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Intradural disc herniation: case report

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ABSTRACT
This article presents and discusses the diagnostic (neuroimaging) and therapeutic (neurosurgical) procedures associated with the uncommon and rare epidemiological picture of lumbar intradural hernia in an elderly male patient. Which underwent an arthrodesis and laminectomy procedure, confirming the intraoperative diagnosis, but which later evolved into spondylodiscitis that culminated in myelopathy. Studies like this one aim to enrich the literature and the medical discussion regarding the clinical presentation of the rare condition of intradural disc herniation.

Hérnia de disco intradural: relato de caso

RESUMO
Este artigo apresenta e discute os procedimentos diagnósticos (neuroimagem) e terapêuticos (neurocirúrgicos) associados ao quadro epidemiológico incomum e raro de hérnia intradural lombar em um paciente idoso do sexo masculino. O paciente foi submetido a um procedimento de artrodese e laminectomia, confirmando o diagnóstico intraoperatório, mas que posteriormente evoluiu para espondilodiscite, culminando em mielopatia. Estudos como este têm como objetivo enriquecer a literatura e a discussão médica sobre a apresentação clínica da rara condição de hérnia de disco intradural.

1. Introduction

Intradural disc herniation is considered a rare pathology, associated with aging and affecting in most cases the vertebrae of the lumbar spine (1). In this disorder, the nucleus pulposus ruptures the annulus fibrosus, reaching the posterior longitudinal ligament and the dural sac, thus causing intradural herniation. These nucleus pulposus is gelatinous and is located centrally in the intervertebral disc, around this nucleus is the fibrous ring forming the circumference of the intervertebral disc, then the posterior longitudinal ligament is reached, which is located inside the canal of the vertebra, following the dura- mater forms the dural sac which is a tubular sheath of the vertebral canal (2).

Intradural disc prolapse remains a diagnostic dilemma, as it is very difficult to diagnose all cases preoperatively (3). **While** radiographs can provide useful information, especially for identifying intervertebral disc degeneration or calcification, there are notable limitations (4). However, it is known that the diagnosis is mainly intraoperative, and the surgical technique has some peculiarities depending on the clinical case (5). With that in mind, the present report aims to present the clinical and surgical history of a rare case of intradural disc herniation.

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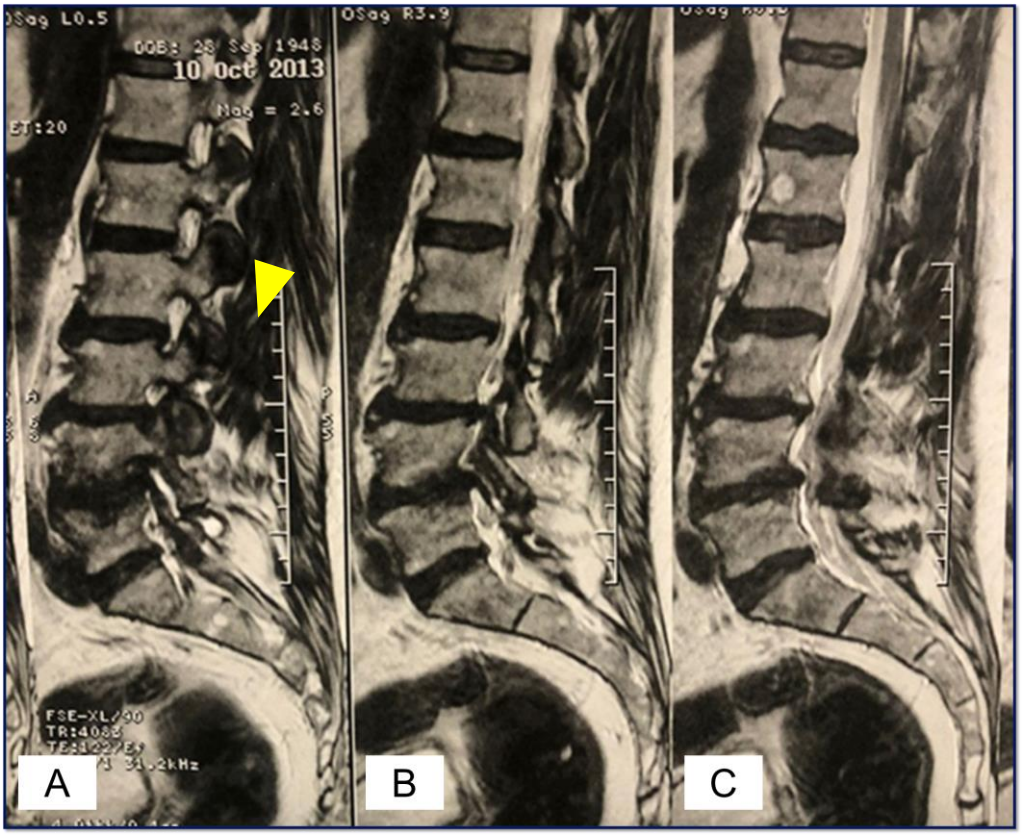
2. Case report

This is a case report with an investigative and descriptive methodology about a clinical case of intradural disc herniation, a condition that is known to be rare, with few cases presented in the medical literature, and therefore, it brings a lot of information that can enrich the scientific community. This study was approved by the research ethics committee via the Brazil platform, under the number 5.315.184. This is a 65-year-old male patient with a history of low back pain without clinical improvement for some years. He underwent several pharmacological treatments but nothing so far surgical. With that in mind, after the results of the neuroimaging tests, lumbar arthrodesis was performed (L3-4-5-S1).

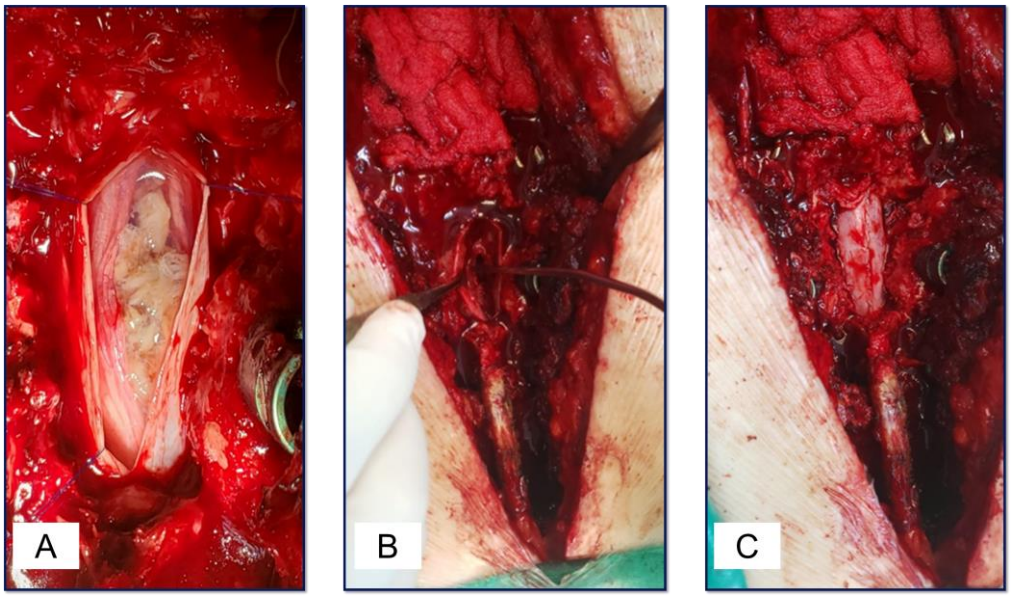
Over the months prior to the surgical procedure, he developed disease at an adjacent level. Neuroimaging exams such as Magnetic Resonance Imaging (MRI) suggest and show disease at the adjacent level with extruded hernia (figure 01). Extensive arthrodesis was then performed using a microneurosurgical procedure. However, after surgery, the disease evolved with a degenerative behavior, with disease at the adjacent level and subsequently with junctional kyphosis and paraparesis – requiring a new surgery to understand the arthrodesis again, in which an intradural hernia diagnosis was made intraoperatively (Figure 02). Micro neurosurgical treatment was then performed by arthrodesis (Figure 03), with spinal decompression along with wide laminectomy and resection of the intradural hernia. In the postoperative period, he presented significant improvement, returning to walking. Later it evolved with T8-9 spondylodiscitis that culminated in myelopathy.

Figure 1 – Magnetic resonance imaging showing the presence of intradural herniation. Perceive the expansion of the hernia process (yellow arrow).



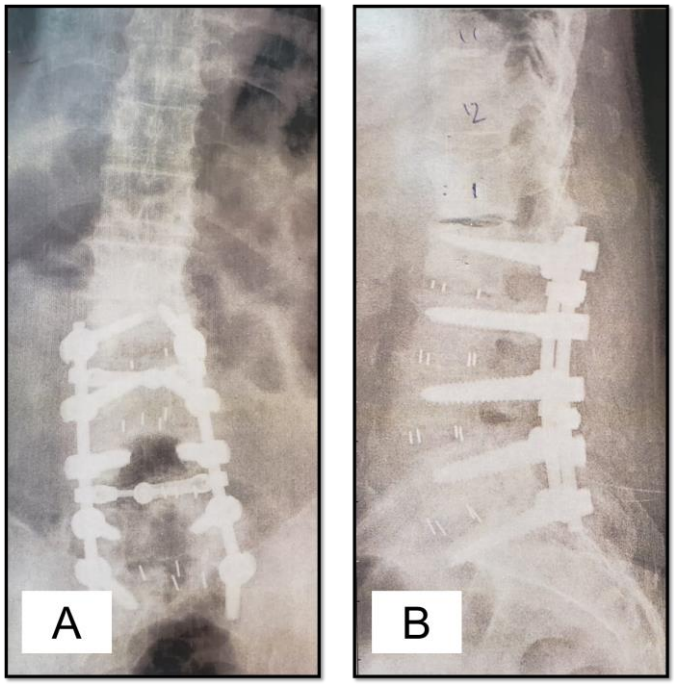
Source: Authors

Figure 2 – In A, herniation can be seen after incision. In B and C, showing removal of the hernia process. All images presented here follow standards and accepted by the research ethics committee.



Source: Authors

Figure 3 – After surgical resection of the hernia process, screws and plates were placed and fixed to stabilize the intervertebral spaces.



Source: Authors

3. Discussion

Intradural disc herniation (IDH) is understood as a movement of the nucleus pulposus of the intervertebral disc into the dural sac (6), with this, it ends up resulting in serious complications in the protrusion of the spinal disc, and one should also consider the association of adhesion of the posterior longitudinal ligament with the ventral wall of the dura mater (7).

Furthermore, the region most frequently affected by intradural herniation is the lumbar region, found here at the L4-L5 level. The average age of patients with intradural disc hernias is between 50 and 60 years, and men are more likely to develop the pathology, resulting in four times more chances than when compared to women (8), this data also corroborates the present study.

The pathophysiological aspect that causes intradural disc herniation is not clearly elucidated in the literature (4, 9, 10). However, it is understood that there is a preexisting abnormality, predisposing a lesion formation (10, 11, 12). During the anamnesis and physical examination, it is noticed that the patients present chronic low back pain, acute radicular pain and progressive neurological deficit as symptoms (13). As the diagnosis is intraoperative, it is extremely important that the surgery be performed as soon as possible (14, 15), not only to decrease or slow down the progression of the neurological deficit, but also to provide relief from signs and symptoms, the most relevant being pain (16, 17).

At the same time, with the advancement of current neuroimaging methods, such as computed tomography (CT) and magnetic resonance imaging (MRI), it is still difficult to make a definitive diagnosis and confirm whether the herniated disc is positioned in the space preoperatively intradural (17,18). Therefore, the diagnosis can only be confirmed in situations where there is the possibility and access to these techniques (04, 08, 19).

When using conventional MRI, patients suspected of having IDH, attention should be paid to the presence of posterior longitudinal ligament failure in the sagittal view, a hawk's beak sign in the axial view and, when contrast is used, because an enlargement of the annulus is visualized of the disc fragment (20). So much so that the beak sign which is one of the important features of IDH imaging is observed (21). Therefore, it is not only important to report the patient's clinic and surgery, but also to talk about accessibility to health.

4. Conclusion

The present report addressed a lumbar degenerative disease that, after clinical and intraoperative investigation, confirmed the diagnosis of intradural disc herniation. It is a rare condition and a challenging diagnosis, mainly due to the difficulty of locating changes on neuroimaging exams. Therefore, the data presented here tend to contribute to collecting the clinical history of the disease, enabling the possibility of early and effective diagnosis.

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