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CASE REPORT

Pott's Disease Resulting in Complete Cervical Vertebral Destruction

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Skeletal tuberculosis, otherwise known as Pott's disease, has been recognized for centuries. Although typically diagnosed in citizens from countries with endemic tuberculosis, long-term workers in these regions, such as military deployees, can also acquire the disease. We present a case report of a military veteran presenting with neck pain and initially diagnosed with cervical disc disease. The patient's pain progressed to the point of developing paresthesias in his bilateral upper extremities. Eventually, cervical spine radiographs were obtained that revealed complete cervical vertebral body destruction from spinal tuberculosis. Epidemiology, diagnosis, and treatment of the disorder are discussed.

Keywords: infectious disease, travel medicine, global health

Introduction

Spinal tuberculosis is a form of skeletal tuberculosis and most commonly affects the lower thoracic or upper lumbar region of the spine. Spinal tuberculosis is an increasingly common manifestation of extrapulmonary tuberculosis, now accounting for nearly half of all cases of musculoskeletal tuberculosis.[1] Named after the British surgeon Percival Pott, the classic manifestations of the disease—destruction of the disk space and vertebral bodies and progressive kyphosis—eventually came to be known as Pott's disease. It is one of the oldest diseases known to man and has been traced back to Egyptian mummies from the 4th century BC.[1]

The exact incidence and prevalence of Pott's disease are not known due to inconsistent reporting. Of those patients affected by skeletal forms of extrapulmonary tuberculosis, the spine is the most commonly affected site, followed by the hip and knee.[1] Recognition and diagnosis of the disease is important because it commonly affects young adults in their most productive working years. There have been case reports of multidrug resistant spinal tuberculosis, although it is fortunately not yet common. Within the developed world, Pott's disease is still relatively uncommon and is usually diagnosed in those who have immigrated from, or have spent considerable time in, endemic countries.[2]

Traditionally considered a "disease of poverty," the risk of developing spinal tuberculosis has increased since the advent of the HIV era, with over 90% of all new tuberculosis cases concentrated in sub-Saharan African and Southeast Asia.[3] Despite the increasing prevalence of Pott's disease, delays in diagnosis are frequent due to missed diagnosis. This is unfortunate because early diagnosis and treatment are crucial in preventing long-term morbidity, deformity, and disability from the disease.[3]

Case Report

Our patient was a 36-year-old African-American male military veteran in good health until November 2015, when he woke suddenly one morning with a sharp pain in his neck. He initially attributed the pain to poor posture while sleeping and took over-the-counter analgesics for pain relief. However, over the next several days his pain did not resolve, and he presented to his local Veterans Affairs medical center. Neck radiographs were performed and reportedly revealed only degenerative cervical disease. The patient was advised to use nonsteroidal anti-inflammatory medications and muscle relaxers and to return if his pain did not remit.

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He continued to have neck pain and returned to the Veterans Affairs medical center on several more occasions. He was eventually referred for physical therapy. His pain continued despite these treatments, and he gradually began to develop neck stiffness that was diagnosed as muscle spasm. In the following days, the patient's pain began to spread to his shoulders and upper extremities with a concomitant sensation of cold in his upper extremities and paresthesias bilaterally in his fingers in a "stocking-glove" distribution.

With the onset of these new symptoms, the patient presented to a local urgent care center. By this point, the patient was describing the sensation of an inability to flex or extend his neck with the unusual complaint that he felt like his head might "fall off." Cervical radiographs were repeated at this visit and revealed complete collapse of his C6 vertebra (Figure 1). He was placed in a cervical collar for neurologic protection and transferred to the emergency department at our local hospital. In the emergency department, magnetic resonance imaging revealed near-complete destruction of the C6 vertebral body with anterior and posterior extrusion of the C6 remnants as well as dural thickening and enhancement of the spinal cord centered at the C6 level with subsequent spinal cord compression (Figure 2).

The patient was immediately admitted and underwent emergent anterior cervical corpectomies of C5 and C6 with subsequent fusion of the vertebrae. Specimens of bone were collected and sent for culture and pathology.

Figure 1. Cervical radiographs revealing complete compression of the C6 vertebral body with C5 vertebral posterior tilting and impingement upon the spinal canal.

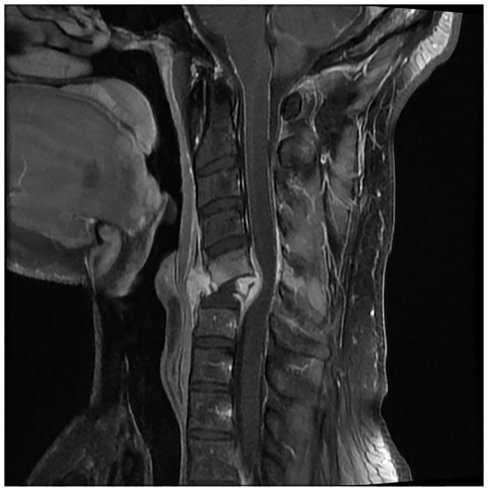

Figure 2. Cervical MRI revealing destruction of the C6 vertebral body with extrusion of the remnants both anteriorly and posteriorly and C6 level spinal cord compression.

The initial surgical specimens revealed chronic lymphohistiocytic inflammation with giant cells and granuloma formation, suggestive of mycobacterial tubercular infection. Further testing with QuantiFERON gold assay returned positive while the patient was still admitted, and the positive assay plus typical pathologic findings resulted in the patient being diagnosed with suspected tuberculosis of the spine. He was started on a 4-drug therapeutic regimen consisting of isoniazid, rifampin, pyrazinamide, and ethambutol along with vitamin B6. Because of his continued improvement, he was discharged home on this regimen and followed up with an infectious disease specialist. A purified protein derivative test resulted as positive at 17 mm of induration. Roughly 6 weeks after his hospital admission, the patient's skeletal acid-fast bacilli (AFB) culture grew mycobacterium tuberculosis resistant only to isoniazid. This confirmed the diagnosis of Pott's disease, and he was continued on 4-drug therapy, with moxifloxacin as an alternative to the initial isoniazid. Several weeks after starting the 4-drug therapy, the patient reported right upper quadrant pain and rash and was found to have an elevation of his liver enzymes. His medications were held until his liver enzymes returned to normal, and he was restarted on ethambutol, rifampin, and moxifloxicin to complete a total of 39 weeks of therapy.

Discussion

Our patient was a middle-aged man who had performed multiple tours of military duty in the Middle East and had had several normal purified protein derivatives before his diagnosis of Pott's disease. He had reported several months of ongoing neck pain that progressed to

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