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LETTER TO THE EDITOR

Progression of disc herniation after transforaminal epidural steroid injection: Should it be progression or regression?

Transforaminal epidural steroid enjeksiyonu sonrası disk hernisinde progresyon: Progresyon mu yoksa regresyon mu olmalı?

Yasin OKUMUŞ,[1] Rekib SAÇAKLIDIR,[2] Savaş ŞENCAN,[2] Osman Hakan GÜNDÜZ[2]

To the Editor,

Lumbar disc herniation is a clinical picture that causes low back and lower extremity pain, mostly seen in the third and fifth decades.[1] The pressure exerted by the herniated disc on the longitudinal ligament and the irritation caused by local inflammation lead to localized low back pain. Radicular pain occurs due to nerve root ischemia and inflammation as a result of the compression of herniated disc material on the thecal sac or nerve roots.[2]

The lumbar disc herniation symptoms usually resolve spontaneously within 6 to 12 weeks. Therefore, conservative and interventional treatments are preferred primarily, except in cases such as progressive neurological deficit or cauda equina syndrome.[1,3] Conservative treatments include rest, patient education, exercise, analgesic treatments, and physical therapy. If symptoms do not improve with conservative treatments, epidural steroid injections may be considered for pain relief.[1] Transforaminal epidural steroid injection (TFESI), a route of epidural steroid injection, provides a significant advantage by injecting drugs into the ventral epidural space where pathological changes occur during disc herniation.[4] The TFESI treatment usually provides improvement in pain and functionality.[5] In addition, some studies show that epidural steroid injection can provide resorption of disc material.[6,7] To the best of our knowledge, there is no publication in the literature showing the progression of disc material after epidural steroid injection. In this case report, we aimed to report a case of progression of disc herniation after TFESI and inform our colleagues about this possible situation.

A 35-year-old female patient was admitted to our outpatient clinic with complaints of low back pain radiating to the left leg for four months. She received physical therapy and medical treatment, but there was no pain relief. In the physical examination of the patient, the straight leg raising (SLR) test was positive at 60 degrees on the left side and there was no motor or sensory deficit. Hip examination was normal bilaterally. The patient's MRI revealed left nerve root compression and annular tear in the L4-L5 disc level and left paracentral disc herniation in the L5-S1 disc level (Fig. 1). TFESI was planned for the left L4-L5 and L5-S1 levels.

Procedures: The patient was placed in the prone position, and a pillow was placed under her abdomen to reduce lumbar lordosis. The injection area was cleaned three times with Batticon and covered with a sterile drape. The fluoroscopy device was rotated with an average 10–30° oblique and 0–15° cranial angle for visualization of the foramen. Local anesthetic (3 cc 2% prilocaine) was injected into the skin, subcutaneous tissue, and then the tip of a 22-gauge, 3.5-inch Quincke spinal needle was slowly advanced

[1]Department of Physical Medicine and Rehabilitation, Marmara University Faculty of Medicine, İstanbul, Türkiye
[2]Division of Algology, Department of Physical Medicine and Rehabilitation, Marmara University Faculty of Medicine, İstanbul, Türkiye

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Correspondence: Dr. Rekib Saçaklıdır. Marmara Üniversitesi Tıp Fakültesi, Fiziksel Tıp ve Rehabilitasyon Anabilim Dalı, Algoloji Kliniği, İstanbul, Türkiye.
Phone: +90 - 212 - 373 50 00 **e-mail:** rakipsacakli@hotmail.com

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Figure 1. Left nerve root compression, protrusion, and annular tear in L4-L5 (A); Left paracentral disc herniation at L5-S1 (B).

towards the 6 o'clock position of the pedicle under intermittent fluoroscopic guidance. As the epidural space was approached, it was confirmed with a lateral view if the needle was in the sub-pedicular area. Then, 1-2 ml of contrast material was given. Having observed that an epidural spread occurred, followed by no vascularity (Fig. 2), a mixture of 6 mg betamethasone, 1 cc 0.5% bupivacaine, and 1 cc saline was injected into the epidural space.

Postinjection Period: No complications were observed during or after TFESI. The Numerical Rating Scale (NRS) score of the patient was 10 before the procedure, and the NRS score was 0 at the first hour after the injection. The patient was discharged with recommendations after two hours of observation.

Two days later, the patient applied to our outpatient clinic with complaints of increased pain and difficulty in walking. The patient stated that she did not engage in any activities such as excessive movement or heavy lifting. In the physical examination of the patient, the left extensor hallucis longus was 3/5. The SLR was positive at 30 degrees on the left and 45 degrees on the right side. There was no urinary or fecal incontinence. The contrast-enhanced MRI revealed progression of herniation at the L4-L5 disc level (Fig. 3). Pregabalin 2x150 mg and tramadol 3x50 mg were started for the patient's neuropathic pain. The patient was consulted to the neurosurgery department, and surgery was recommended.

Transforaminal epidural steroid injection (TFESI) has been used for low back pain for many years, and there is Level I evidence for the use of TFESI for radicular pain from disc herniation in the short or medium term.[5] However, in the present case, we found aggravated pain, motor deficiency, and an increase in herniated disc material after epidural steroid injection.

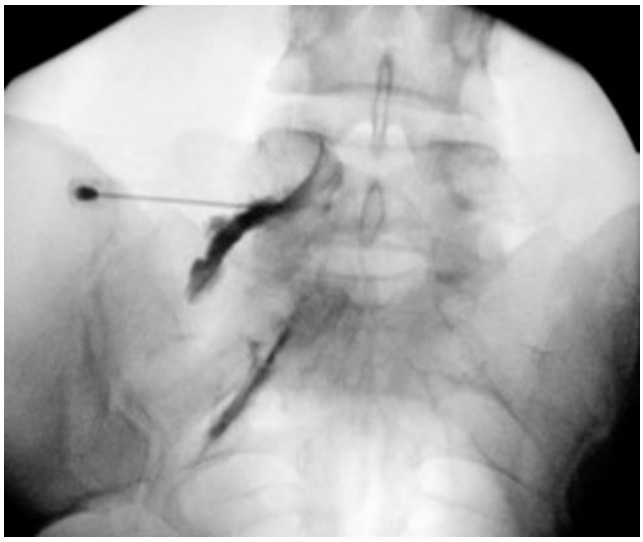

Figure 2. Fluoroscopic image of contrast distribution in left L5 and S1 nerve roots.

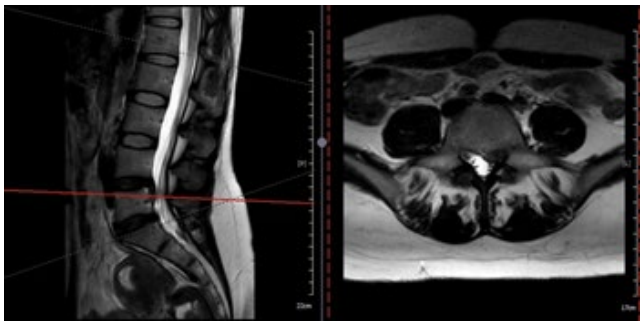

Figure 3. Progression of herniation in the L4-L5 disc after epidural injection.

Lumbar disc herniation usually regresses spontaneously or with conservative treatment.[1,2] Also, some studies have shown resorption of disc herniation after TFESI.[6,7] However, these studies did not present any hypotheses regarding the relationship between epidural steroid injection and disc regression. Contrary to these studies, in the present case, a progression of disc herniation was detected after TFESI. There is no definite reason to explain the increase in the size of the disc herniation after injection, but some possible scenarios can be evaluated.

As the first possible scenario, the high volume of the injection given to the epidural space may have caused an increase in pressure, disrupting the disc material. Furman et al.[8] recommended 0.5 to 5 ml as the injectable volume for the treatment of lumbar TFESI. However, there is no clear information about the ideal volume to be given in the epidural space.

As a second scenario, it can be said that this progression of hernia may have developed through natural processes independent of the injection. According to Anderson et al.,[9] young age and smoking were found to be risk factors for the progression of disc herniation in the natural process. The fact that our patient was also young and had a history of smoking supports the current study but does not provide us with conclusive evidence.

Transforaminal epidural steroid injections have been shown to be effective in treating radicular pain due to lumbar disc herniation and can reduce the size of hernia in some cases. In the present case, an increase in hernia size was detected after TFESI. However, prospective controlled studies are needed to determine whether this is a possible side effect of the treatment or not.

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