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Case Report

Vertebral Osteomyelitis and Associated Stigma of Potts Disease; A Challenge to Diagnosis and Management in Developing World

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ABSTRACT

Our case was a 68-year-old male, known as hypertensive and prediabetic, who presented to the clinic with a two-week history of backache. The general physical and systemic examination was unremarkable except for tenderness at the L2-L3 region of the lower back. Laboratory workup showed markedly increased inflammatory markers along with decreased hemoglobin levels. A contrast-enhanced Magnetic resonance imaging of the lumbosacral spine was suggestive of either metastatic or infective etiology involving L2-L3 vertebral bodies. The possibility of metastatic disease was ruled out, and a Percutaneous CT-guided aspiration biopsy was performed. The culture of the discharge revealed the growth of streptococcus. Conservative management was advised and patient was started on IV antibiotics. Soon after, the patient began manifesting signs of deterioration, and contrast-enhanced Magnetic resonance imaging was repeated, suggestive of disease progression. Laminectomy, spinal fixation, and decompression surgery were performed immediately, and the patient was shifted to oral antibiotics postoperatively. Physiotherapy was advised, and the patient recovered without any complications.

Keywords: Laminectomy, Potts disease, Vertebral osteomyelitis.

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INTRODUCTION

Vertebral osteomyelitis has an annual incidence of approximately 3 to 5 % of all cases of osteomyelitis.[1] Risk factors include men aged more than fifty, diabetes mellitus, IV drug abuse, endocarditis, degenerative spine disease, prior spinal surgery, corticosteroid therapy, and other immunocompromised states. Causative organisms include staphylococcus aureus, coagulase-negative staphylococci, enteric gram-negative bacteria, and pseudomonas species in the majority of cases: mycobacterium tuberculosis and Brucella sp in endemic areas as well as immunocompromised patients.[2] Because of the increase in multidrug-resistant strains and HIV cases, tuberculosis of the spine, also known as Potts disease, is increasingly prevalent in developing countries.

Vertebral osteomyelitis commonly presents with pain and tenderness over the lower back. Fever is usually a non-specific finding with raised ESR and CRP levels. MRI is the preferred imaging modality for diagnosis and evaluation. Percutaneous aspiration or biopsy of the affected area and bone cultures are the gold standard for confirmatory diagnosis.[3] Medical management consists of antibiotic therapy in uncomplicated cases. Surgical management is usually reserved for cases where complications like focal neurologic deficits, epidural or paravertebral abscess, or cord compression occur.[4] Early diagnosis and treatment can help prevent long-term morbidity and mortality.[5]

Here, we present one such case in which a multidisciplinary team involving a neurologist, interventional radiologist, pathologist, and spinal surgeon worked together to diagnose and treat the cause of severe, debilitating lower back pain.

CASE REPORT

Our patient, a 68-year-old male known case of hypertension and pre-diabetes managed on ACEi and lifestyle modification, respectively, presented to the clinic with a two-week history of backache. The pain was sharp, localized to the L2-L3 region, and unrelieved by over-the-counter analgesics. Later, the pain started radiating towards the front of the abdomen, and numbness of the lower limb in L2 territory was reported. Associated symptoms included decreased appetite, metallic taste, and undocumented weight loss.

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On arrival, the patient was vitally stable. The general physical and systemic examination was unremarkable except for tenderness at the L2-L3 region of the lower back. Laboratory workup revealed Hemoglobin of 9.8 g/dl, ESR 112 mm, and CRP 192 mg/l. X-ray of the lumbosacral spine was unremarkable. The patient next underwent a contrast-enhanced MRI of the lumbosacral spine. The scan revealed abnormal T2W/STIR hyperintense signal intensity areas involving LV2-LV3 vertebral bodies extending bilaterally into pre-vertebral, para-spinal regions and psoas muscles. Similar hyperintense signals on T2W and STIR sequences were also noted, extending into posterior elements of the left side. Associated enlarged para-aortic and para-caval lymph nodes were also appreciated.

Given the above, metastatic disease and infective etiology were considered as possible differentials. Discogenic lesions of LV3-LV4 and LV4-LV5 were seen, causing compression of bilateral transiting nerve roots and Degenerative lumbar spondylosis. Scans are shown in Figure 1A.

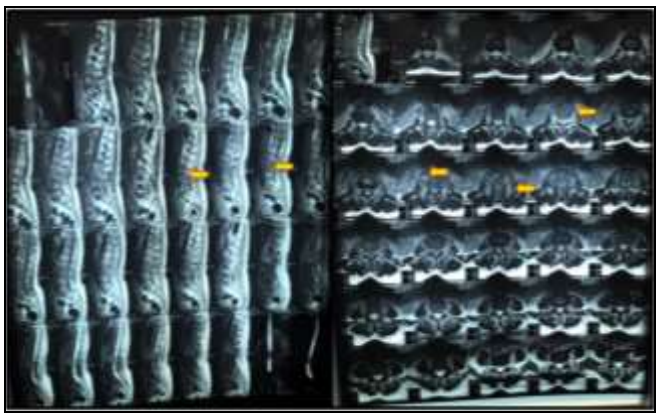

Figure-1A: CEMRI of Lumbar Spine Showing Hyper Intense Signal Areas Involving L2-L3 Vertebral Bodies Extending Into Prevertebral, Para Spina Region and Psoas Muscle Bilaterally

After consultation with Neurology and Neurosurgery, the patient was screened for possible metastatic disease. PSA antigen, CEA levels, alpha-fetoprotein levels, and CA19-9 were negative. Multiple Myeloma workups were also insignificant. Therefore, metastatic disease was ruled out. Considering the prevalence of tuberculosis in Southeast Asia, the patient was immediately started on anti-tubercular treatment (ATT) on the advice of a neurologist. A percutaneous CT-guided aspiration biopsy was done next, and it revealed pustular discharge. The culture of the discharge revealed the growth of streptococcus species, which was sensitive to Linezolid and Moxifloxacin. IV antibiotics were also initiated for 6 – 8 weeks based on the culture and sensitivity results. Soon after, the patient started having difficulty in maintaining posture along with signs of spinal instability. As a result, dexamethasone was added to already existing treatment to control inflammation and disease progression. Two weeks later, taste and appetite were improved, and ESR and CRP levels came down to 30mm and 9mg/l, respectively. However, spinal instability worsened. MRI was repeated after four weeks, compared with the previous scashowingwed regression of lympha-denopathy and interval progression of vertebral changes. A myelogram was also done, which was again suggestive of infective etiology. Keeping in view the disease progression and deterioration in the patient's condition, neurosurgery was consulted. Laminectomy, spinal fixation, and decompression surgery were planned immediately. 02 pints of blood were transfused postoperatively as HB levels pre-surgery were 10.5 g/dl. A completely dry-eared disc was removed during surgery with no evidence of any pus. The biopsy came out every day with no signs of malignancy or tuberculosis. Bone cultures were also negative and revealed no growth. TB spine workup was repeated and came out negative after ATT was discontinued. ESR levels normalized. Images are shown in Figure 1B.

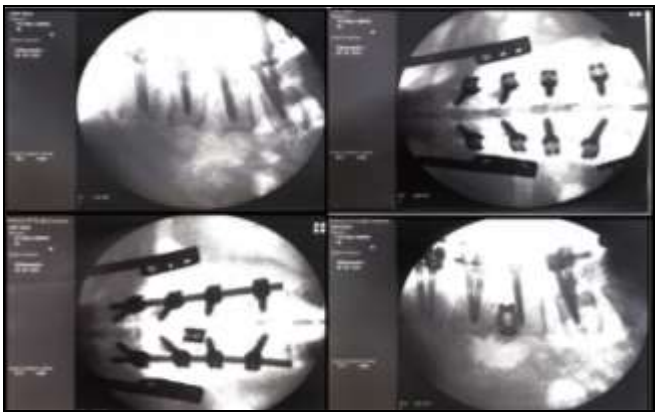

Figure-1B: Per Op Fluoroscopy Image Showing Posterior Fixation of Spine by Pedicle Screws. Spinal Decompression Achieved via Laminectomy

ATT and antibiotics (Linezolid and Moxifloxacin HCl) were continued for 10 days postoperatively, after which the patient was shifted onto oral Clindamycin 900 mg eight hourly for 6 weeks. The patient tolerated it well, and recovery was smooth. Four months

postoperatively, the patient had normal posture, could walk freely with normal gait, climb stairs, and bend over without any distress.

DISCUSSION

Pain in the lower back can be due to various reasons ranging from something as benign as a muscle spasm or a fracture to an infectious cause or metastatic disease.[6] In our case, we first treated the patient's back pain as a muscle spasm. However, it was not relieved with NSAIDs and muscle relaxants. Instead, it worsened progressively when we decided to get imaging done. The possibility of vertebral fracture was excluded from history and X-rays. However, MRI scans were suggestive of an infectious etiology. Considering the prevalence of Tuberculosis in Southeast Asia, the patient was immediately started on ATT.[7] CT-guided biopsy revealed pustular discharge, further supporting the infection probability. Old age, dental manipulation procedures, history of hemorrhoids, and the patient falling in the prediabetic category with HbA1c levels of 6.5 were prominent risk factors in our patient for infections due to streptococcal species.[8] IV antibiotics sensitive to the causative microorganism were initiated promptly, and surgery was done because of the progression of spinal instability. The patient's recovery was smooth and uneventful.

The choice of investigations and subsequent timely diagnosis are important for effective patient treatment and prognosis.[9] In developing countries like ours, discitis is commonly thought of as Potts disease before other infectious causes, which is why ATT was empirically initiated in our patient.

However, considering our patients' risk factors, other causes could not be ignored. Therefore, all the probable causes were investigated and the patient was treated accordingly.[10]

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Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

MHA & UZF: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

MSS & KMB: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

BS & ABM: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

REFERENCES

1. Issa K, Diebo BG, Faloon M, Naziri Q, Pourtaheri S, Paulino CB, et al. The Epidemiology of Vertebral Osteomyelitis in the United States From 1998 to 2013. Clin Spine Surg 2018; 31(2): E102-E108. https://doi.org/10.1097/BSD.0000000000000597
2. Berbari EF, Kanj SS, Kowalski TJ, Darouiche RO, Widmer AF, Schmitt SK, et al. Infectious Diseases Society of America. 2015 Infectious Diseases Society of America (IDSA) Clinical Practice Guidelines for the Diagnosis and Treatment of Native Vertebral Osteomyelitis in Adults. Clin Infect Dis 2015 ;61(6): e26-46. https://doi.org/10.1093/cid/civ482
3. Fritz JM, McDonald JR. Osteomyelitis: approach to diagnosis and treatment. Phys Sportsmed 2008; 36(1): nihpa116823. https://doi.org/10.3810/psm.2008.12.11
4. Hadjipavlou AG, Mader JT, Necessary JT, Muffoletto AJ. Hematogenous pyogenic spinal infections and their surgical management. Spine 2000; 25(13): 1668-1679. https://doi.org/10.1097/00007632-200007010-00010
5. Jehangir F, Hashmi R, Lateef TKKA, Zubair M, Tasleem A. Prevalence and Outcomes of Tuberculosis Treatment in a Primary Care Center in Karachi, Pakistan. Arch Med 2020; 12(6): 36.
6. Chiodo AE, Bhat SN, Van Harrison R. Low Back Pain. Ann Arbor (MI): Michigan Medicine University of Michigan; 2020.
7. Garg B, Mehta N, Mukherjee RN, Swamy AM, Siamwala BS, Malik G, et . Epidemiological Insights from 1,652 Patients with Spinal Tuberculosis Managed at a Single Center: A Retrospective Review of 5-Year Data. Asian Spine J 2022; 16(2): 162-172. https://doi.org/10.31616/asj.2021.0137
8. Courjon J, Lemaignen A, Ghout I, Therby A, Belmatoug N, Dinh A,et al; DTS (Duration of Treatment for Spondylodiscitis) study group. Pyogenic vertebral osteomyelitis of the elderly: Characteristics and outcomes. PLoS One 2017; 12(12): e0188470. https://doi.org/10.1371/journal.pone.0188470
9. Sohail MT, Rana RE, Hanif M. Tuberculosis of Spine. J Pak Orthopaed Assoc 2017; 29(03): 70–79.
10. Gregori F, Grasso G, Iaiani G, Marotta N, Torregrossa F, Landi A. Treatment algorithm for spontaneous spinal infections: A review of the literature. J Craniovertebr Junction Spine 2019; 10(1): 3-9. https://doi.org/10.4103/jcvjs.JCVJS_115_18