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Jain Institute of Spine-care And Research

A unit of Bhagwan Mahaveer Jain Hospital

SERVICE TO THE PEOPLE

JISAR NEWS

QUARTERLY NEWSLETTER AND SPINE-CARE UPDATE

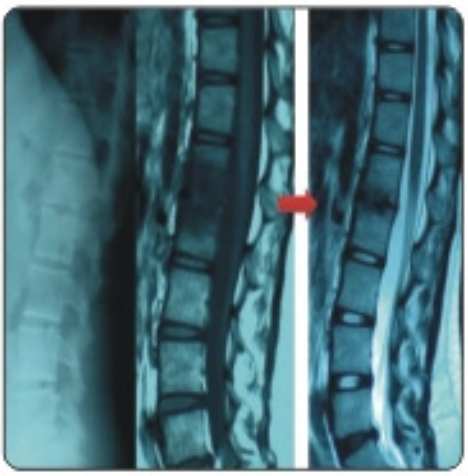
Tuberculosis of spine is one of the common forms of extra-pulmonary tuberculosis accounting for more than 50% of all skeletal tuberculosis. If untreated, spinal tuberculosis causes progressive destruction of the vertebral bodies and progressive kyphosis resulting in spinal cord compression and paraplegia/quadriplegia. Majority of Spinal tuberculosis can be treated with ambulatory anti-tubercular chemotherapy only.

However, surgical intervention becomes necessary in the event of spinal instability, progressive kyphosis or worsening neurological deficit. It is important to recognize that tuberculosis affects the anterior vertebral bodies of the spine, resulting in progressive kyphosis till new bone formation occurs after 3 months of anti-tubercular treatment. It is during these initial three months that the patient is at risk to develop spinal Instability, progressive kyphosis or neurological deficit.

We present a few of our cases and highlight the importance of addressing the instability of spine caused by tuberculosis at an early stage to prevent the progression of kyphosis and neurological deficit.

Case - 1

12yr old girl had back pain since 1 month. The pain was increasing which was more at night. She did not have any constitutional symptoms, weight loss, anorexia or fever. Her previous x-rays were normal. On examination she had spinal tenderness at L1-2 level with no radicular pain or deficit. Fresh x-rays showed end-plate irregularity at L1-2 with decreased disc height. ESR was increased and MRI showed spondylodiscitis without much



Case-1: X-rays and MRI before and after 1 year tubercular chemotherapy showing good healing of lesion with fusion of L1-2.

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destruction of bone. Patient was put on anti-tubercular medications and counseled at length about the importance of being in follow-up for the initial 3 months of treatment, along with possible consequences of progressive kyphosis and spinal instability. Patient did well without any signs of spinal instability or kyphosis and was pain free in 2 months. She was put on medications X-rays and MRI at 1 year showed good healing of lesion with fusion of L1-2.

Many patients of tuberculosis of spine can now be diagnosed at this early stage using MRI and have excellent outcomes without kyphosis on antitubercular medications only. However, not all patients respond to antitubercular medications without destruction of the vertebral bodies. ♦♦♦♦♦

Case - 2

A 76 year old gentleman was diagnosed to have D8-9 spondylodiscitis and was started on Anti-tubercular medications. Patient was better for 3-4 weeks after starting the medications, but pain increased after 5th Week. On closer enquiry, he was now comfortable on lying in the bed, with no pain in the night. The pain started only after sitting and he also complained of an insecure feeling while sitting or walking. On examination a small knuckle was palpable at D8-9 level without any neurological deficit. On x-rays and MRI, progressive destruction of D8 body with early kyphosis showed that the lesion had become unstable.

Case 2 : MRI showing progressive destruction of D8-D9 bodies on ATT and postoperative x-rays showing spinal stabilization and interbody bone grafting.

Patient was counseled about the option of surgical stabilization due to progression of pain and instability. However, the patient was reluctant to undergo a major spinal surgery for pain only. Two weeks later the patient returned and asked for spinal stabilization as his pain was progressively increasing and he was not able to sit up for more than 5min .

Patient was operated by posterior approach and posterolateral extra-cavitory decompression with D8-9 interbody bone-grafting was done (without violating the chest cavity), along with pedicle screw-rod stabilization from D6 to D11. The patient was back to his activities and walking within 2 weeks of surgery along with anti-tubercular medications.

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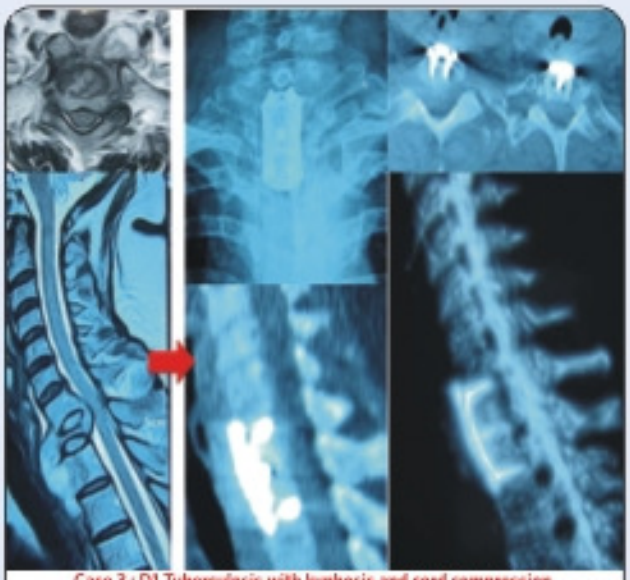
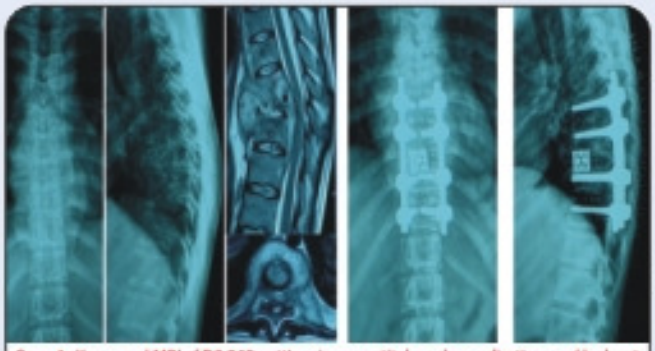
Case - 3

52 year old lady was diagnosed to have D1 tuberculosis with kyphosis and cord compression. She had early signs of myelopathy with brisk reflexes and left upper limb radiculopathy. She underwent anterior decompression with D1 corpectomy and C7 to D2 plating with Iliac crest tricortical graft for interbody support. The postoperative CT shows the decompression and the restoration normal sagittal. The patient is doing well with antitubercular medication.



Case 3 : D1 Tuberculosis with kyphosis and cord compression. Postoperative CT scan shows decompression and restoration of normal spinal alignment with graft and plating.

Case - 4



Case-4 : X-rays and MRI of D8,9,10 pott's spine on antitubercular medications and bed rest. Post-operative X-rays showing deformity correction, decompression and stabilization.

22 year female with 4 months of bed rest on antitubercular medications for D8,9,10 pott's spine. However, the destruction of vertebral bodies was not prevented by strict bed rest and there was progression of kyphosis with dural compression. Fortunately, patient had complete power in her lower limbs without any bowel or bladder involvement.

She underwent circumferential decompression of the spinal cord from posterior approach along with pedicle screw-rod instrumentation and mesh cage insertion for replacing the destroyed D9 vertebral body. The girl did well post-operatively and was ambulatory from 2nd postop day with no deterioration in neurology.

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Case - 5

24 year old lady presented with progressive kyphosis in upper back, despite being on anti-tubercular treatment for 4 months. On investigations, she was found to have complete destruction of D6 vertebra with 72° of segmental kyphosis. She was fortunate to have only brisk reflexes with intact motor power. She underwent circumferential decompression of the spinal cord from posterior approach along with pedicle screw-rod instrumentation and mesh cage insertion with correction of kyphotic deformity. The girl was ambulatory from 2nd post-op day with no deterioration in neurology.

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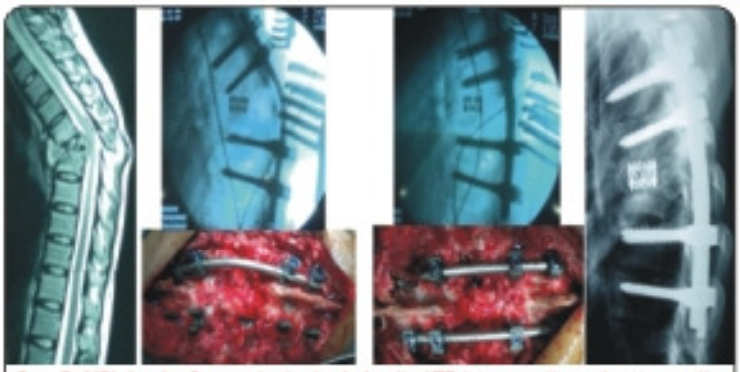
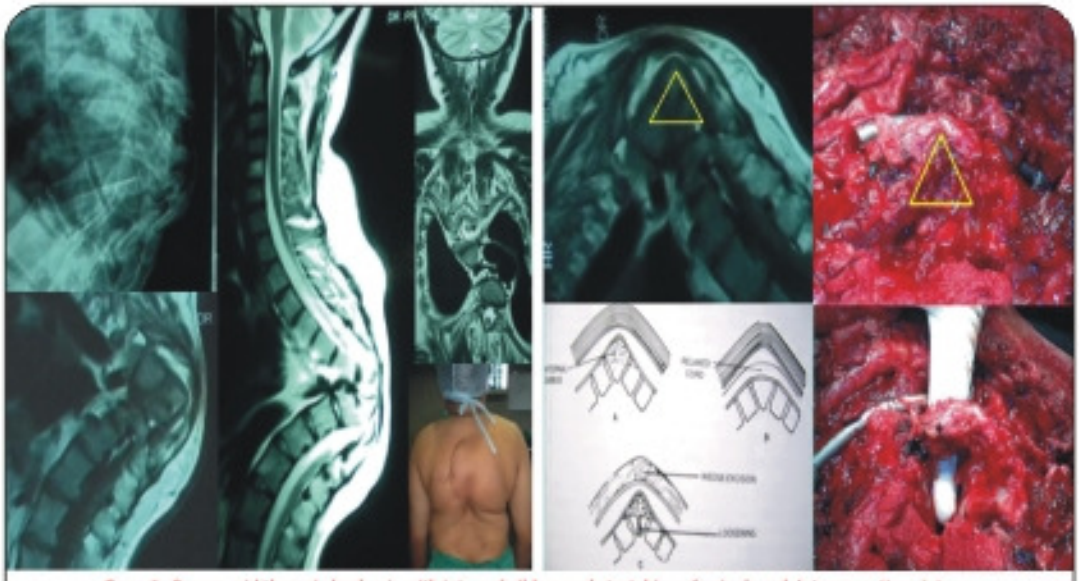


Case-5 : MRI showing Progressive kyphosis despite ATT. Intraoperative and post-operative pictures showing circumferential decompression of the spinal cord and deformity correction with pedicle screw-rod construct.

Case - 6



Case-6 : Severe mid thoracic kyphosis with internal gibbus and stretching of spinal cord. Intraoperative pictures showing Internal Kyphectomy and circumferential decompression of the spinal cord.

He was a young man of 32 years and had undergone anterolateral decompression at the age of 4 years for spinal tuberculosis. Patient now complained of progressively increasing difficulty in walking from 4-6 months with a severe kyphosis of mid dorsal spine. On examination the patient had a healed scar of previous surgery and mild spasticity in bilateral lower limbs with brisk reflexes. His radiographs and MRI showed that he had developed severe

dorsal kyphosis of 150° with acute angulation and stretching of the cord at the apex. Patient was counseled at length about the severity of the kyphosis and the options available for management. Literature reports poor prognosis for such patients with about 40-50% chances of patient going into complete paraplegia after surgical decompression. The best result in late kyphosis has been with decompression of the spinal cord by direct internal kyphectomy (See Fig) to remove the internal gibbus stretching the spinal cord.

The patient and relatives understood the nature of the problem he was facing and the high probability of the spasticity progressing to paraplegia with time. They were also clearly explained about the high risk of paraplegia involved in surgical decompression (40-50%). Patient returned to us after 2 weeks and was prepared to take the risk of surgery as he was having increasing difficulty in walking.

We planned an internal kyphectomy for him with stabilization of the spine using pedicle screw-rod construct. Despite complete decompression of the spinal cord as can be seen in the pictures, the patient developed paraplegia post-operatively.

Surgery for spinal tuberculosis with spinal instability or kyphosis is very rewarding in the active stage of the disease as the compression on the spinal cord is usually by soft granulation tissue or abscess. However, if the deformity is not addressed in the early stage, spinal tuberculosis heals with kyphosis with a hard bony projection posteriorly at the apex of kyphosis. This internal gibbus can cause slow deterioration in neurology with spasticity over time. The prognosis for such late onset neurological deficit is not good even with surgical decompression. This is because the chronic stretching causes slow but permanent changes in the cord with loss of vascularity.

Late onset neurological deficit with severe kyphosis has proven poor prognosis for neural recovery and hence we should make all efforts to treat tubercular kyphosis before this stage.

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TIPS AND PEARLS

- Spinal tuberculosis affects the anterior vertebral bodies of the spine and results in progressive kyphosis.
- In the initial three months the patient is at risk to develop spinal Instability, progressive kyphosis or neurological deficit.
- It is rewarding to address spinal instability or the initial kyphosis with surgery before the manifestation of late kyphosis.
- Late onset neurological deficit with severe kyphosis has proven poor prognosis for neural recovery even with decompression.
- Hence, make all efforts to treat spinal tuberculosis before the stage of late kyphosis.

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