

Interlaminar Approach for Excision of Lateral Lumbar Disc Herniation: Technical Note

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Study Design. Technical note.

Objective. To show that approaching the lateral lumbar disc from the contralateral interlaminar space offers a wider exposure with reduced facet removal.

Summary of Background Data. The interlaminar approach is a well-established approach for the removal of lateral lumbar disc herniation (LLDH). However, access to the lateral disc space *via* this approach may be difficult and requires generous facet joint removal.

Methods. A 41-year-old woman presented with a 2-year history of low back pain and severe left leg pain. Computerized tomography of the lumbar spine revealed a left-sided intraforaminal lateral disc protrusion at L4/5 level.

Results. The patient underwent a left L4/5 discectomy and removal of the lateral disc *via* the interlaminar approach from the contralateral (right) side with excellent postoperative result.

Conclusions. The authors present a modification of the interlaminar microsurgical approach for excision of an intraforaminal lateral disc herniation in which the herniated disc is approached from the contralateral interlaminar space through a midline incision. The facet joint removal is less, and the exposure is superior to the traditional interlaminar approach.

Key words: interlaminar, lumbar, lateral disc herniation.
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Lateral lumbar disc herniation (LLDH) constitutes 7% to 12% of all disc herniations in the lumbar region.^{1–4} It occurs commonly at the upper lumbar levels,^{3,5,6} and includes herniation both within and outside the intervertebral foramen. The clinical presentation often involves mild-to-moderate low back pain and, more often, lancinating radicular leg pain reflecting compression of the superiorly exiting nerve root and dorsal ganglion against the strong intertransverse ligament.

Although conservative treatment is occasionally successful,^{3,7} surgery is commonly required. Approaching LLDH can be challenging. Various surgical approaches have been described depending on the relationship of the

herniation to the intervertebral foramen,^{2,3,6,7–15} extent of stenosis, and concomitant degenerative changes.^{2,3,5,6,15–17} In 1934, Mixter and Barr¹⁸ described the posterior midline approach for removal of a posterolateral LDH. This approach, in conjunction with unilateral facetectomy, has been advocated by several investigators^{1–3,5,6,11,13,16} for removal of LLDH. We describe a variation of this latter approach for removal of an intraforaminal lumbar disc herniation with excellent result.

■ Case History

A 41-year-old woman presented with a 2-year history of persistent low back pain, with pain radiating down her left leg that had not settled with conservative treatment. On examination, she did not have any obvious neurologic deficits. Magnetic resonance imaging (MRI) of her lumbar spine revealed some degenerative changes associated with the presence of a left intraforaminal lateral disc protrusion at the L4–L5 level. This protrusion was more clearly shown on computerized tomography (CT) of the lumbar spine (Figure 1). She underwent a left L4–5 discectomy and decompression of the compressed nerve root with the interlaminar approach (Figure 2). Following surgery, her pain disappeared, and she returned home on the second postoperative day. CT scan of her lumbar spine performed following surgery (Figure 3) showed satisfactory removal of the herniated disc. She was reviewed in the outpatient clinic 6 weeks later and remained completely asymptomatic. At present, more than a year following her surgery, she remains well with no recurrence of her symptoms.

■ Operative Technique

With the patient prone, the surgeon stands on the side opposite to that of the disc herniation. A midline incision, 3-cm long, is made, and the paravertebral muscles are retracted subperiosteally to expose the interlaminar spaces on both sides. The operating microscope is now brought in. The interspinous ligament and ligamentum flavum bilaterally are resected exposing the dura. The laminae removal is limited to the lower third of the superior and upper quarter or third of the lower lamina on the side of the disc prolapse. From the contralateral side, a portion of the medial third of the facet joint on the side of disc herniation is removed using a 3-mm Kerrison punch. The latter is particularly useful to obtain an optimum view of the lateral space in this tangential exposure. The edge of dura is visualised and then the nerve root is identified and followed outwards. The latter is protected by retraction with a nerve root retractor, while

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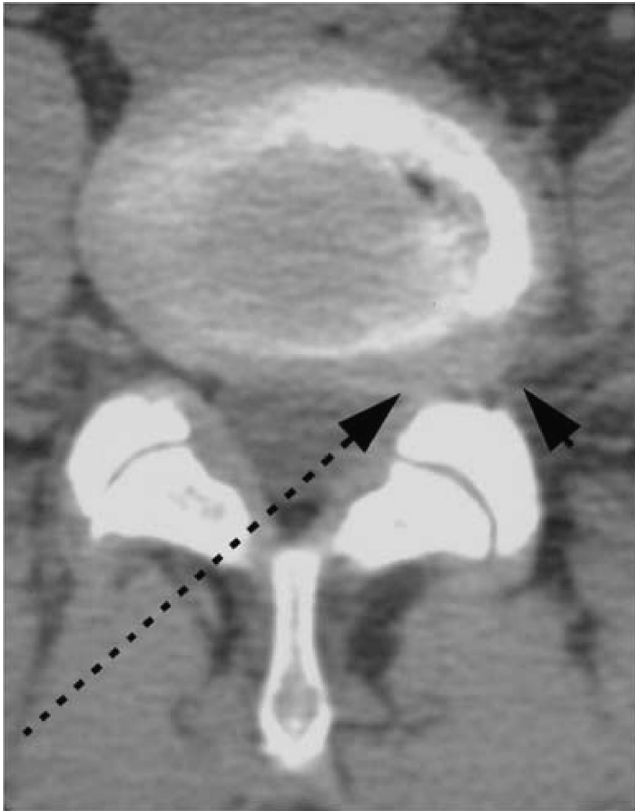


Figure 1. CT of lumbar spine shows a left-sided lateral (intraforaminal) disc protrusion (small arrow) and the surgical approach from the opposite side (long arrow).

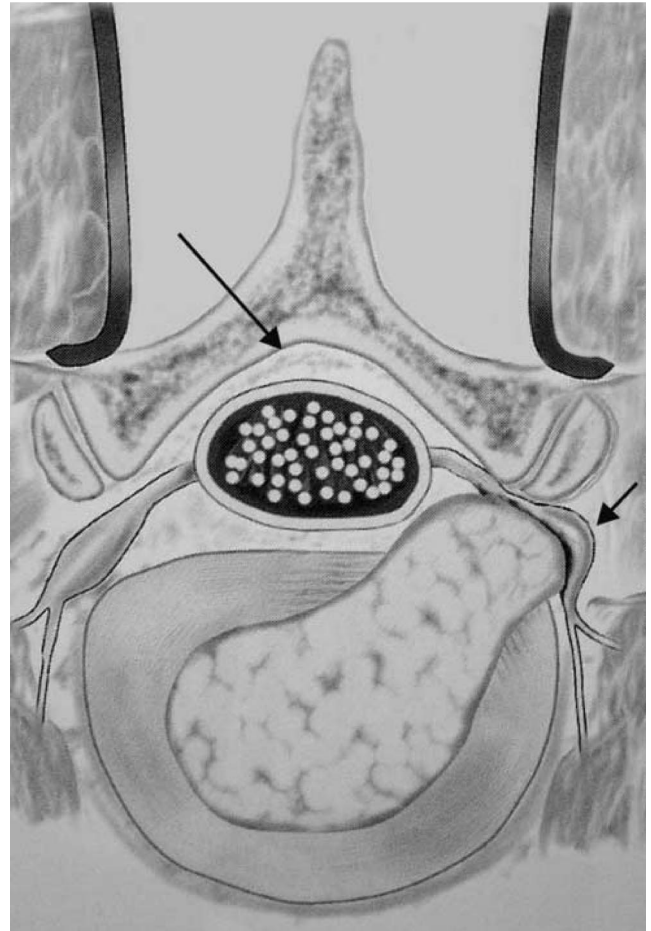


Figure 2. Schematic diagram showing the tangential interlaminar approach (long arrow) used for removal of left-lateral intraforaminal disc herniation (small arrow).

the underlying annulus fibrosus is incised with a No. 11 blade in a cruciate fashion. With the nerve root kept retracted, a pituitary rongeur is inserted into the disc space tangentially, from the contralateral side, to remove all accessible disc material. The total time taken for the procedure was 90 minutes, with less than 200 mL of blood loss.

■ Discussion

In 1974, Abdullah *et al*¹ was the first to describe the clinical syndrome of extreme LLDH. Since then, several definitions have been used to describe the anatomic site of this pathology. Intraforaminal, extraforaminal, far-lateral, and extreme lateral are terms that have been used to describe the disc herniation as either into or lateral to the limits of the intervertebral foramen or lateral interpeduncular compartment. This is the space bordered superiorly and inferiorly by the pedicles of the respective vertebrae, and ventrally by the posterolateral portion of the vertebral body and disc space. Both CT and MRI are fairly accurate in showing the pathology.^{3,6,17,19} Some investigators believe that MRI has not been as useful in identifying these laterally herniated discs. Discography with or without CT has been helpful in equivocal cases.^{5,11} We found CT to be more informative in our patient.

The common approach used by most surgeons until the early 1980s to remove a LLDH was an upward and lateral enlargement of the interlaminar fenestration.^{1,5,16,17} In the process, the base of the inferior artic-

ular process was removed to reach the medial margin of the herniated disc and decompress the root. Such facetectomy in conjunction with discectomy can lead to persistent severe back pain, with some of these patients eventually requiring lumbar fusion. However, contrary to previous belief, the risk of spinal instability does not appear to be as high as estimated, with only up to 2% of patients requiring fusion according to some of the larger series.^{3,10,11,17,20}

The lateral approach, with its highest respect for bony articular and muscular structures, was introduced as an alternative procedure.^{9,13,17} A standard midline, paramedian, or even a retroperitoneal approach was used. Such a lateral approach may be technically demanding, especially at the L5–S1 level. Moreover, it is unable to deal with concomitant spinal stenosis or a paramedian disc protrusion.^{3,4,10,17} Most series describe a slightly older population for lateral lumbar disc than seen with central herniations, with average age ranging from 55 to 65 years.^{1,3,8} Many of these patients also have associated canal stenosis. Therefore, a “combined lateral and interlaminar approach” was devised to address the problem.¹⁵ However, this procedure is much more complex, with longer operating time, and does not appear to have

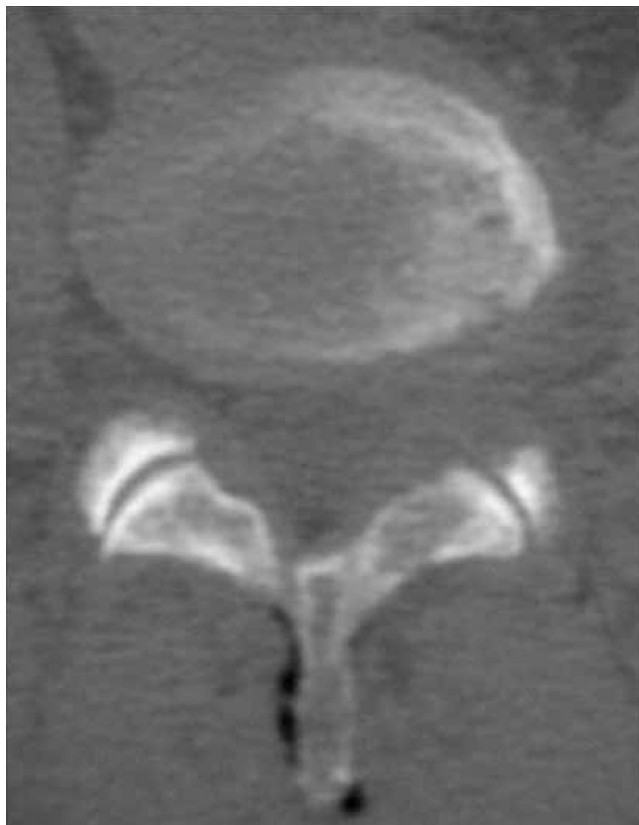


Figure 3. Postoperative CT illustrates satisfactory removal of the herniated disc along with a portion of medial facet.

any better results beyond that for the extravertebral approach alone.

Epstein³ has reported that operating across the table opposite to the disc herniation helps to improve visualization, but he thought that it does not provide access to the far-lateral compartment. We agree that our approach is unsuitable for strict far-lateral disc herniations, but, for an intraforaminal LLDH, our technique is relatively quick, effective, and requires less facet joint removal than the traditional interlaminar approach. The operative microscope provides optimum visualization of the lateral disc space from the contralateral side. The bony resection and muscle retraction are minimized, resulting in reduced postoperative pain and early mobilization of the patient. In conclusion, we describe a technique for removal of lateral disc herniation that is simple, requires less bone and facet joint resection, and, most importantly, provides excellent visualization of the lateral disc space. Therefore, we recommend this approach as an alternative to other established approaches for excision of an intraforaminal LLDH.

■ Key Points

- Approaching from the contralateral side offers excellent exposure for removal of an intraforaminal LLDH.
- The muscle retraction and facet joint removal are less than the conventional interlaminar approach.
- The approach is quick, effective, and can be used as an alternative for other established procedures for removal of intraforaminal LLDH.

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