

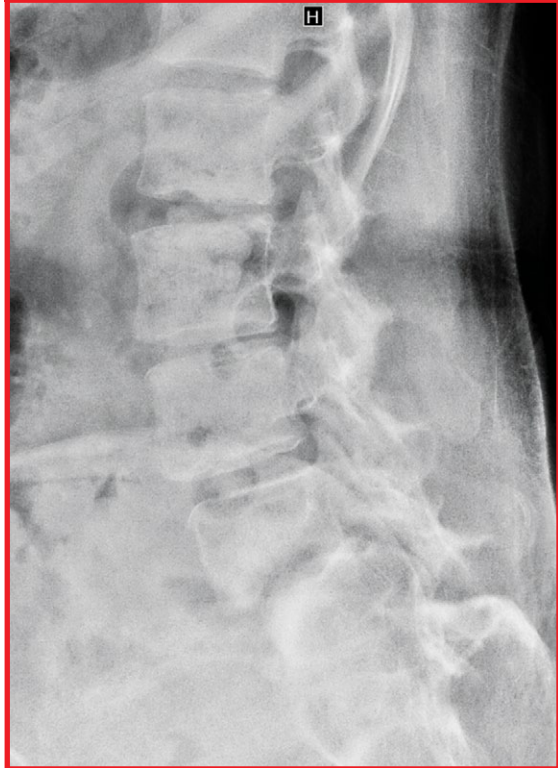
EMERGENCY IMAGING

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FIGURE 1



FIGURE 2



A 51-year-old man presents to the ED with worsening lumbar back pain and a low-grade fever. AP and lateral radiographs of the spine are obtained (Figures 1 and 2).

What is your diagnosis?

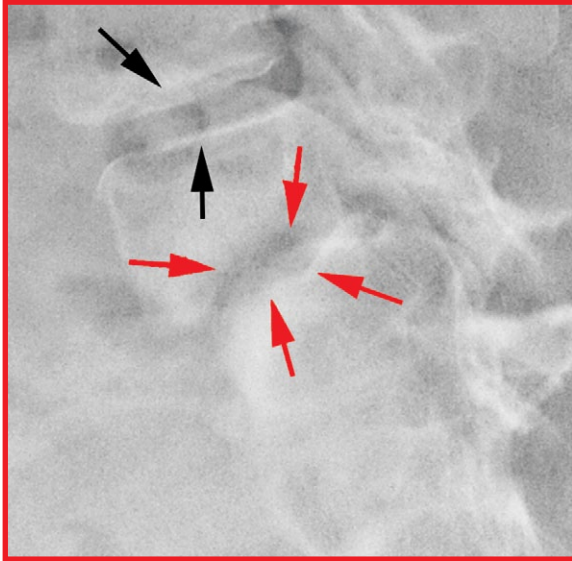
What is the next imaging examination that should be performed?

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CONTINUED

ANSWER

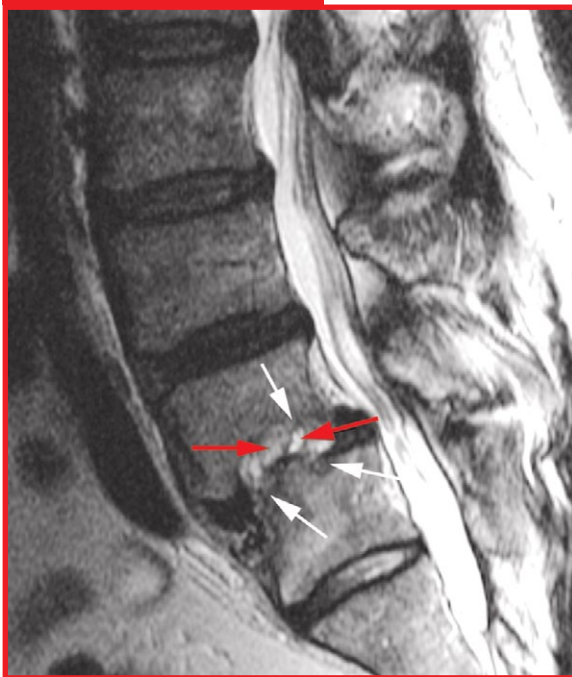
FIGURE 3



On the lateral view of the spine (Figure 3), there is loss of the sharp definition of the inferior end plate of the L5 vertebral body, as well as of the superior end plate of S1 (red arrows). Note the sharp margins of the end plates at a nonaffected level (black arrows). The radiographic finding of end plate destruction occurring on both sides of a disk space suggests the presence of spondylodiskitis.

Spondylodiskitis, the infection of the spine and disk space, is uncommon, accounting for 2% to 4% of all musculoskeletal infections.^{1,2} Spondylodiskitis most commonly occurs in the lumbar spine (50%), followed by the thoracic spine (35%) and cervical spine (15%).² Patients typically have a history of worsening back pain. This may be associated with fever/chills, night sweats, malaise, or weight loss. Frequently, there are elevations of the white blood cell count and increases in inflammatory markers such as the erythrocyte sedimentation rate and C-reactive protein levels, although these findings may be absent.² Neurologic compromise may occur but is typically a late complication of the disease.

FIGURE 4

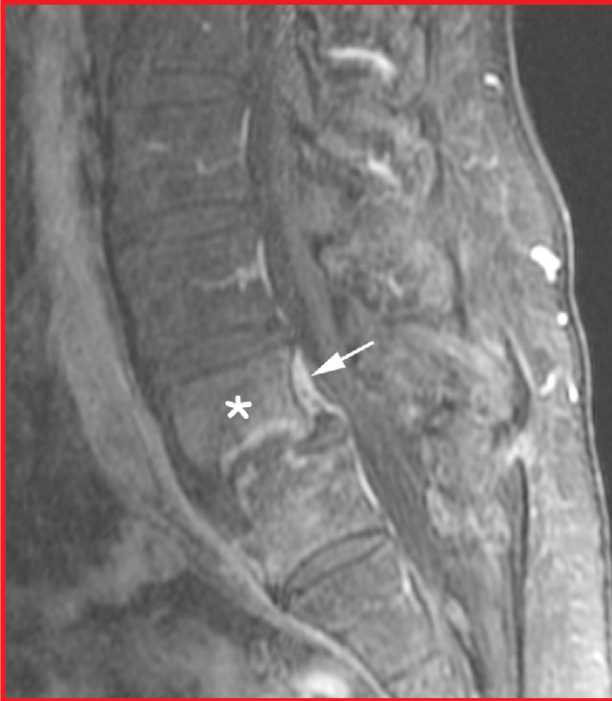


In adults, the infection usually begins in the vascularized vertebral body end plate and spreads into the disk space and to the adjacent vertebral body. The organisms most often responsible are gram-positive bacteria, including *Staphylococcus aureus* and streptococcal species.³ In patients who abuse IV drugs, gram-negative bacilli are commonly found. Other organisms such as parasites, fungi, and *Mycobacterium tuberculosis* most frequently occur in immunocompromised patients.³

When spondylodiskitis is detected on radiographs or when there is high clinical suspicion for such despite normal radiographic findings, MRI utilizing IV contrast is the preferred choice for further evaluation. Figure 4 is a T₂-weighted image from an MRI examination in this patient demonstrating the end plate destruction (white arrows), as well as abnormally increased signal in the intervening disk space (red arrows). The loss of disk integrity has resulted in anterolisthesis of L4 on L5.

MRI also has the ability to depict soft-tissue extension, such as an epidural abscess. In Figure 5, a sagittal T₁-weighted contrast-enhanced image from the case patient, increased

FIGURE 5



enhancement (white arrow) is seen in the epidural space posterior to the L4 vertebral body (white asterisk), indicating the presence of an abscess.

Most cases of spondylodiskitis may be treated conservatively with antibiotics and bracing. Surgical treatment may be necessary if there is evidence of neurologic compromise, cauda equina syndrome, instability of the spine, vertebral collapse, or worsening soft-tissue or epidural abscess.^{2,4} Despite the spinal listhesis demonstrated on the MRI, this patient was treated conservatively without additional complication. **EM**

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