

Percutaneous Endoscopic Lumbar Discectomy in a High Risk Cardiac Patient

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ABSTRACT

From 1970s, endoscopic lumbar nerve root decompression progressed from indirect central nucleotomy to direct excision of non-contained extruded disk fragments. Fifty-nine years old man presented with low back pain and severe left-side sciatica. He had suffered myocardial infarction and underwent coronary angioplasty with stents 2 weeks before. Magnetic resonance (MR) images shows paramedian disk prolapse in L4 to L5 level compressing the left-side nerve root. Patient was assessed by anesthesiologist and cardiologist and reported as very high risk to undergo general anesthesia due to recent myocardial infarction and angioplasty. He underwent percutaneous endoscopic lumbar discectomy (PELD) under local anesthesia with conscious sedation. Patient was able to tell the pain relief on the table after removing the prolapsed fragment. At the end of the procedure freely mobile nerve root was seen. Patient was completely relieved of his symptoms and mobilized on same day. To our knowledge PELD in high risk cardiac patient have not been reported in literature before.

Keywords: Endoscopic discectomy, Disk prolapse, PELD, High risk cardiac patient.

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INTRODUCTION

Lumbar disk prolapse is a common problem leading to spinal surgery.¹ From 1970s, endoscopic lumbar nerve root decompression progressed from indirect central nucleotomy to direct excision of non-contained extruded disk fragments.^{2,3} Percutaneous endoscopic lumbar discectomy (PELD) through transforaminal approach can be done under local anesthesia with conscious sedation without the necessity for general anesthesia. This procedure has been done even in morbidly obese high risk patients.⁴

To our knowledge, PELD in high risk cardiac patients has not been reported. We report a case of high risk

cardiac patient who had L4 to L5 disk prolapse with left-side sciatica treated by PELD.

HISTORY AND PRESENTATION

This 59 years old man presented with low back pain and severe left-side sciatica. Left lower limb pain started 6 weeks back and gradually worsened. Patient had history of occasional low back pain on and off for the previous one year. No history of trauma and constitutional symptoms. Patient was initially treated by conservative methods including nonsteroidal anti-inflammatory medicines and physiotherapy in the local hospital but pain not subsided. Patient was advised for microdiscectomy but was not willing at that time. Mean while patient developed myocardial infarction and underwent angioplasty with drug-eluting stents. He was put on clopidogrel and aspirin (dual anti-platelet agents) to prevent restenosis, and these drugs are to be continued for at least 1 year post-stenting. Two weeks later patient visited us for intolerable left-leg pain. Leg pain was very severe and his activities of daily life were affected. He complained of numbness on his left leg outer aspect. He had no bowel and bladder disturbance.

PHYSICAL EXAMINATION

On examination patient had mild tenderness in lower lumbar region, straight leg raise test was positive on 30° in left lower limb, paresthesia in the L5 dermatome and had weakness of extensor hallucis longus. Spine movements are painful and restricted. Paraspinal muscle spasm was present.

NEUROLOGICAL IMAGING

Plain radiography of lumbosacral spine in anteroposterior and lateral views shown loss of lumbar lordosis and decreased disk space in L4 to L5 level. Dynamic radiography had shown no instability. Magnetic resonance (MR) images shown paracentral disk prolapse in L4 to L5 level compressing the traversing left L5 nerve root (Fig. 1).

SURGICAL INTERVENTION

He suffered from left L5 radicular pain related to the L4 to L5 disk prolapse. Since patient had myocardial infarction and angioplasty 2 weeks before, surgery was considered of very high risk. The patient was counseled about the

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options and a nerve root block was given. There was pain relief immediately, but there was severe pain the next day. Patient was assessed by anesthesiologist and cardiologist and reported as very high risk to undergo general anesthesia. Moreover, the dual antiplatelet agents also invited higher risk for intra- and postoperative bleeding. Hence, we decided to do PELD under local anesthesia with conscious sedation.

PROCEDURE

Patient was in the prone position on the radiolucent table and sterile preparation and draping was done in standard manner. Patient was under conscious sedation with Midazolam 2 mg and Fentanyl 50 mg. Level of the disk was marked under image guidance and entry point was made 13 cm lateral to midline on left side after infiltrating the skin with local anesthesia. An 18G spinal needle was passed into the L4 to L5 disk space in Kambin's⁵ triangle at medial pedicular line. Guidewire was passed into spinal needle and spinal needle was removed. A trocar was inserted over the guidewire after making a stab incision. Then working cannula was inserted into the disk space over the trocar and trocar was removed. Working channel spinal endoscope (Vertebriis, Richard-Wolf GMBH, Germany) was introduced and fragmentectomy was done in standard manner (Figs 2 to 5). Patient was able to tell the pain relief on the table after removing the prolapsed fragment. At the end of the procedure, the freely mobile L5 nerve root was seen (Fig. 6). Complete hemostasis was achieved using Ellman (Ellman, USA) bipolar radiofrequency probe.

POSTOPERATIVE CARE

Patient was completely relieved of pain and mobilized on same day. He was discharged after cardiologist's clearance with advice to continue back care and avoid strenuous activities for 6 weeks.

DISCUSSION

Open lumbar microdiscectomy (OLM) is reported as the standard treatment for painful lumbar disk prolapse with reported success rates varying from 80 to 96%.^{6,7} As a form of minimally invasive surgery, PELD has several advantages over conventional OLM; it is usually performed under local anesthesia, normal paraspinal structures are preserved during the procedure, and the postoperative pain is quite minimal which usually enables early discharge.⁸

In 2006, a randomized control trial (RCT) was set up to compare the outcomes of transforaminal endoscopic spine surgery (TESS) and microdiscectomy at the Royal Infirmary of Edinburgh. Results from the initial 48 patients

have been reported and shows comparable results in both techniques.⁹

A higher rate of revision following TESS may be a reflection of the learning curve related to the procedure. Reported rates of revision in the Dutch series¹⁰ have been 5% lower in the second hundred patients treated.

Percutaneous endoscopic lumbar discectomy (PELD) has several advantages as a minimally invasive procedure

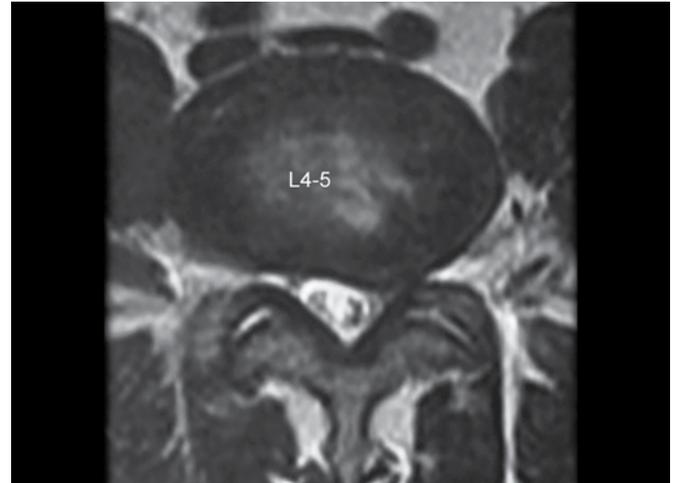


Fig. 1: Axial T2-MR image showing the large left-sided paramedian disk prolapse compressing the traversing root and the dural sac

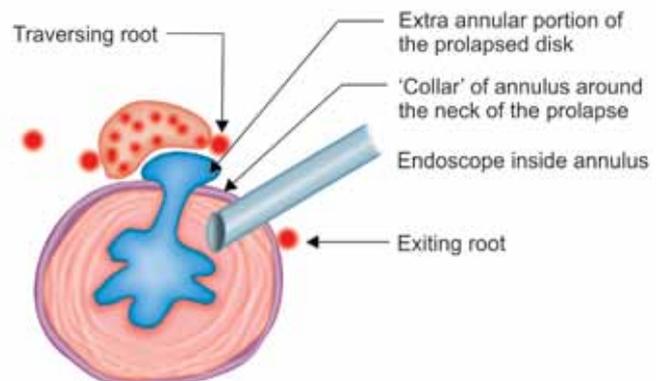


Fig. 2: Illustration of a disk prolapse approached by percutaneous transforaminal endoscopy

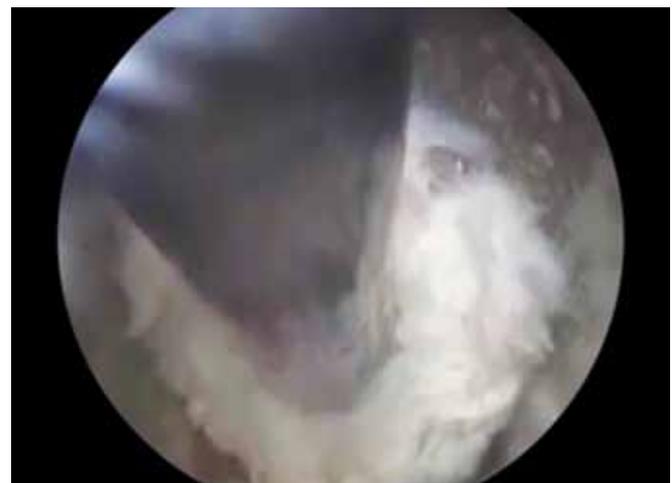


Fig. 3: Removing intradiscal part of the prolapsed disk

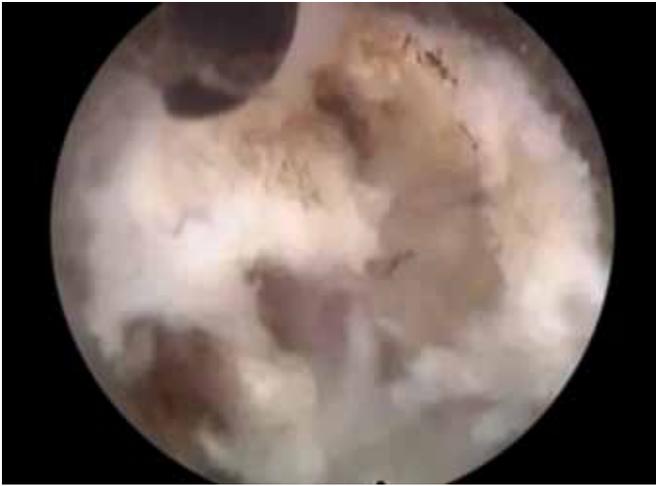


Fig. 4: Cavity after removing the intradiscal part of disrupted disk

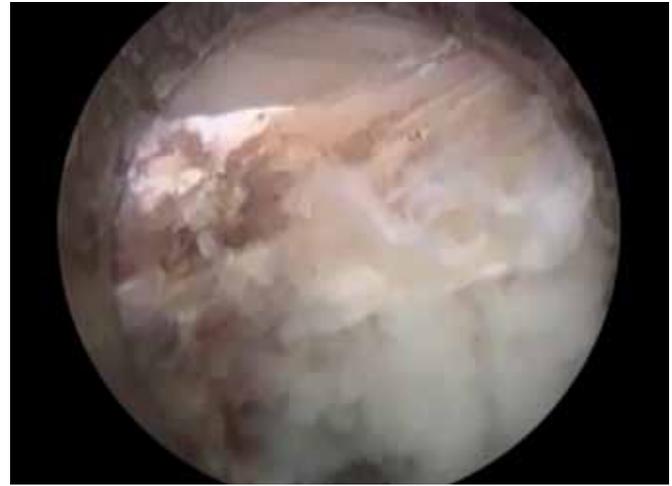


Fig. 5: Annular collar preventing the disk removal

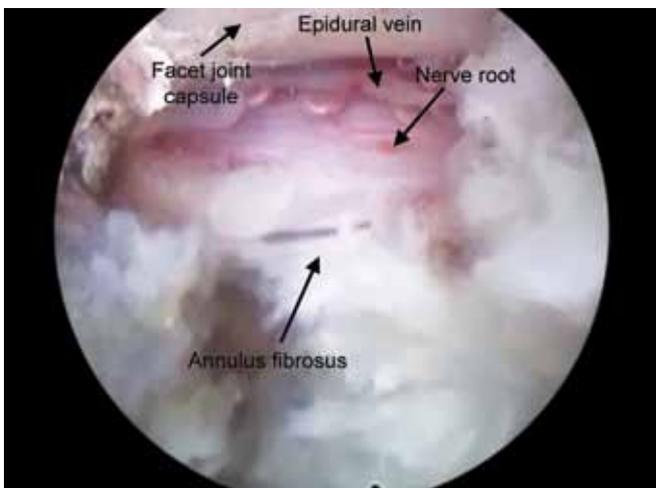


Fig. 6: Endoscopic view of mobilized nerve root

and can get intraoperative feedback from conscious patient and can be performed as day care procedure. It gives an effective alternative to open microdiscectomy in situations where general anesthesia is contraindicated.

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