

When MRI Reveals the Invisible: A Case of Spinal Ependymal Cyst

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Abstract

Case Report

Spinal intramedullary ependymal cysts are extremely rare benign lesions of the spinal cord, originating from embryological remnants of ependymal cells. They are usually asymptomatic but may become clinically significant when progressive enlargement leads to spinal cord or nerve root compression [1,2]. Magnetic resonance imaging [MRI] represents the imaging modality of choice for diagnosis, lesion characterization, and preoperative assessment [3,4]. We report the case of a 49-year-old woman presenting with left-sided lumbo-sciatic pain associated with progressive foot drop. Spinal MRI demonstrated a well-defined intramedullary cystic lesion with cerebrospinal fluid [CSF]-like signal intensity, without contrast enhancement, causing compression of adjacent neural structures. Surgical decompression was performed with favorable neurological outcome. Through this case, we review the radiological characteristics, differential diagnosis, and the essential role of MRI in the management of spinal ependymal cysts [2,5].

Keywords: Spinal ependymal cyst, spinal MRI, intramedullary cyst, radiculopathy, neuroradiology.

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INTRODUCTION

Spinal ependymal cysts are rare non-neoplastic cystic lesions lined by ependymal epithelium and represent an uncommon cause of spinal cord compression [1,2]. They are thought to arise from embryologic sequestration of ependymal cells during neural tube development, resulting in isolated cystic cavities within or adjacent to the spinal cord [1,3].

Clinically, these lesions may remain asymptomatic for long periods, but progressive enlargement can lead to radicular pain, motor weakness, sensory disturbances, or myelopathy [2,4]. Due to their nonspecific clinical presentation, imaging—particularly MRI—plays a central role in diagnosis and differentiation from other spinal cystic entities [3,6].

CASE PRESENTATION

We report a case of a 49-year-old woman with no significant medical history presented with progressive left-sided lumbo-sciatic pain, evolving over several weeks, associated with left foot drop. Neurological

examination revealed weakness of ankle dorsiflexion [Medical Research Council grade 2/5] and mild hypoaesthesia in the L5 dermatome, suggesting radicular involvement.

Imaging Findings

Spinal MRI revealed a well-circumscribed intracanalicular intramedullary cystic lesion extending from the D12 level to the superior endplate of L2 [figure 1, 2]. The lesion was oval in shape, with regular margins, showing low signal intensity on T1-weighted images [figure 1a] and high signal intensity on T2-weighted images [figure 1b and 2], without enhancement after gadolinium administration [figure 1c].

At the L4–L5 level, a left paramedian and foraminal disc protrusion was noted, obliterating the left lateral recess and contacting the exiting left L5 nerve root, consistent with the patient's left-sided radicular symptoms [figure 3].

Overall imaging findings were suggestive of a lumbar intramedullary cystic lesion, most consistent with an ependymal cyst.

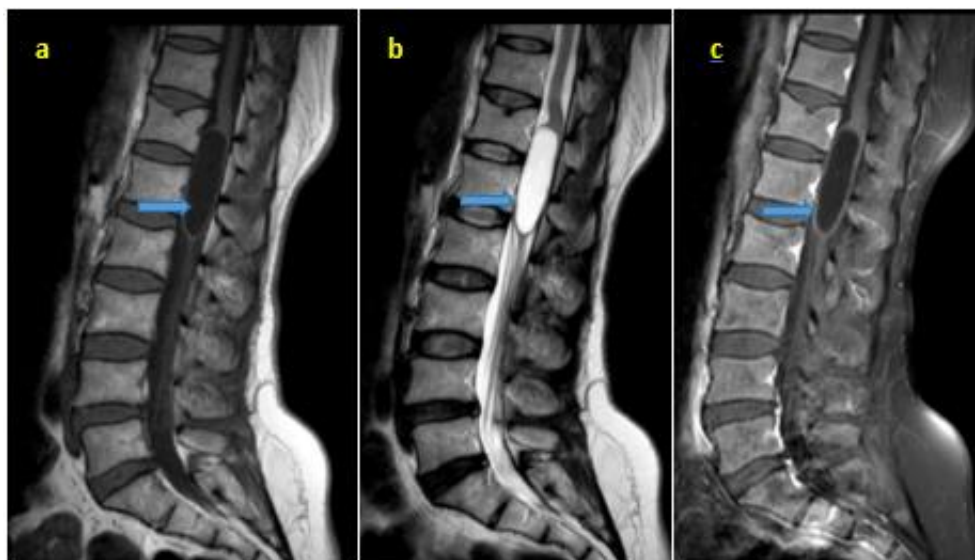


Figure 1 [a, b, c]: Sagittal plane of MRI showing intracanalicular intramedullary cystic in a low signal intensity on T1-weighted images [a] and high signal intensity on T2-weighted images [b], without enhancement after gadolinium administration [c]

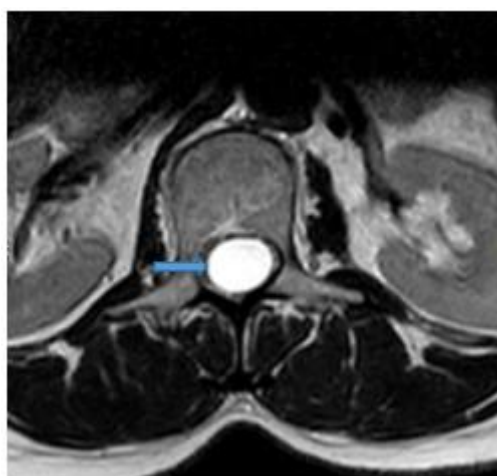


Figure 2 : Axial plane of MRI showing intracanalicular intramedullary cystic in a high signal intensity on T2-weighted images

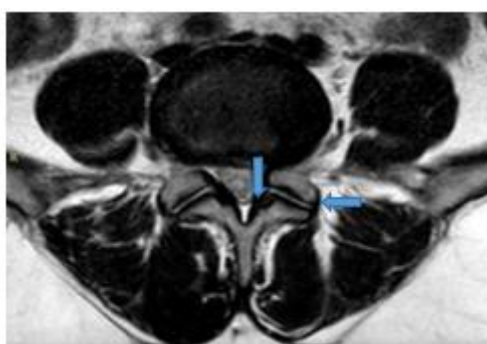


Figure 3 : Axial plane of MRI showing, a left paramedian and foraminal disc protrusion at the L4–L5 level, obliterating the left lateral recess and contacting the exiting left L5 nerve root

DISCUSSION

Radiological Characteristics

MRI is the gold standard for evaluating spinal ependymal cysts. Typical imaging findings include a sharply demarcated intramedullary cyst with homogeneous CSF-equivalent signal on all sequences and absence of contrast enhancement [3,6]. These

features help distinguish ependymal cysts from cystic tumors, abscesses, or inflammatory lesions [4,7].

Differential Diagnosis

From a radiological perspective, the main differential diagnoses include:

- ◆ **Arachnoid cysts**, usually extramedullary and often communicating with the subarachnoid space [4,8].
- ◆ **Neurenteric cysts**, which are often ventrally located and may be associated with vertebral anomalies [5].
- ◆ **Syringomyelia**, characterized by a longitudinal intramedullary cavity without a distinct epithelial lining [6]. Accurate analysis of lesion location, signal characteristics, and enhancement patterns is crucial for correct diagnosis.

Role of Imaging in Management

MRI not only establishes the diagnosis but also guides therapeutic decision-making by assessing lesion size, extension, and degree of neural compression [2,7]. In symptomatic patients with neurological deficits, imaging findings are critical in determining the indication for surgical decompression. Postoperative MRI is also essential for follow-up and detection of potential recurrence [5,7].

CONCLUSION

Although rare, spinal ependymal cysts should be considered in the radiological differential diagnosis of intramedullary cystic lesions, especially in patients presenting with radicular pain or motor deficits. MRI

plays a pivotal role in diagnosis, differential evaluation, surgical planning, and postoperative surveillance. Early radiological identification allows appropriate management and may prevent irreversible neurological damage [1,2,7].

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Ependymal cyst of the spinal cord: case report. *Neurosurgery*. 1984.
2. Ependymal cyst presenting with Lhermitte sign. *Global Spine Journal*. 2014.
3. Spinal intramedullary ependymal cyst: MRI features and surgical management. *Journal of Neurosurgery: Spine*. 1999.
4. MRI of intradural spinal cystic lesions: differential diagnosis. *Insights into Imaging*. 2018.
5. Spinal intramedullary ependymal cysts: review of the literature. *World Neurosurgery*. 2012.
6. Intramedullary cystic lesions of the spinal cord: radiologic-pathologic correlation. *Radiographics*. 2010.
7. Imaging of rare spinal cord cysts: diagnostic pitfalls. *American Journal of Neuroradiology*. 2016.
8. Spinal arachnoid cysts: MRI findings and differential diagnosis. *Pan African Medical Journal*. 2017.