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Case Report

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Percutaneous endoscopic lumbar endoscopic discectomy in L5-S1 calcified disc herniation

Abstract

Introduction: Calcified lumbar intervertebral disc herniation is a special type of herniated disc, the cause of which is still poorly understood. Chronic inflammation is proposed as a possible cause of calcification. Calcification can occur in the herniated nucleus pulposus when the course of the lumbar herniated disc has been> 6 months. A hard disk increases the stenosis of the nerve root canal and therefore causes compressive symptoms giving dysesthesia in the lower extremities. Most patients will need open surgery as well as subsequent decompression and instrumentation. Percutaneous Endoscopic Lumbar Discectomy, using minimally invasive techniques, is a safe alternative treatment for calcified herniated discs.

Case Presentation: We present the case of a 34-year-old male patient, Police on active duty, with severe low back pain according to the Pain Scale (VAS) of 8 and Oswestry Index of Disability also disabled (56%), in addition to radiculopathy of the long lower left limb evolution, without apparent cause and exacerbated 6 months ago. Magnetic resonance imaging shows a left foraminal paracentral paracentral protrusion hernia with morphological changes like calcification and with L5-S1 caudal migration, in addition to a severe narrowing of the canal.

Conclusions: Percutaneous Endoscopic Lumbar Discectomy is a safe procedure that allows, with minimal invasion techniques, to decompress the medullary canal despite having significant narrowing. It also does not destroy healthy tissue unnecessarily or sacrifice stability. Lastly, a lower incidence of complications is reported.

Keywords: calcified herniated disc, endoscopic discectomy, lumbar spine

Volume 11 Issue 3 - 2023

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Received: September 05, 2023 | **Published:** September 26, 2023

Introduction

Disc herniation is one of the most frequent pathologies in the outpatient clinic. One of the solutions after symptomatic treatment is the minimally invasive technique of percutaneous lumbar endoscopic discectomy, which requires a steep learning curve and is not free of complications. Calcified lumbar intervertebral disc herniation is a special type of disc herniation, the cause of which is still poorly understood. Chronic inflammation is proposed as a possible cause of calcification. Calcification may occur in the herniated nucleus pulposus when the course of lumbar disc herniation has been > 6 months. A hard disc increases the stenosis of the nerve root canal and therefore causes compressive symptoms giving dysesthesias in the lower extremities. Most patients will require open surgery as well as subsequent decompression and instrumentation. Percutaneous Endoscopic Lumbar Discectomy using minimally invasive techniques is a safe alternative treatment for calcified herniated discs.[1–5]

Objectives

To present a clinical case solved with minimally invasive techniques avoiding open surgery with subsequent instrumentation. To evaluate the functional results of the aforementioned technique.

Presentation of the clinical case

The patient is a 34-year-old male patient, with a history of appendectomy 10 years ago and cholecystectomy 1 year 6 months ago, from and resident of Ibarra, married, Catholic and active duty policeman. He consults the National Police Hospital due to severe lumbar pain EVA 8/10 with radicular symptoms consisting of paresis and paresthesia of the left lower limb of long evolution, without apparent cause and exacerbated 6 months ago.[6–8]

Physical examination: Inability to walk heel-to-toe, no spinal deformities were observed, lumbar paravertebral muscles were palpated, contracted and slightly painful, Steindler L5-S1 +, Lasegue + at 15° left, left Bragard +, left achilles hyporeflexia, left L5-S1 dermatoma hyposthesia, FM 3/5 left lower extremity.[9,10] Complementary examinations were performed including MRI in which a left paracentral foraminal protrusion type hernia with calcification type morphological changes and with caudal migration L5-S1, in addition to a severe narrowing of the canal (Figure 1 & 2).[11–15]

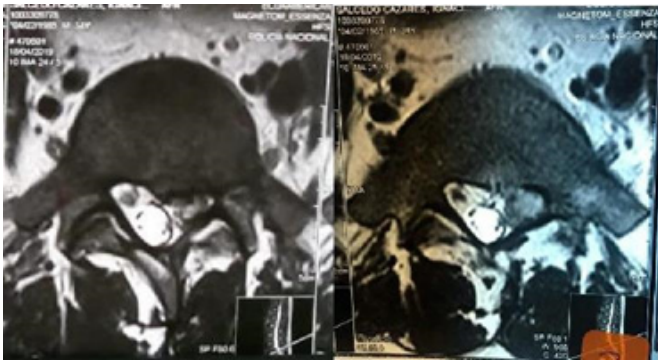

Figure 1 Axial MRI of L5, herniation is observed.

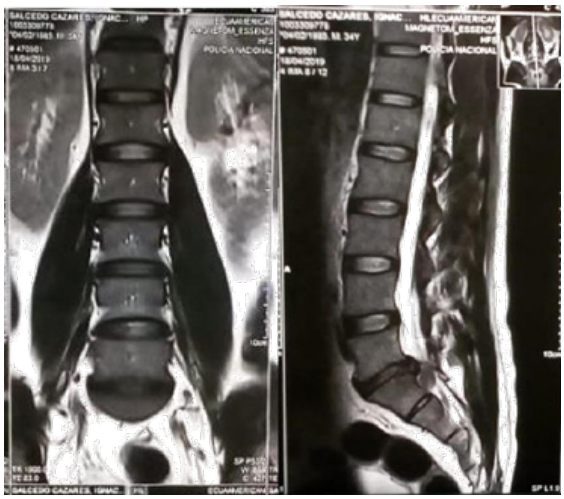

Figure 2 MRI of lumbar spine A) AP view; B) lateral view: L5-S1 herniation is identified.

Minimally invasive surgery was performed by day hospital through Percutaneous Endoscopic Lumbar Discectomy Percutaneous Endoscopic Lumbar Discectomy (DLEP) L5-S1 Left and under general anesthesia. The patient was positioned in ventral decubitus, the surgical area was delimited identifying levels with the support of an image intensifier in both anterior posterior and lateral projections, taking as repairs the superior and inferior pedicle, the vertebral plates and the midline at the level of L5 and S1. An interlaminar number 18 needle was then introduced through Kambin's Triangle (delimited by the superior plateau of the inferior vertebra (S1), the descending root and the protruding root).[16–18]

A guide wire is introduced, with a 0.8 mm skin incision (Figure 3) through which the conical dilator and the 8 mm working sheath and the endoscope are introduced. The discectomy began after locating the root and its relationship with the herniated fragment, according to the technique called fragmentectomy, an adequate radicular liberation was sought, thus achieving disc decompression (Figure 4 A & B).[19,20] Finally, the patient remained 3 hours under observation, after which and after an adequate recovery he was discharged with indications and control in 15 days.[21]

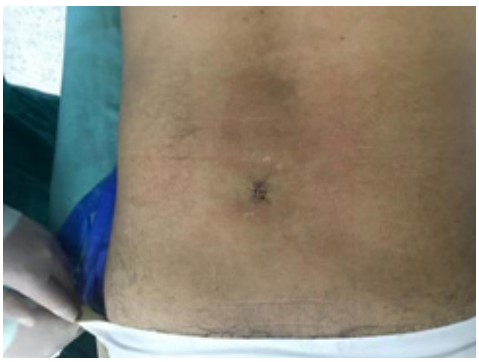

Figure 3 Minimum incision 0.8mm.

While the results of this case are good, and represent our experience with this type of intervention, large studies with long-term follow-up are required for a more meaningful analysis.

Acknowledgments

None.

Figure 4 A) Endoscopic fracmentectomy; B) Resected herniated disc.

Discussion

Disc herniation is a frequent pathology in outpatient care, which has medical treatments but when these have been exhausted, generally conventional microdiscectomy is chosen, an option since the eighties, is the percutaneous endoscopic discectomy, which in our country has been adopted in recent years, because it requires a significant instrumental, and the technique and approach is different, and it is necessary to become familiar with the handling of the endoscope and intraoperative fluoroscopy. It requires an important learning curve, which could have important complications such as radicular lesion, hemorrhages, among others. However, becoming familiar with this technique can notably benefit our patients, as well as studying them according to the clinical disability assessment scales such as Oswestry's as was done in our study and considering Macnab's evolution criteria, Body Mass Index and delimiting the degree of activity, could help to a better assessment, selection and follow-up of our patients.[22–26]

In our case report we can highlight that percutaneous endoscopic discectomy was a technique with very good results, with adequate pain reduction and a short hospital stay, in such a way that the technique in question makes the procedure ambulatory. Nevertheless, this case report requires larger studies which are statistically significant and comparative over time.[27–30]

Conclusion

Decrease of the Pain Scale (EVN) from 8 to 4 points as well as the Oswestry Disability Index from Severe (56%) to Moderate (31%) evaluated both pre- and post-operatively at 15 days. Percutaneous Endoscopic Lumbar Discectomy is a safe surgery that allows, with minimal invasive techniques, a safe and effective treatment of the lumbar spine. Invasion decompress the spinal canal despite having a significant narrowing. Allows removal of calcifications that compress the nerve roots. It does not destroy healthy tissue. Recovery and convalescence period is less than in open surgery. It does not sacrifice stability since laminectomy is not performed, in addition, a lower incidence of complications is reported.

Conflicts of interest

The authors declare that they have no conflicts of interest in the preparation of this article. They also declare that they have complied with all the ethical and legal requirements necessary for publication.

Citation: Guerra R, Dávila P, Pintado C. Percutaneous endoscopic lumbar endoscopic discectomy in L5-S1 calcified disc herniation. *MOJ Surg.* 2023;11(2):126–128. DOI: 10.15406/mojs.2023.11.00238

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