Sacral Tuberculosis in the Elderly: An Unusual Cause of Refractory Low Back Pain

Tuberculose Sacral em Idosos: Causa Incomum de Dor Lombar Refrataria

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ABSTRACT

Vertebral Tuberculosis represents about 50% of all osseous compromised in tuberculosis. However, sacral tuberculosis is rare even in developing countries. **Objective**: Describe the importance of the diagnosis of vertebral tuberculosis in the sacral region. **Methods**: Case report of a 67 year-old woman who presented with low back pain for one year. **Results**: Initial radiological evaluation was compatible with a lytic lesion at the first sacral (S1) vertebrae on the computed tomography scan. Open surgical biopsy was performed, but it was inconclusive. A second procedure was performed and Mycobacterium tuberculosis bacilli were visualized on microbiological purulent fluid analysis. A complete improvement of pain was obtained after introduction of anti-tuberculous drugs. **Conclusion**: Although rare, sacral tuberculosis should be considered as a differential diagnosis of low back pain in endemic regions.

Key words: Tuberculosis; Spine tuberculosis; Sacral tuberculosis; Low back pain

INTRODUCTION

Tuberculosis (TB) is endemic developing, presenting high rates of morbidity and mortality. Involvement of bones and joints is reported in 1 to 3% of cases. Vertebral tuberculosis, the most common form of osseous compromise, is responsible for approximately 50% of cases that present with bone destruction. The lower thoracic and upper lumbar spines are the usual affected regions in such patients. Isolated sacral tuberculosis, however, is a rare condition, with scant reports in medical literature. Medical visits in many countries are associated with high financial costs and patient disability, being responsible for approximately 1% of all chronic disabled patients in some countries. Different etiologies are associated with LBP, including trauma, metabolic diseases, congenital defects, neoplasms, degenerative disease and infections. In the elderly population, spinal degenerative changes and tumors are usual causes of back pain.

We report a case of refractory low back pain secondary to isolated sacral tuberculosis and present a brief review of the literature concerning to the diagnosis and management of vertebral tuberculosis.
A 67 year-old woman, presented to Spine Clinics complaining of bilateral leg pain, with dysesthesias and axial LBP in the last year. She also complained of progressive pain intensity, constipation and some walking difficulty in the last three months, restricting herself to bed. No systemic symptoms were noted, such as weight loss, night fever, or sweating. Hypertension was the only positive condition on her past medical history.

On physical examination, the presence of tender points at the fifth lumbar and first sacral (L5/S1) spinous process were clearly evident, as well as a mild impairment of muscle strength on the left plantar flexion and bilateral hypoesthesia on the S1 dermatomes. There were normal, symmetrical, jerky movements and flexor plantar reflex bilaterally.

Complementary studies were performed. On CT Scan, a lytic fracture at the anterior S1 vertebral body was observed (Figure 1). Laboratorial evaluation demonstrated an increased erythrocyte sedimentation rate (ESR) (40 mm/s; normal range: <15 mm/s). A lumbar-sacral Magnetic Resonance (Figure 2) was performed, demonstrating the presence of a hypointense heterogeneous signal at the L5/S1 intervertebral level and S1 vertebral body on T1-weighted images and hyperintense and hypointense extradural signal changes on T2 weighted images, suggesting L5-S1 disc destruction, with a diffuse bulging at the L5-S1 disc space with nerve root compressions and S1 vertebral body destruction.

An open surgical biopsy was performed, trying to elucidate the diagnosis. The procedure included a L5/S1 laminectomy and removal of purulent material at the L5/S1 intervertebral level and posterior portion of the S1 vertebral body. The histopathological analysis demonstrated the presence of non-specific inflammatory process, with negative microbiological culture. Empirical antibiotic therapy was started with Ciprofloxacin 400 mg intravenous twice-daily for twenty one days, considering the possibility of Staphylococcus aureus or gram-negative bacterial infection as the cause of pain. However, the patient did not have any clinical improvement of symptoms. A second MRI was then performed, with some worsening of the initial MRI with the presence of paravertebral extension of the lesion (Figure 3).

Therefore, another open surgical biopsy was performed. The patient underwent a wide exposure of the L5 and S1 vertebral levels, with removal of a large amount of purulent fluid and extensive debridement at the intervertebral space, releasing the bilateral L5 nerve roots. The bacteriological exam (alcohol acid resistant bacilli) was positive and the mycobacterial culture demonstrated the growth of tuberculosis bacilli. The patient was then submitted to medical therapy based on the use of Rifampicine 600mg per day, Isoniazid 300mg per day, Pyrazinamide 2g per day and Ethambutol 1200 mg per day for two months followed for Rifampicine and Isoniazid at the same doses for 4 months (current recommended chemotherapy for tuberculosis in Brazil, according to Brazilian Health Agencies). Three weeks after surgery and introduction of chemotherapy, the patient presented excellent clinical improvement, being able to walk without assistance, referring only rare episodes of transitory mild lumbar pain after walking.
Figure 2A: Lumbosacral Sagittal T1 weighted MRI demonstrating the destruction of the L5/S1 intervertebral space and hypointense signal changes at the level of S1 vertebral body.

Figure 2B: Lumbosacral Sagittal T2 weighted MRI demonstrating the destruction of the L5/S1 intervertebral space and hyperintense signal changes at the level of S1 vertebral body.

Figure 3A: Lumbosacral Sagittal T1 weighted MRI performed after the first open biopsy procedure. Presence of hypointense signal changes at the level of S1 vertebral body with no improvements after the first surgical procedure.

Figure 3B: Lumbosacral axial T1 weighted MRI performed after the first open biopsy procedure. Hypointense signal changes at the level of S1 vertebral body and presence of parasagittal extension of the lesion with no improvements after the first surgical procedure.
Over the past years, the number of registered cases of tuberculosis has significantly increased, probably due to an increased number of immunocompromised patients and the development of bacterial resistance to ordinary treatments. With such scenario, atypical presentations of tuberculosis, including spinal tuberculosis, tend to become more frequent in the clinical practice of spinal surgeons.

The diagnosis of sacral TB is such a challenge for physicians, radiologists and spine surgeons. Clinical assessment of patients with sacral lesions should start with a careful clinical history analysis and a detailed physical examination. The clinical presentation can range according to age, prior health status, site of infection, disease stage and the absence or presence of abscesses, sinus tracts or neurological compression. Systemic symptoms such as weight loss, fever and malaise usually precede spinal involvement for several months. When the spine is involved, the most common presentation is local pain with an insidious onset. Atypical osseous TB lesions of the spine can involve the neural arch, sparing the vertebral body and discs (also known as “posterior Pott”). Also, “skip” lesions are commonly found, defined by the presence of two or more vertebral lesions that spared a vertebral body between them. Finally, atypical spinal tuberculosis can present as solid tumor-like masses with no evidence of abscess formation. The most common risk factors associated with atypical presentation are diabetes and the presence of immunological deficits.

On neuroradiological evaluation, spinal CT scans can reveal destructive lesions in the sacrum, with some extension to soft tissues in the pelvis or into the spinal canal. The sacrum cortex may be diffusely destroyed secondary to the lesion expansion. On MRI, the sacrum usually has a severe replacement of bone marrow, presenting with a low signal intensity mass on T1-weighted images patients. All affected segments showed abnormal hypointense signal on bone marrow region on T1-weighted images with hyperintense signal on T2-weighted images on spin echo sequences.

Once the radiological and laboratorial examinations are not able to offer a conclusive diagnosis of spinal tuberculosis, tissue samples are almost mandatory in most of the cases to avoid mistreatment of spinal diseases. The diagnosis is made based on the presence of positive cultures for TB and/or the visualization of alcohol acid resistant bacilli analysis, such as in our described case.

Medical treatment is sufficient to treat most of the cases of spinal TB. In Brazil, the treatment of spinal tuberculosis is based on Rifampicine, Isoniazid, Pyrazinamide and Ethambutol. Surgical treatment must be considered in cases of uncertain diagnosis, spinal instability and/or patients presenting with important, progressive neurological symptoms. In the reported case, surgery was chosen because of uncertainty regarding the diagnosis and also by immediate nerve roots decompressions.

This case illustrated the importance of considering the spinal tuberculosis as a differential diagnosis of low back pain in endemic countries.

Sacral tuberculosis is a rare disease, unusually responsible for refractory low back pain in the elderly. It is more common in developing countries, where the prevalence of Tuberculosis is high, however it must be considered in developed nations, due to the recent growth of the number of patients affected in such areas. The diagnoses suspicion is essential thus diagnostic work up and treatment might be performed as soon as possible. In cases of uncertain diagnosis or progressive significant neurological symptoms, surgical treatment must be considered, including decompression of the nerve roots affected and extensive debulking of the lesion. Chemotherapy must be performed in every case, according to the recommendation of local health agencies.

REFERENCES


Comments

Calvalcante et al. reported an unusual case of spinal tuberculosis involving the sacrum. The first point to be considered is the need of investigation of low back pain in the elderly; it is quite known that low back pain requires investigation in a few situations (the so called red flags), and the elderly is among these1. Second, the epidemiology of tuberculosis in some countries (as Brazil) shall lead the physician to a high level of suspicion when an inflammatory lesion affects the spine. Although more common in the thoracic spine, all segments of the spine can be affected. When one first biopsy is not conclusive, attempts to get a confirmation is strongly advised, since medical treatment is highly effective even in junctional regions. We congratulate the authors by the result accomplished and this interesting case report.

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