

## X-ray quiz: a middle-aged woman with back pain

X 光照片猜謎：一名背痛的中女士

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### Case

A 45-year-old lady, enjoying good past health, presented to the accident and emergency department with two weeks history of on-and-off low grade fever and mild back pain. She had no constitutional symptoms or weight loss. On physical examination, she had low-grade fever (37.5°C). Mild local tenderness was elicited over the lower thoracic spine. There was no focal neurological deficit, limb weakness or sphincter disturbance. Physical examination of the chest and abdomen were also unremarkable. Plain radiographs of the thoracic spine, both frontal and lateral views, (Figures 1 & 2), and the chest (Figure 3) were obtained. She was admitted to the orthopaedics ward and an urgent MRI spine (Figures 4-6) was performed.

### Questions

1. What are the X-ray findings and differential diagnosis?
2. What is the purpose of performing MRI spine?
3. What are the MRI findings?
4. What other radiological investigations would be helpful?

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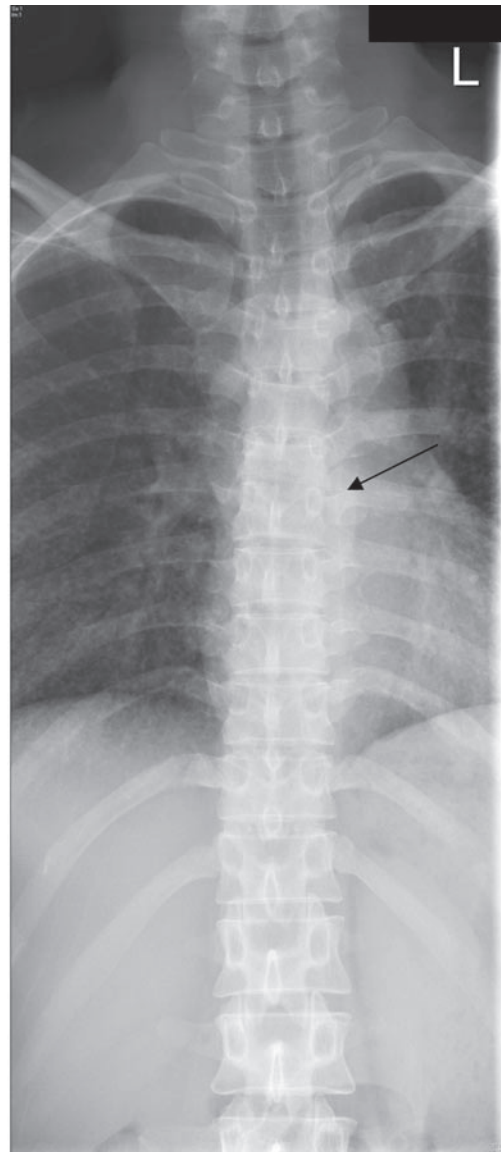


Figure 1.

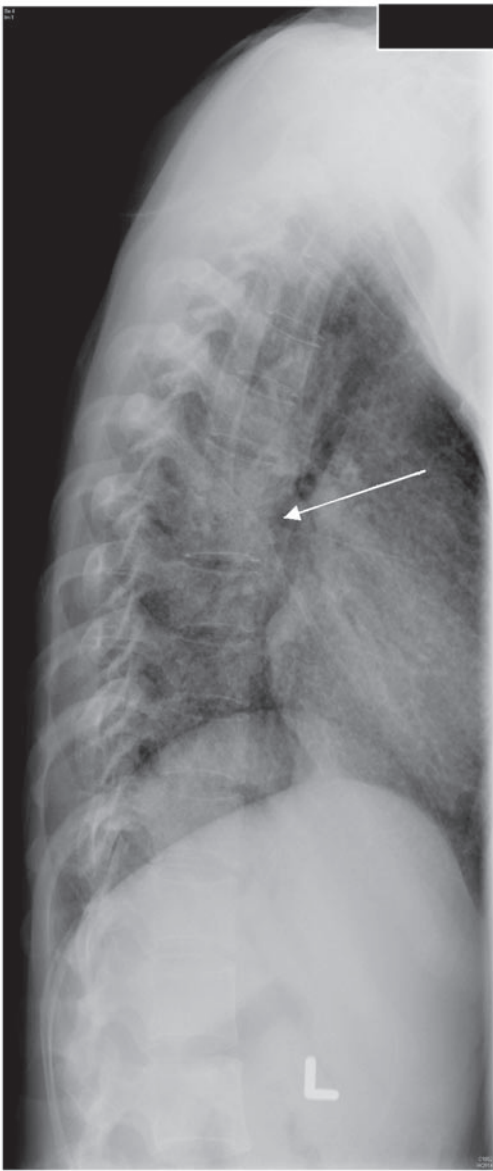


Figure 2.

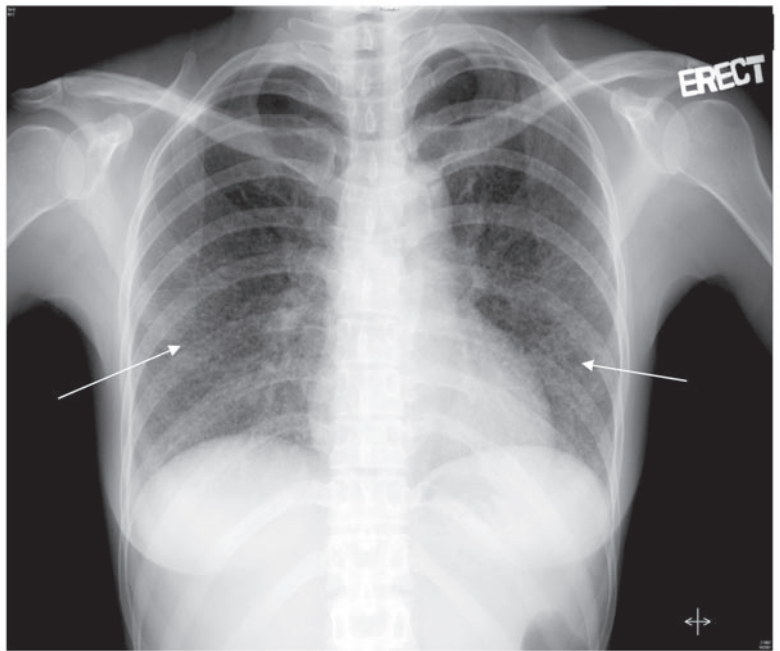


Figure 3.



Figure 4.



Figure 5.

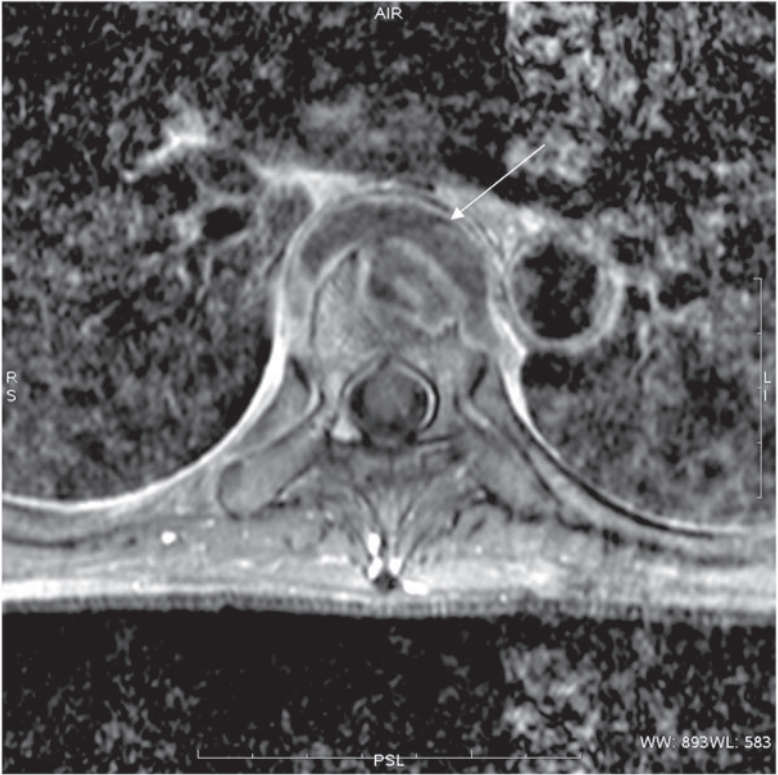


Figure 6.

## Answers

1. There is spondylodiscitis at T6-7 with bony erosion/destruction of the opposing endplates and diminished intervening disc space. The involved endplates are ill-defined. The pedicles are preserved and intact. The background lung included in the radiographs of the thoracic spine also shows multiple small lung nodules. The chest radiograph reveals multiple diffuse tiny lung nodules suggestive of miliary pulmonary tuberculosis (TB). The diagnosis is TB spondylodiscitis. Differential diagnoses are pyogenic spondylodiscitis and disseminated metastasis. However metastasis seldom involves the disc.<sup>1</sup>
2. The purpose of the MRI spine is to look for the extent of the spondylodiscitis; other sites of spinal involvement; pre/paravertebral abscess and any extension into the spinal canal.
3. MRI of the spine (Figures 4 & 5: Sagittal T2W and T1W post-gadolinium; Figure 6: Axial T1W post-gadolinium) shows established spondylodiscitis at T6/7. The inflammatory process spreads beneath the anterior longitudinal ligament and also involves the T5 vertebra above and T8 vertebra below. There is also abscess formation in the destructed disc space at T6/7, as well as the prevertebral space.
4. Other useful radiological investigations include CT scan of the abdomen to look for psoas abscess formation; and CT-guided bone biopsy of the involved spine to obtain tissue diagnosis and culture.

## Discussion

Tuberculosis spondylitis can be a cause of non-specific back pain. TB infection can be divided into pulmonary and extra-pulmonary involvement. The spine is the most common extra-pulmonary site being affected.<sup>2</sup> Amongst TB spondylitis, it is

estimated that about 2/3 of them will have an abnormal chest radiograph.<sup>1,2</sup>

The upper lumbar and lower thoracic spine are frequently involved in TB spondylitis.<sup>1</sup> TB spondylitis has a predilection to spread beneath the anterior longitudinal ligament and thus involves several contiguous vertebrae. It is said that disc destruction is a less severe or late presentation compared with pyogenic spondylitis. Paravertebral abscess is also said to be more common in TB than pyogenic spondylitis.<sup>3</sup>

For our case, subsequent CT-guided biopsy of the T6/7 spondylodiscitis complex showed the presence of granulomatous inflammation suggestive of TB; and tissue culture yielded *Mycobacterium tuberculosis*. The diagnosis of TB spondylodiscitis was confirmed. The patient was subsequently treated with anti-TB medications, anterior spinal fusion of T6-7 and surgical drainage of the prevertebral abscess.

To conclude, TB spondylodiscitis can present as non-specific back pain without overt clinical signs. Occasionally, plain radiographs alone can give clues to it. Awareness of this disease entity is important as TB is not rare in our locality.<sup>4</sup>

## References

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