

Case Report

Management of cervical spinal tuberculous spondylodiscitis – A report of two illustrious cases and learning points

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ABSTRACT

Although tuberculosis (TB) of the spine is commonly observed in developing countries, TB of the cervical spine is relatively rare and has high morbidity. Cervical spinal TB leads to morbid complications when not diagnosed and treated early. Early diagnosis and treatment not only minimize the risks and complications but also improve the outcome for the patient.

Keywords: Cervical tuberculous spondylodiscitis, Spondylodiscitis, Tuberculosis

INTRODUCTION

Tuberculosis (TB) is regarded as a serious but treatable form of a tropical infectious disease. In 2021, there were about 10.6 million cases of TB worldwide. Spinal TB accounts for about 1–2% of all TB cases, of which the cervical spine involvement occurs in <5%.^[1] Typical presentation is neck pain with stiffness, neurological symptoms such as radicular pain, weakness of limbs, sensory symptoms, or sphincteric disturbances, and constitutional symptoms such as night sweats, fever, and weight loss. Early diagnosis and appropriate treatment are essential to have a good outcome.

CASE REPORT

Case 1

A 73-year-old man presented with neck pain and restricted neck movements for 1 month with normal power in the limbs, brisk deep tendon reflexes, and extensor plantar. Pre-operative X-Ray [Figure 1] shows a reduction in C3-C4 disc space with erosion of the upper endplate of C4. Magnetic resonance imaging (MRI) scan of the cervical spine [Figure 2] showed a reduction in the C3-C4 level disc space and T2, Short Tau Inversion Recovery (STIR) hyperintense signal with prevertebral and small epidural collection suggestive of infective spondylodiscitis.

He was subjected to an anterior approach, C3-4 discectomy, and stabilization with iliac crest graft and titanium implants. Post-operative X-ray [Figure 3] shows decompression and stabilization at the level of C3-C4. Histopathological examination showed Langerhans giant cells and granulomatous changes suggestive of tuberculous spondylodiscitis, and GENEXPERT was positive for *Mycobacterium* TB. Antitubercular therapy (ATT) was given for 1 year.

Case 2

A 49-year-old man presented with severe neck pain and restricted neck movements for 1 month without any neurological deficits. Deep tendon reflexes were normal and both plantar reflexes were flexor. MRI cervical spine [Figure 4] showed C6-C7 spondylodiscitis with destruction of both vertebrae and intervening discs with prevertebral and epidural soft-tissue shadow.

He was subjected to C6-C7 corpectomy and C5-D1 stabilization with a titanium implant [Figure 5]. Histopathological examination confirmed tuberculous caseating granulomas with Langerhans' giant cells and acid-fast bacilli. He was treated with ATT for 1 year.

Both cases had excellent outcomes with relief of symptoms without any neurological deficits.

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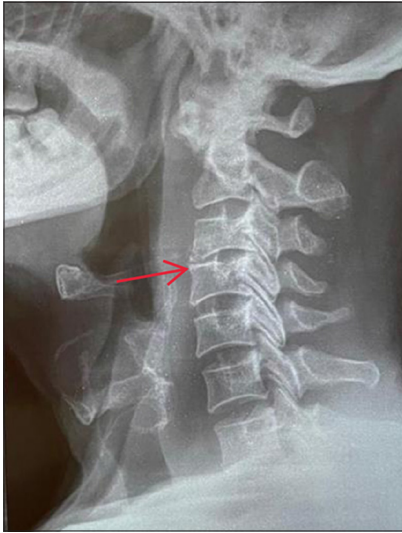


Figure 1: Cervical spine X-ray of patient 1 - lateral view - showing narrowing of the disc space at C3-C4 level (red arrow) with mild erosion at the upper endplate of C4.

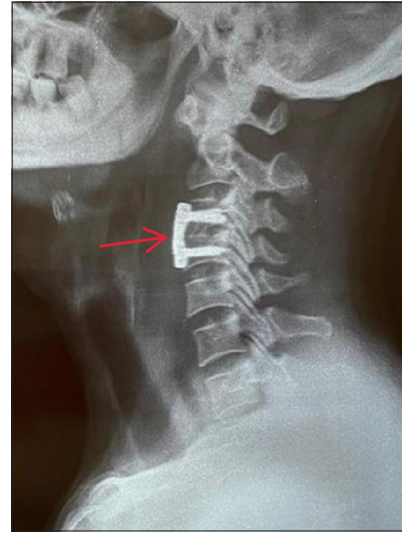


Figure 3: Post-operative cervical spine X-ray of patient 1 - showing bone graft and implants (red arrow) at C3-C4.

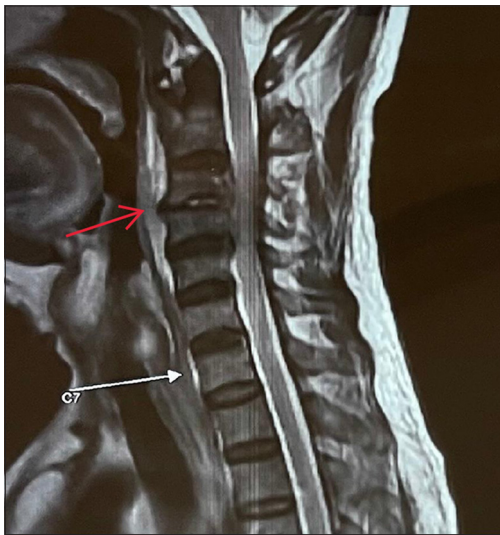


Figure 2: Magnetic resonance imaging of cervical spine of patient 1 - sagittal section - showing reduction of space at C3-C4 level (red arrow) with discitis and epidural soft-tissue shadow C7 level marked (white arrow).



Figure 4: Magnetic resonance imaging of cervical spine of patient 2 showing C6-7 spondylodiscitis (red arrow).

We had 2 cases of cervicodorsal tuberculous spondylodiscitis treated surgically. There were many other cases of multiple-level TB spondylitis or spondylodiscitis in the past 3 years where cervical involvement was part of disseminated disease. In those cases, diagnosis was confirmed either by taking a computed tomography-guided biopsy from accessible sites or corroborated with microbiological or histological confirmatory findings from other sites, such as pleural fluid and lymph nodes. Being a non-homogeneous set of patients with varied clinical and radiological

profiles, we could not report them as a single group. Hence, we chose to present these two illustrious cases and discuss the literature on cervical tuberculous spondylodiscitis.

DISCUSSION

Spinal TB is the most common musculoskeletal manifestation, affecting about 1–2% of all cases of TB.^[1] Cervical Spondylodiscitis due to TB is reported to be about 1–4.2% of spinal TB in different studies.^[2,3] The thoracolumbar and thoracic spines are most frequently involved, followed by the lumbar and then the cervical spine.^[1]

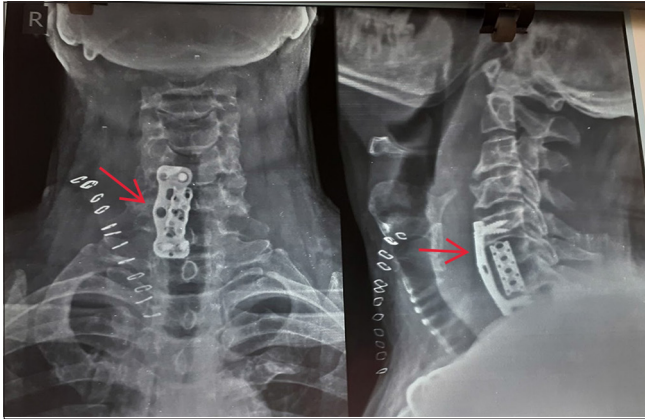


Figure 5: Post-operative X-ray of patient 2 showing C5, C6 corpectomy and interbody cage with anterior plate and screws (Red arrows).

Literature on cervical spinal tuberculous spondylodiscitis is sparse; a large retrospective case series analyzing the timing of surgery in 59 cases of cervical spondylodiscitis did not find any case of tuberculous infection.^[4] This could be highlighting the rarity of TB spine in the Western world as compared to the developing nations.

A prospective study from Turkey described the incidence of TB, brucellosis, and pyogenic causes for spondylodiscitis as 17.3%, 42.7%, and 30%, respectively.^[5] However, TB is much more common in India and other developing countries, whereas brucellosis is relatively rare.

Peri-discal endplate involvement leading to spondylodiscitis is the most prevalent form of spinal TB. Extension of the disease cranially can cause retropharyngeal or parapharyngeal abscesses, presenting with dysphonia, dysphagia, or dyspnea. Compression of the spinal cord leads to myelopathy, radiculopathy, or, in some cases, progression to tuberculous meningitis, myelitis, or tuberculomas. Early detection and treatment are crucial to have a good outcome. Reasons for late presentations include poor access to health care, ignoring the symptoms, poor socioeconomic conditions of the patients, etc. Furthermore, early in the course of the disease, investigations such as X-rays may appear normal, and an MRI spine has to be done with a high index of suspicion to pick up the disease.^[1,6]

In our cases, early detection and intervention helped in curing the disease without much morbidity; also, the risk of neurological deficit and complication rates would have been higher in cases with multilevel cervical spinal involvement. Single-level anterior approach in patients with early disease involving adjacent vertebrae with discitis achieves satisfactory outcome with short operating time and less blood loss.^[1,3,7-9] Early intervention also helps us in establishing the pathological diagnosis and improves the outcome.^[10] The need for pathological diagnosis has been emphasized by the senior author in a report where

empirically treated spinal spondylodiscitis mimicking TB has proved to be a non-tuberculous infection.^[11] The presence of active infection is not a deterrent for placing implants for fusion, as mycobacterium does not form a biofilm over the titanium implants. Fusion and cure rates are better for cases managed in the early stage.^[1,3]

The choice of the surgical procedure and the duration of the ATT may also have to be decided appropriately for a given case, as there are no standard recommendations that suit all case scenarios.^[1,6]

A review article on current concepts on management of cervical spine TB describes the radiological parameters distinguishing the tuberculous and pyogenic spondylodiscitis. The authors have also analyzed the indications of surgery and advocate surgery in specific scenarios involving gross neuro-deficit, later stages of disease with significant bony/ligamentous disruptions, altered sagittal balance, drug resistance, and poor response to medications.^[12] However, considering the morbidity of neurological deficits in advancing disease, we advocate early surgical intervention.

The real challenge in managing the suspected cases of TB spondylodiscitis lies in decision-making for cases where patho-microbiological evidence is weak. More studies are required to evolve guidelines for managing such inconclusive cases without adding to the financial burden of the health infrastructure of the developing countries.

CONCLUSION

Cervical spinal TB is a rare form of extrapulmonary manifestations of the disease. Early detection and intervention reduce the morbidity and achieve better outcome. Further studies are required to analyze a large number of cases of cervical tuberculous spondylodiscitis and evolve recommendations for a management protocol that suits the resource-constrained health infrastructure in developing nations.

Ethical approval: Institutional Review Board approval is not required.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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