimen should be prolonged to 12 months. In these patients, surgical debridement has not been shown to offer a clinical benefit over medical treatment, unless there is a poor response to medical treatment with persistence of infection, instability of the spine or evidence of spinal cord compression [10]. Due to the noteworthy differences in the duration of the treatment protocols, clinical judgement and expert opinion are irreplaceable for the management of these patients.

Concerning the cases where chemotherapy alone is not sufficient, as for patients with cold abscesses, paraplegia, or spinal deformity, various surgical procedures are used as an adjunct to the anti-tuberculous medical regimens. Abscess drainage may be performed in selected patients, although it is not recommended for routine practice as abscesses usually resolve with chemotherapy alone. Focal debridement is also rarely indicated, because it does not improve the outcome. Concerning tuberculous scoliosis, if surgical treatment is considered, posterior or anterior stabilization after anterior corrective radical surgery is preferable. Corrective and stabilizing spinal surgery is the method of choice for active progressive and nonrigid kyphosis, although surgery is not recommended in early disease, in which case conservative treatment alone is sufficient.

Paraplegia is another major concern, and its main causes are the compression of the spinal cord by an abscess or granulation tissue and bony canal stenosis of the deformed spine. Outcomes depend on several factors, including the patient's performance status and the severity of deformity

(for example kyphosis of over 60°C has a very poor prognosis). Decompression surgery is indicated in acute-onset rapidly progressive paralysis, as well as in the case of peridural fibrosis with chronic compression within the narrow canal. Neurological recovery seems to be poorer in adults than in children [1].

Conclusions

Tuberculous spondylitis is an uncommon but potentially lethal manifestation of extrathoracic tuberculosis. A thorough clinical evaluation is required, as the disease can present with non-specific symptoms. The treatment should aim at the eradication of mycobacteria, as well as the prevention and correction of residual spinal deformities and neurological deficits. Chemotherapy of variable duration up to 18 months is currently the cornerstone of management, however, surgical interventions may be indicated in selected patients.

Conflict of interest

None declared.

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