

## Rapidly occurring spondylodiscitis at the distal level following lumbar transforaminal epidural injection

### Lomber transforaminal epidural enjeksiyon sonrası distal seviyede hızla gelişen spondilodiskit

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Transforaminal epidural steroid injection (TFSI) is a common treatment for lumbar radicular low back pain, but it has complications, including infection.<sup>[1]</sup> Rare infections such as epidural abscess, meningitis, and discitis may occur.<sup>[2]</sup> This article reports a case of spondylodiscitis in a patient who received TFSI for lumbar radiculopathy. A written informed consent was obtained from the patient for publication of this case report.

A 68-year-old man presented to our outpatient pain management clinic with pain radiating from the lower back to the right leg, persisting for three months with burning and stinging pain in the right leg. He reported no loss of strength or incontinence. He previously used various non-steroidal anti-inflammatory drugs (NSAIDs) for pain palliation without any relief. He had no other previous history of diseases. During physical examination, the straight-leg raising test was positive at 40 degrees on the right side and hypoesthesia was noted in the L4 dermatome. The patient exhibited complete muscle strength, normoactive deep tendon reflexes, and no pathological reflexes. Magnetic resonance imaging (MRI) revealed a lumbar disc lesion at L4-5 with root compression at the right L4. After evaluating his medical history and physical exam, it was decided to administer TFSI at the right L4 level. Complete blood count, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) value, renal and liver function

indices, and bleeding time indices were within normal limits before the procedure. The patient received right L4 TFSI via fluoroscopy-guided supraneural approach. During the procedure, a mixture of dexamethasone and lidocaine 1% was administered after contrast medium application. The procedure was performed in the operating room under aseptic conditions.

Five days post-procedure, the patient reported severe axial low back pain, which started one day after the procedure and worsened over time. He was unable to walk due to severe pain. Upon physical examination, muscle strength was complete and deep tendon reflexes were normoactive. The CRP value was 149.8 mg/L (reference range [RR]: 0-5 mg/L), ESR was 48 mm/h, and white blood cell count was 10,500/mL (RR: 4,500-10,000/mL). Lumbar MRI showed contrast involvement at the L5-S1 disc (Figure 1). There was no cultural growth in blood and urine, and Brucella tests were negative. No infection source was found on contrast-enhanced computed tomography of the thorax, abdomen, and pelvis. Transesophageal echocardiogram ruled out endocarditis. The patient declined a discal biopsy. He was administered intravenous ampicillin-sulbactam at 4x1.5 g for two weeks based on a preliminary diagnosis of spondylodiscitis. The NSAIDs and tramadol were used for pain palliation. After two weeks, all blood values returned to normal limits. He was treated with oral amoxicillin-clavulanate and

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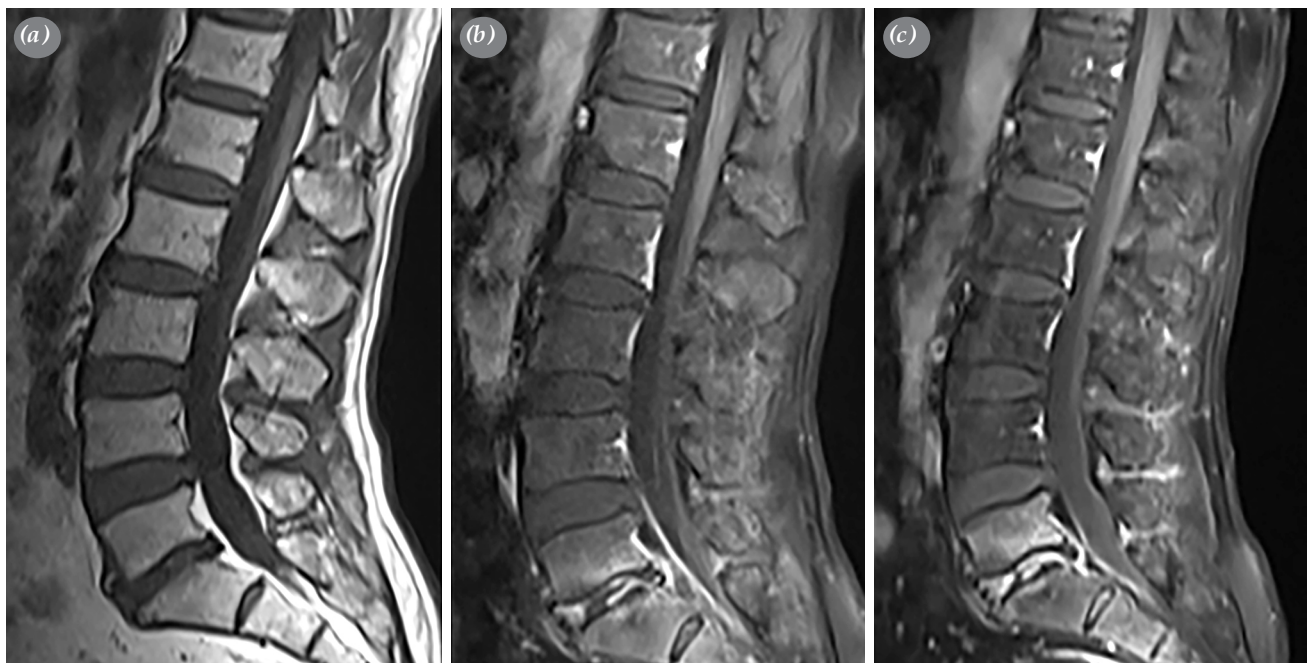
ciprofloxacin for approximately 10 weeks following discharge. He underwent control contrast-enhanced lumbar MRI at three months, which revealed a 25% height loss in the L5 vertebral corpus and persistent contrast involvement at L5-S1 (Figure 1). The patient's Numerical Pain Rating Scale score was 1, and blood parameters were within normal limits at four months of follow-up.

In this case, the only symptom was post-injection lower back pain, which increased over time. Soft tissue pain from the injection itself may occur subsequent to lumbar interventional procedures and is usually self-limiting. However, if pain increases post-TFSI, major complications, including meningitis, epidural abscess, arachnoiditis, and epidural hematoma, should be considered in the differential diagnosis.<sup>[3]</sup> Post-injection spondylodiscitis is also a serious complication, although rare, and only a limited number of case reports have documented its incidence.

Hooten et al.<sup>[2]</sup> reported a 64-year-old man who underwent epidural steroid injection through the L5-S1 interval via the interlaminar route. He presented to the outpatient clinic six weeks post-injection with lower back pain and fever. Right lumbosacral paraspinous tenderness and absence of right patellar reflex were observed during physical

examination. The MRI indicated inflammation in the disc at the injection site and the patient underwent surgery. The surgical disc material was highly purulent, and the same pathogen grew in the blood and disc cultures. The patient was treated with intravenous antibiotics. Yue and Tan<sup>[4]</sup> reported another case including a 73-year-old woman who received an epidural steroid injection via the caudal route. One month after the procedure, the patient reported increased lower back pain with an elevated sedimentation rate and CRP level, and discitis was found at two different disc levels. The patient was administered antibiotic treatment, and no surgical intervention was undertaken.

There are two likely mechanisms of spondylodiscitis following spinal intervention. The first is direct penetration of the needle into the disc and surrounding structures, whereas the other is hematogenous dissemination.<sup>[4]</sup> The fact that the spondylodiscitis level in our current case was distant from the injection level excludes the mechanism associated with direct penetration. Although the hematogenous spread mechanism seemed more likely, Hooten et al.<sup>[2]</sup> reported that the mean time to onset of symptoms was seven days in patients who developed infectious complications following spinal injection. In our case, the time to onset of axial lower back pain



**Figure 1.** (a) Normal sagittal T1-weighted MRI before the injection. (b) and (c) Sagittal T1-weighted post gadolinium MRIs showed contrast enhancement in the L5 lower and S1 upper end-plates and L5-S1 disc. (b) Five days post-injection. (c) Three months post-injection.

MRI, magnetic resonance imaging.

was one day, which can be considered a short period for hematogenous spread. Bacteremia, which occurs during the perioperative period, is a possible mechanism of hematogenous inoculation of the spine. Numerous conditions could be associated with bacteremia from interventions, including urinary catheterization, dental diseases, tonsillitis, urogenital infections, bile duct-related infections, and even simple tooth brushing.<sup>[5]</sup> Although there was no hematogenous inoculation in the present case, this possibility could not be excluded. Another possibility was that discitis might have occurred at the same level, which was not recognized before the injection. Nevertheless, the fact that MRI images obtained 10 days before TFSI showed no evidence of discitis and the sedimentation and CRP values were within normal limits a few days before the procedure rules out the possibility that the patient had unrecognized discitis during the procedure.

In conclusion, there is no reported case in the literature of spondylodiscitis rapidly occurring after lumbar TFSI distant from the injection level. Although lumbar TFSI is considered safe, infective complications should be considered in patients who develop severe lower back pain following epidural injection. Early recognition and prompt treatment of such major complications are critical to improving clinical outcomes. This case highlights the importance of vigilance and early diagnostic consideration of infective etiologies after spinal injection procedures, despite their low reported incidence.

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The data that support the findings of this study are available from the corresponding author upon reasonable request.

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