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Spinal Tumor Syndrome with Pericardial Effusion

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Abstract

Spinal tumor syndrome is a condition caused due to extradural granuloma or abscess causing cord compression and neurological deficits. Spinal tumor syndrome with a concurrent pericardial effusion is a very rare presentation and presents a challenge regarding surgical management due to the high perioperative risks.

A rare case of spinal tumor syndrome with pericardial effusion was treated with pericardiocentesis followed by surgical decompression of the spinal cord. A 73-year-old lady with history of low back ache and fever presented with recent onset paraparesis. She was diagnosed to have Spinal Tumor Syndrome secondary to an epidural abscess with a paraspinal abscess. She was also incidentally detected to have a concurrent pericardial effusion with impending cardiac tamponade, which was likely a reactive pericardial effusion secondary to an Enterococcus faecium urinary tract infection. She was successfully treated by doing a pericardiocentesis, followed by a laminectomy of T12, L1 and laminotomy of T11. To the best of our knowledge, a case of Spinal Tumor Syndrome with concurrent pericardial effusion has not been reported in literature. Approach to such a case should be a multidisciplinary one. We found that an early intervention to stabilise the cardiac status followed by surgical decompression led to best results for the patient with gradual recovery of neurological status to near normal.

Keywords: Spinal Tumor Syndrome, Pericardial effusion, Pericardiocentesis, Extradural granuloma, Epidural abscess, Paraspinal abscess.

Introduction

Spinal tuberculosis most commonly presents in its typical form as a paradiscal lesion with destruction of intervertebral disc space and adjacent vertebral end plates, with progressive kyphosis following vertebral collapse. However, in 2.1% of cases, atypical spinal tuberculosis is noted [1, 2, 3]. Patients with atypical spinal tuberculosis do not have classical clinical or radiological features on plain radiographs. Osseous involvement is rare and often patients present with symptoms of cord compression due to an extradural tuberculoma or granuloma. This presentation as spinal tumor syndrome [4] requires investigation with magnetic resonance imaging to identify and delineate the extent of the lesion. We describe a rare case of a patient with spinal tumor syndrome secondary to epidural granuloma formation with concurrent pericardial effusion that presented a surgical challenge. Informed consent was taken from the patient for publication of this case report.

Case Report

A 73-year-old lady presented with chief complaints of sudden onset weakness of both lower limbs since five days and inability to walk. She had a history of fever one month back for which she was hospitalised and intravenous antibiotics were given. Fever subsided in three days and patient developed severe back

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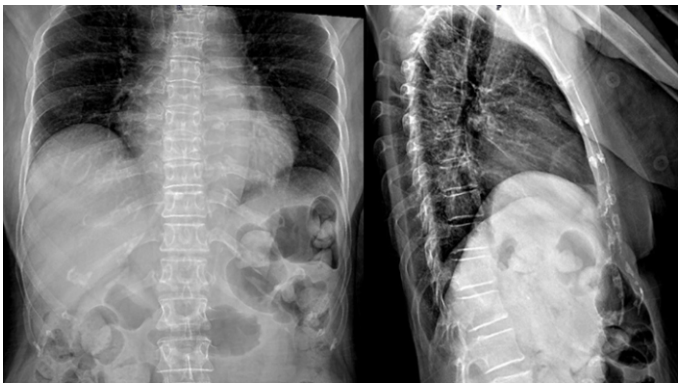

Figure 1: Plain X-ray of thoracolumbar spine showing rarefaction of vertebrae with degenerative changes.

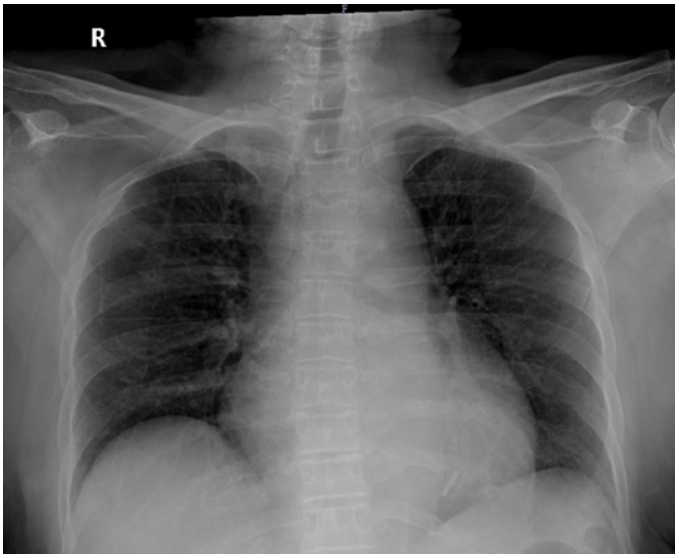

Figure 2: Chest X-ray showing an enlarged cardiac silhouette.

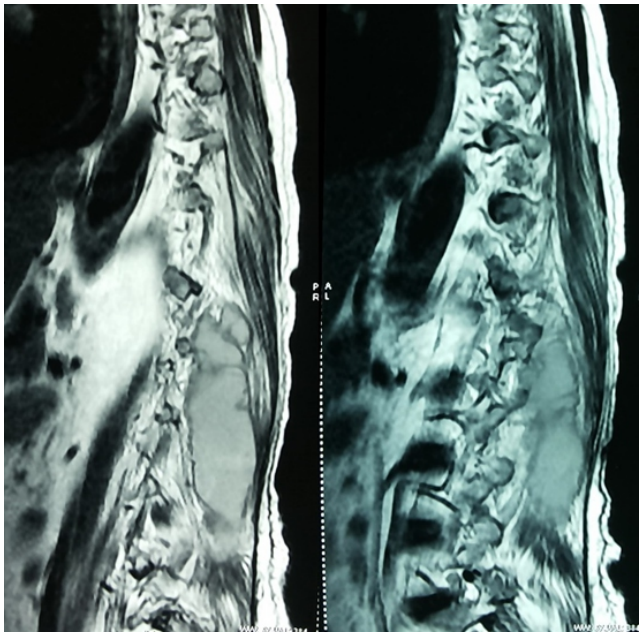

Figure 3a: T2-weighted sagittal MRI image of thoracolumbar spine showing a loculated hyperintense collection in left posterior paraspinal muscles measuring 11.7x2.9 cm extending from T12 to L4.

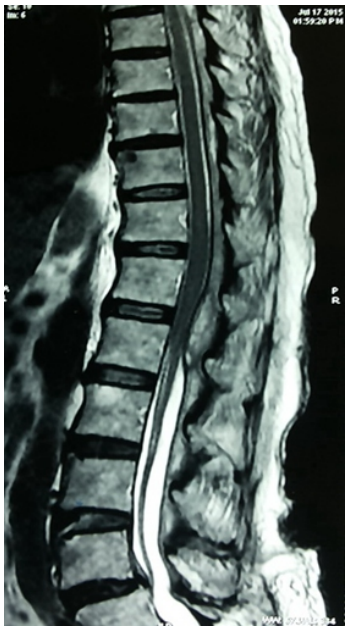

Figure 3b: T2-weighted sagittal MRI image of thoracolumbar spine showing epidural granulation tissue posterior to spinal cord from T11-L1.

pain two weeks later. She was hospitalised and developed sudden weakness of both lower limbs with inability to walk. There was no bowel or bladder dysfunction. She was referred to us five days later.

Examination revealed a moderately built and nourished lady with no cachexic features. She had diffuse thoracolumbar tenderness. Both lower limbs had equal muscle bulk and were hypotonic. Hip flexors had a power of 2/5 bilaterally and remaining distal myotomes were 3/5. Knee and ankle jerks were sluggish and there was no plantar response seen. Hypoesthesia was present over L5, S1 dermatomes bilaterally. She came under ASIA-C category (American Spinal Injury Association) with a motor level of T12 and sensory level of L4.

As part of routine preoperative workup a general physical examination was done. Cardiac auscultation revealed muffled heart sounds. Rest of the systemic examination was found normal.

The laboratory investigations showed Hemoglobin-10.6 gm%, Erythrocyte sedimentation rate elevated to 52 mm/hr, C-reactive protein to 19.12 and total leucocyte count of 12,000/mm^3. Urine culture was sent in view of history of fever, and it showed a significant growth of Enterococcus faecium. Plain X-rays of the thoracolumbar spine showed rarefaction of the vertebrae with degenerative changes (Figure 1). Chest X-ray revealed an enlarged cardiac silhouette (Figure 2). MRI of thoracolumbar spine showed a loculated hyperintense

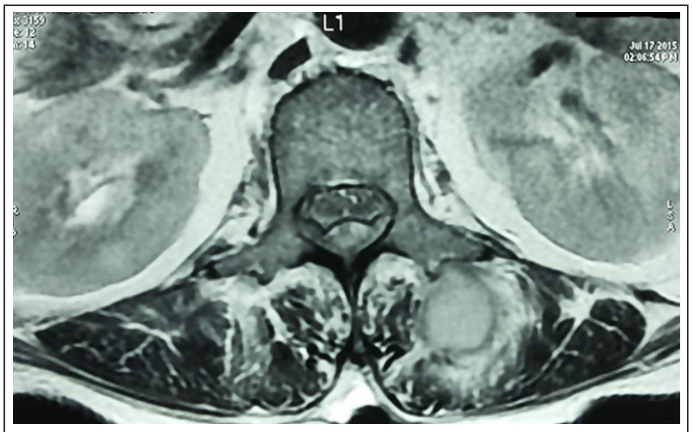

Figure 4a: T2-weighted axial MRI at L1 level showing extension of paraspinal collection into posterior epidural space through left neural foramen.

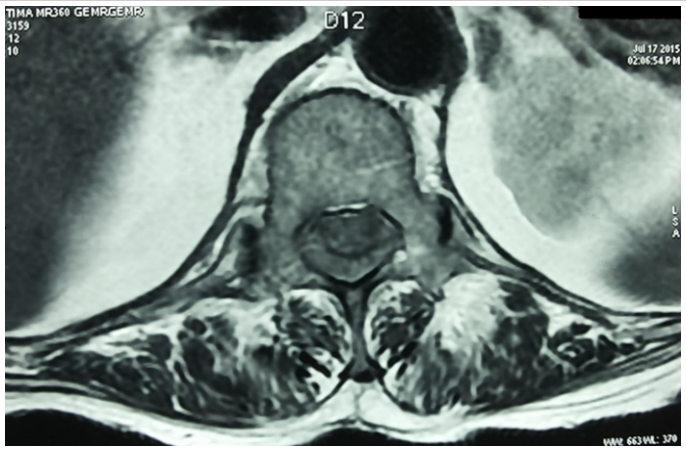

Figure 4b: T2-weighted axial MRI at T12 level showing epidural collection partially encasing and displacing the cord.

collection in left posterior paraspinal muscles measuring 11.7x2.9 cm extending from T12 to L4 with epidural granuloma (Figure 3a & 3b). Extension of collection into posterior epidural space through left neural foramen was seen at T12-L1 and L1-L2 levels (Figure 4a). Epidural collection was found to be partially encasing and displacing the cord at T12 level (Figure 4b). Echocardiogram done showed moderate pericardial effusion with impending cardiac tamponade (Figure 5). A diagnosis of Spinal Tumor Syndrome with paraspinal abscess with pericardial effusion, was made.

As proceeding with surgery was risky in view of anaesthestic problems due to the pericardial effusion, immediate pericardiocentesis was done and pigtail catheter was left in situ. The pericardial fluid was sent for analysis and found negative for both tuberculosis and bacterial growth. Post-centesis chest X-ray showed a significant reduction in size of cardiac sillhoutte (Figure 6). She then underwent Laminectomy of T12, L1 with laminotomy of T11. Granulation tissue surrounding dura and pus from the paraspinal abscess were sent for culures as well as histopathological examination.

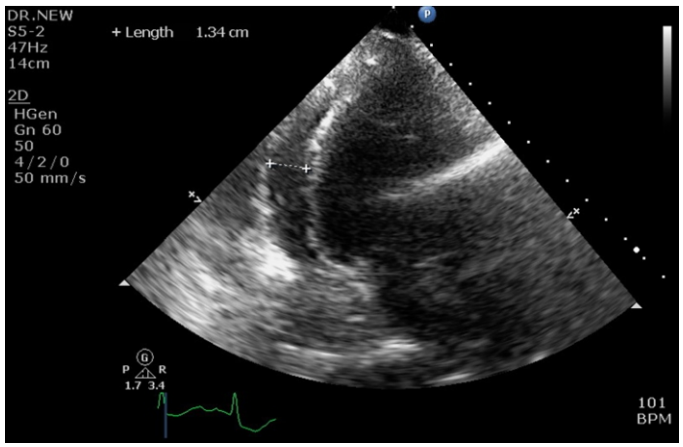

Figure 5: Echocardiogram showing moderate pericardial effusion with impending cardiac tamponade.

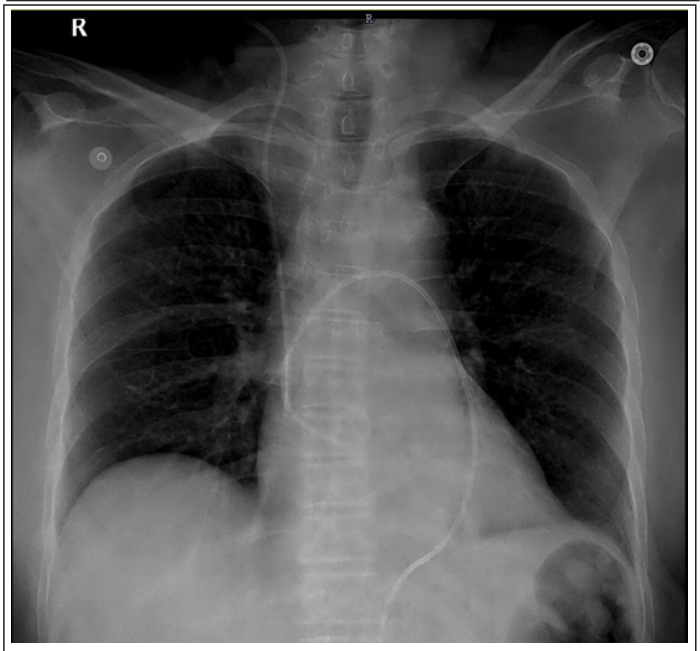

Figure 6: Chest X-ray post-pericardiocentesis with pigtail catheter in-situ showing reduction in width of cardiac silhouette.

Nucleic acid amplification test by Polymerase chain reaction showed presence of Mycobacterium tuberculosis in the pus and granulation tissue. Acid fast bacilli (AFB) smear of pus was positive for acid fast bacilli with 1+ concentration. Histopathology showed caseating granulomatous inflammation favouring tuberculosis. AFB culture grew Mycobacterium tuberculosis.

Patient was started on antitubercular medication as per current protocol. At 6 weeks follow up patient was able to walk with aid, and was able to walk independently at 6 months.

Discussion

Atypical spinal tuberculosis presents a diagnostic challenge not only due to the low incidence but also because the classical clinical and radiological features of spinal tuberculosis are not

seen. This often leads to a delay in diagnosis and hence treatment. In addition, this patient had an incidental concurrent pericardial effusion, the incidence of which is quite low in cases of tuberculosis (1-2%) [6, 7], with impending cardiac tamponade which presented a surgical challenge due to associated perioperative risks. An urgent cardiac intervention led to stabilisation of cardiac status which enabled us to surgically intervene at the earliest. Early surgical decompression has been shown to minimize progression of neurological deficits and give good results in terms of postoperative recovery [8, 9]. Histopathological examination of all epidural granulomas to rule out pyogenic etiology must be done, and antitubercular therapy instituted thereafter [10]. To the best of our knowledge, a case of Spinal Tumor Syndrome with concurrent pericardial effusion has not been reported in literature. We recommend a multidisciplinary approach to such cases so that imminent risks can be identified early leading to timely intervention and optimal outcome for the patient.

Conclusion

A high index of suspicion for atypical spinal tuberculosis can help in early detection and prompt intervention. Cases of spinal tumor syndrome with concurrent systemic afflictions would benefit from a multidisciplinary approach so that patients can safely undergo early spinal intervention, improving their chances of neurological recovery.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his/her consent for his/her images and other clinical information to be reported in the Journal. The patient understands that his/her name and initials will not be published, and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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