

## Pott's spine with psoas abscess

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**Section:** Musculoskeletal system

**Area of Interest:** Musculoskeletal bone

**Procedure:** Diagnostic procedure

**Imaging Technique:** CT

**Imaging Technique:** MR

**Special Focus:** Infection Case Type: Clinical Cases

**Authors:** Dr. Bhoomi Angirish, Dr. Harshad Shah, Dr. Asutosh Dave, Dr. Nirmala Chudasama, Dr. Chandresh Bharada, Dr. Darshit Shah

**Patient:** 50 years, female

### Clinical History:

A 50-year-old female patient presented with low back pain for 3 months. She had experienced difficulty in standing up from sitting position for 15 days. She had associated complains of low-grade fever and weight loss for 3-4 months. The patient was referred for MRI of the lumbosacral spine.

### Imaging Findings:

CT shows end plate irregularity and sclerosis of L3 and L4 vertebral bodies with decreased height of intervening L3-L4 intervertebral disc (Fig. 1, 2).

MRI shows irregularity and destruction of L3-L4 end plates and intervertebral disc with well-defined collection in the prevertebral and bilateral paravertebral regions (Fig. 5, 6) which appears hypointense on T1W (Fig. 3, 5) and hyperintense on T2W (Fig. 4, 6). The collection is seen extending in the left psoas muscle leading to psoas abscess (Fig. 6). A small epidural collection is seen at the level of L3 and L4 vertebrae which is causing compression over the spinal cord (Fig. 4b).

### Discussion:

Musculoskeletal involvement of TB is estimated in 1–13 % of patients and spine is affected in more than 50% of cases. "Pott's Disease" (tuberculous spondylitis) represents the most common form of extrapulmonary TB. The thoracic segments are the preferred sites, followed by the lumbar levels. Pott's spine involves two contiguous vertebral bodies with the intervening disk, but multilevel extension (three or more vertebrae) characterizes the disease[1]. The paradiscal, central, anterior subligamentous, and neural arch are the common vertebral lesions. In Pott's spine, the onset of symptoms is usually insidious and progression is slow.

In the paradiscal type, the earliest features are narrowing of the joint space and indistinct paradiscal margin of vertebral bodies. With further progression, anterior wedging or collapse occurs, resulting in varying degree of kyphosis.

In the anterior type of the lesion, the collection of tuberculous granulation tissue and necrotic material leads to formation of paravertebral abscess which is visible on plain radiographs as a fusiform radiodense shadow called the bird nest appearance. Long standing abscesses may produce concave erosions around the anterior margins of the vertebral bodies producing a scalloped appearance called the aneurysmal phenomenon (gouge defect).

The central type of the lesion presents as destruction, ballooning of vertebral bodies, and concentric collapse.

In the neural arch type of the lesion, there is involvement of the posterior arches (spinous process, lamina, pedicle,

and transverse process as well as lateral masses of the atlas), pedicular or laminar destruction, erosion of the adjacent ribs in the thoracic region or posterior cortex of the vertebral body with relative sparing of the intervertebral discs, and a large paraspinal mass.

The pattern of bone destruction (fragmentary, osteolytic, sclerotic, and subperiosteal) can be seen well on CT. The presence of calcification within the abscess is virtually diagnostic of spinal TB [2]. Most cases of the active disease have paraspinal (subligamentous, psoas, epidural) soft tissue masses [3]. MRI features of Pott's spine appear hypointense on T1W and hyperintense on T2W sequences with heterogeneous enhancement of the vertebral body. STIR sequences are helpful in differentiating fluid from fatty components in non-contrast sequences. Administration of Gd-DTPA is useful to assess the extent of soft tissue mass. Kyphosis and cord compressions are the most common complications [2].

Treatment with antituberculous medications with surgical debridement and reconstruction of spinal stability are the key aspects [4].

It is often difficult to differentiate between tuberculous and pyogenic spondylitis, both clinically and on images. When infection is suspected, a history of chronicity and insidious progression is suggestive of tuberculous spondylitis [5].

**Differential Diagnosis List:** Pott's spine with psoas abscess, Pyogenic spondylitis, Brucellosis, Metastasis

**Final Diagnosis:** Pott's spine with psoas abscess

#### References:

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**Figure 1**

a



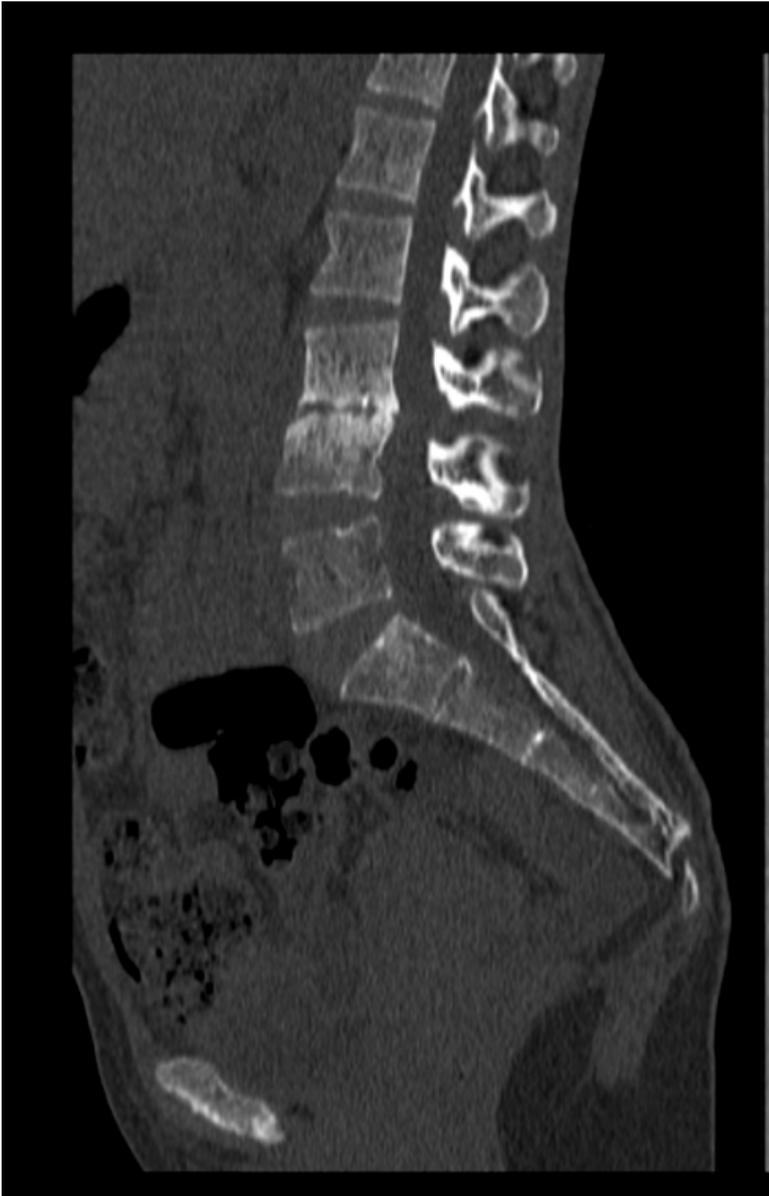
**Description:** CT axial Bone window shows irregularity of the vertebral body with sclerosis. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

b



**Description:** CT Coronal Bone window shows irregularity and sclerosis of the end plates of contiguous vertebral bodies with loss of the height of disc space. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

c



**Description:** CT Sagittal Bone window shows irregularity of the endplates of contiguous vertebral bodies along with sclerosis. There is also decreased disc space between involved vertebrae. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

**Figure 2**

a



**Description:** CT Axial Soft tissue window shows bulky left psoas muscle with well-defined hypodense area within it suggesting psoas abscess. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

b



**Description:** CT Axial Soft tissue window shows bulky left psoas muscle with well-defined hypodense collection within it. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

**Figure 3**

a



**Description:** Endplate irregularity of L3-L4 vertebral bodies with loss of height of L3-L4 intervertebral disc. Well-defined hypointense collection in the prevertebral region extending from L3-L5 levels and posteriorly extending from L3-L4 level. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

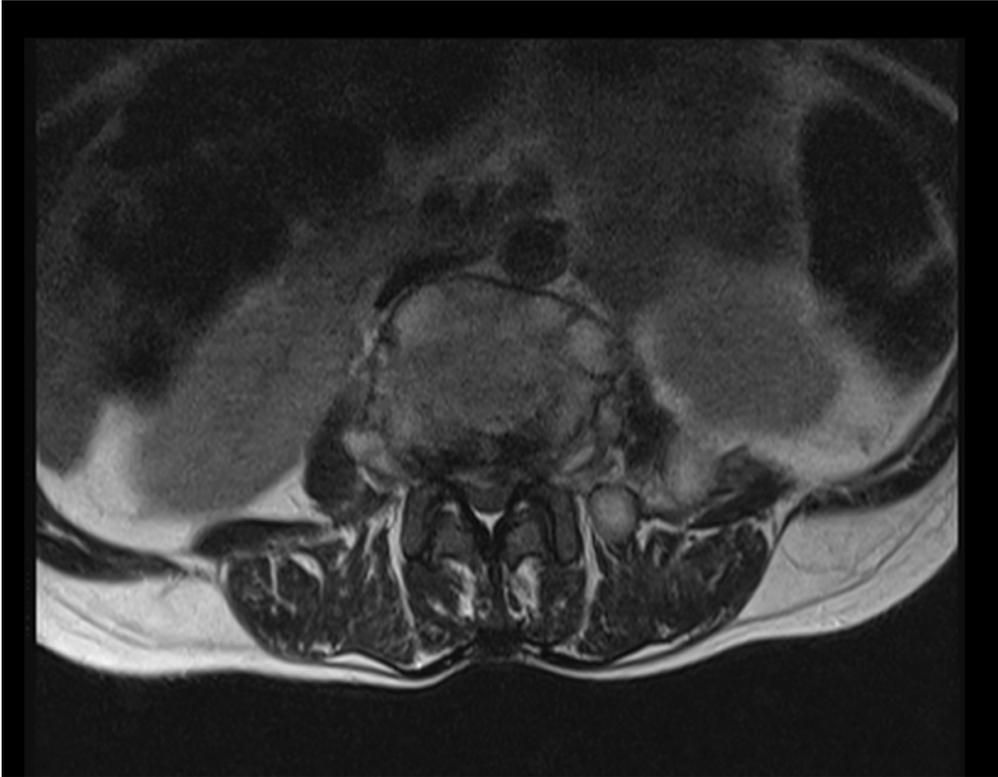
b



**Description:** Endplate irregularity of L3-L4 vertebral bodies with loss of L3-L4 disc height. Hyperintense collection in the prevertebral region extending from L3-L5 levels and posteriorly extending from L3-L4 level compressing the cord. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

## Figure 4

a



**Description:** T2W image shows hyperintense collection in prevertebral and bilateral paravertebral region. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

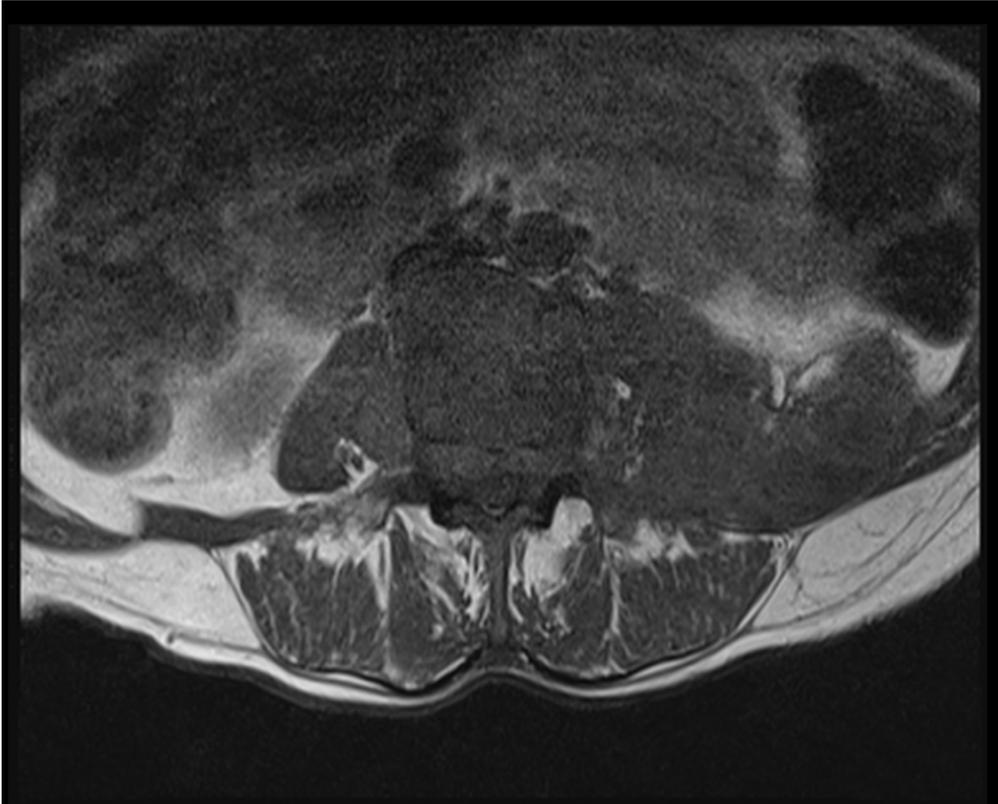
b



**Description:** T2W image shows hyperintense collection in prevertebral and bilateral paravertebral region extending into left psoas muscle. A small extradural component compressing the cord is also seen. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

## Figure 5

a



**Description:** T1W image shows bulky left psoas muscle with hypointense collection in prevertebral and bilateral paravertebral region extending into left psoas muscle. A small extradural component compressing the cord is also seen. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

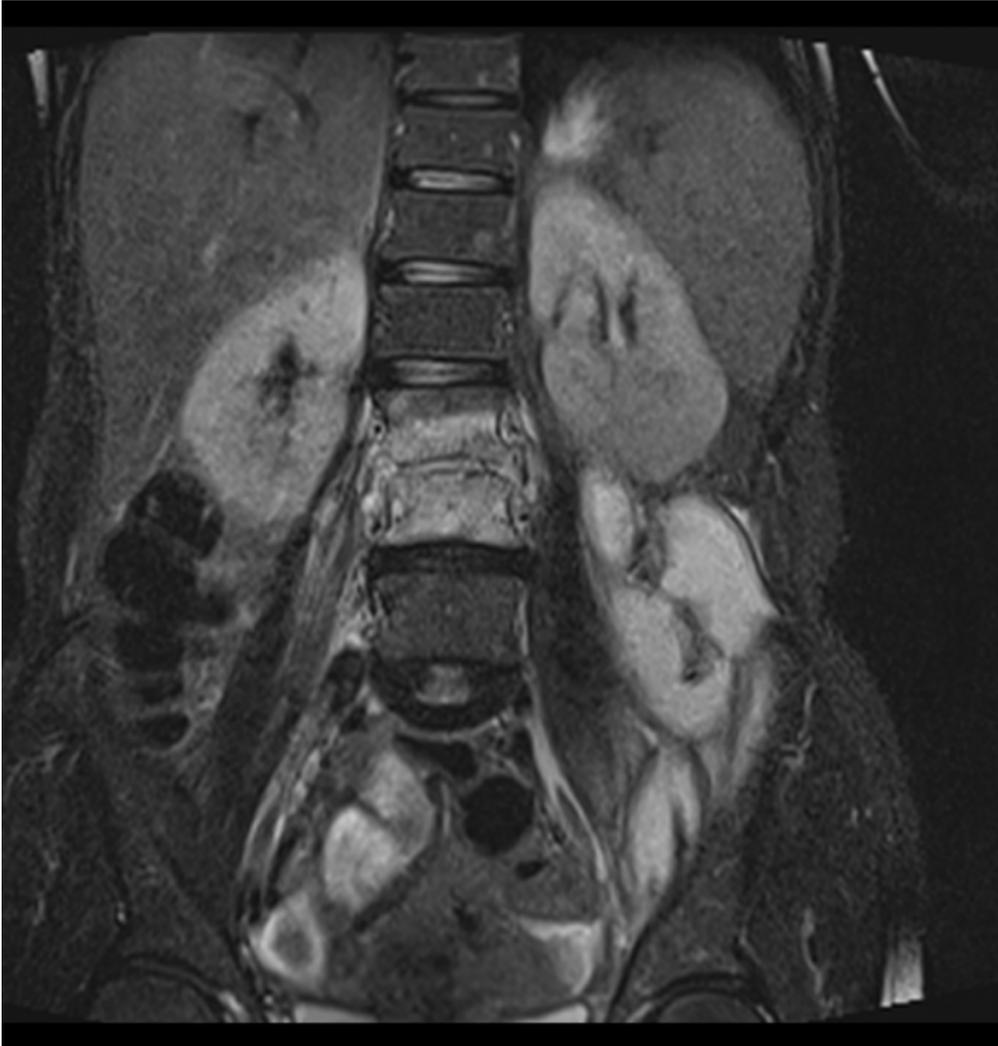
b



**Description:** T1W image shows hypointense collection in left psoas muscle. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

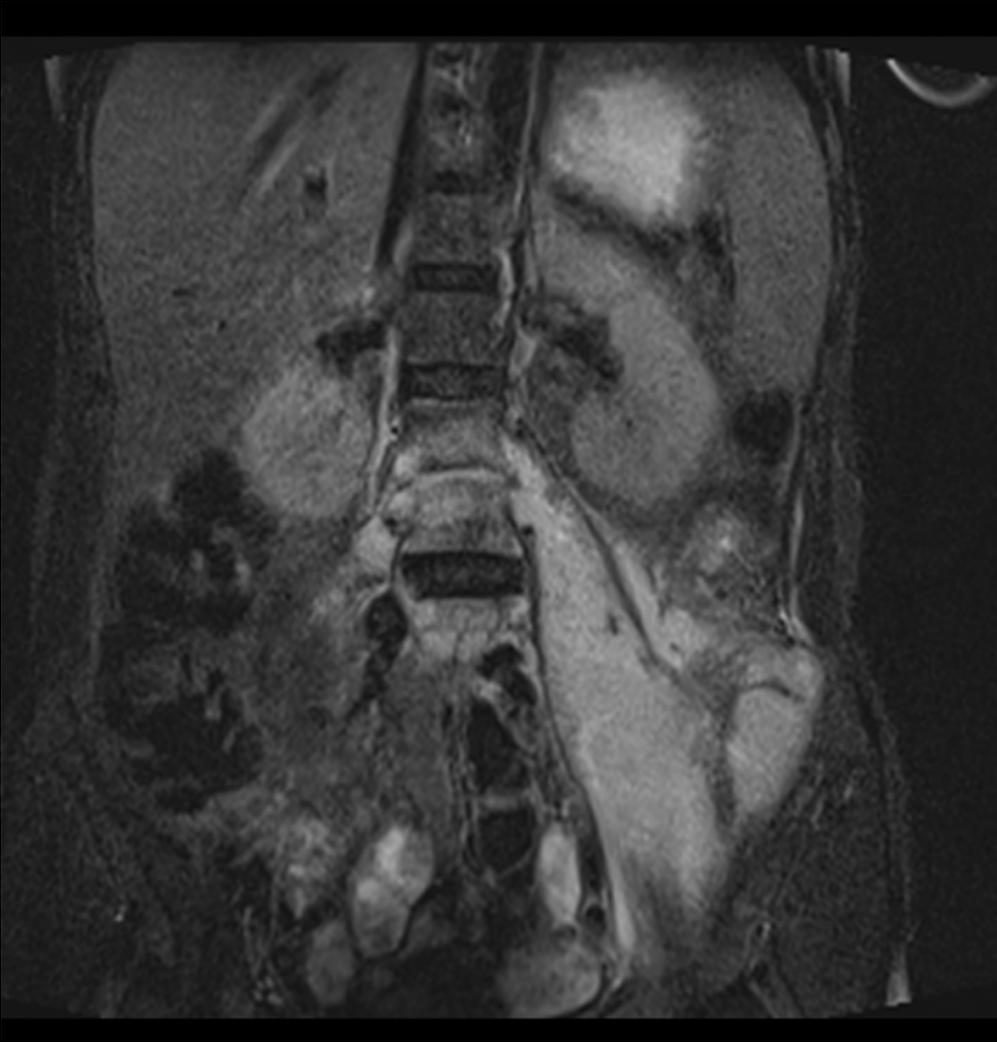
**Figure 6**

a



**Description:** T2W coronal image shows hyperintensity in the L3 and L4 vertebral bodies with loss of intervertebral disc space. There is a paravertebral and left psoas abscess. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India

**b**



**Description:** T2W image shows well-defined hyperintensity in bilateral paravertebral regions at the level of L3-L4 disc space and extending into and along the left psoas muscle suggesting a psoas abscess. **Origin:** Department of Radiology, C.U.SHAH Medical College, Surendranagar, India