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Cervical Intradural Neurenteric Cyst Mimicking Arachnoid Cyst: A Rare Case With Favorable Surgical Outcome

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Case Report

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Abstract

Neurenteric cysts are rare congenital lesions of endodermal origin occurring along the spinal axis. They are most frequently located in the cervical region and often present with symptoms related to spinal cord compression. Due to their nonspecific radiological appearance, they are frequently misdiagnosed as arachnoid cysts or other intradural extramedullary lesions. We report a case of a 51-year-old male presenting with neck pain radiating to both upper limbs associated with numbness in both hands and urinary symptoms. MRI revealed a CSF intensity intradural extramedullary lesion anterior to the spinal cord at the C5–C7 level, initially suspected to be an arachnoid cyst. The patient underwent surgical excision, and histopathological examination confirmed the diagnosis of a neurenteric cyst. Postoperatively the patient showed significant neurological improvement. Early surgical excision remains the treatment of choice.

Introduction

Neurenteric cysts are rare benign congenital lesions believed to arise from abnormal persistence of the neurenteric canal during embryogenesis. These cysts represent approximately 0.7–1.3% of all spinal tumors and most commonly occur in the cervical and upper thoracic regions. They are typically intradural and extramedullary and are usually located ventral to the spinal cord. Because their imaging characteristics overlap with other cystic lesions such as arachnoid cysts and epidermoid cysts, preoperative diagnosis can be challenging.

Case Presentation

A 51-year-old male presented with neck pain for four months radiating to both upper limbs. Symptoms had worsened over the previous month and were associated with numbness in both hands and a sensation of incomplete bladder evacuation. There was no history of trauma, fever, or motor weakness.

Radiological Findings

MRI cervical spine demonstrated a 28 × 20 × 12 mm CSF intensity intradural extramedullary lesion located anterior to the spinal cord extending from the C5 to C7 vertebral level. The lesion was non-enhancing and caused compression of the spinal cord without cord signal change. Based on these findings the provisional diagnosis was intradural extramedullary arachnoid cyst.

Surgical Management

The patient underwent microsurgical excision of the cyst through a posterior cervical approach. Intraoperatively a cystic lesion was identified ventral to the spinal cord. Careful dissection allowed removal of the cyst wall and adequate decompression of the spinal cord.

Histopathology

Histopathological examination showed a cyst wall lined by columnar epithelium consistent with neurenteric cyst, confirming the diagnosis.

Postoperative Outcome

The postoperative period was uneventful. The patient showed significant improvement with complete resolution of upper limb numbness and improvement in urinary symptoms.

Discussion

Neurenteric cysts are rare congenital lesions of endodermal origin arising due to abnormal communication between the notochord and endoderm during embryological development. [1,2,3] They are most frequently located ventral to the spinal cord and commonly occur in the cervical and upper thoracic regions. Patients typically present with symptoms of spinal cord compression including pain, sensory disturbances, radiculopathy, and occasionally bladder dysfunction.[4,5]

MRI is the imaging modality of choice. These cysts usually appear as well-defined intradural extramedullary lesions with CSF-like signal intensity. However, imaging findings are often nonspecific and may mimic arachnoid cysts, epidermoid cysts, dermoid cysts, or cystic tumors. Therefore, histopathological examination remains essential for definitive diagnosis.[6,7]

The treatment of choice is microsurgical excision with the aim of complete removal of the cyst wall. Complete excision reduces recurrence risk; however, it may not always be possible if the cyst wall is adherent to neural structures. Recurrence rates reported in literature range from 11% to 37%, particularly after incomplete excision. Early surgical intervention generally leads to excellent neurological outcomes.[5]

Conclusion

Neurenteric cysts should be considered in the differential diagnosis of ventral intradural extramedullary cystic lesions of the cervical spine. Early surgical excision can lead to excellent clinical outcomes.

Declarations

Participant Consent to Publish

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Ethics Approval and Consent to Participate Case report

Ethical approval was not required for this case report as per institutional guidelines. Written informed consent was obtained from the patient.

Consent for Publication

The patient has provided written consent for publication of clinical details and images.

Availability of Data and Materials

All relevant data are included in the article. Additional data are available from the corresponding author on reasonable request.

Competing Interests

The authors declare that they have no competing interests.

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Figures



Figure 1

MRI Cervical Spine Sagital T2 section showing intradural extramedullary lesion

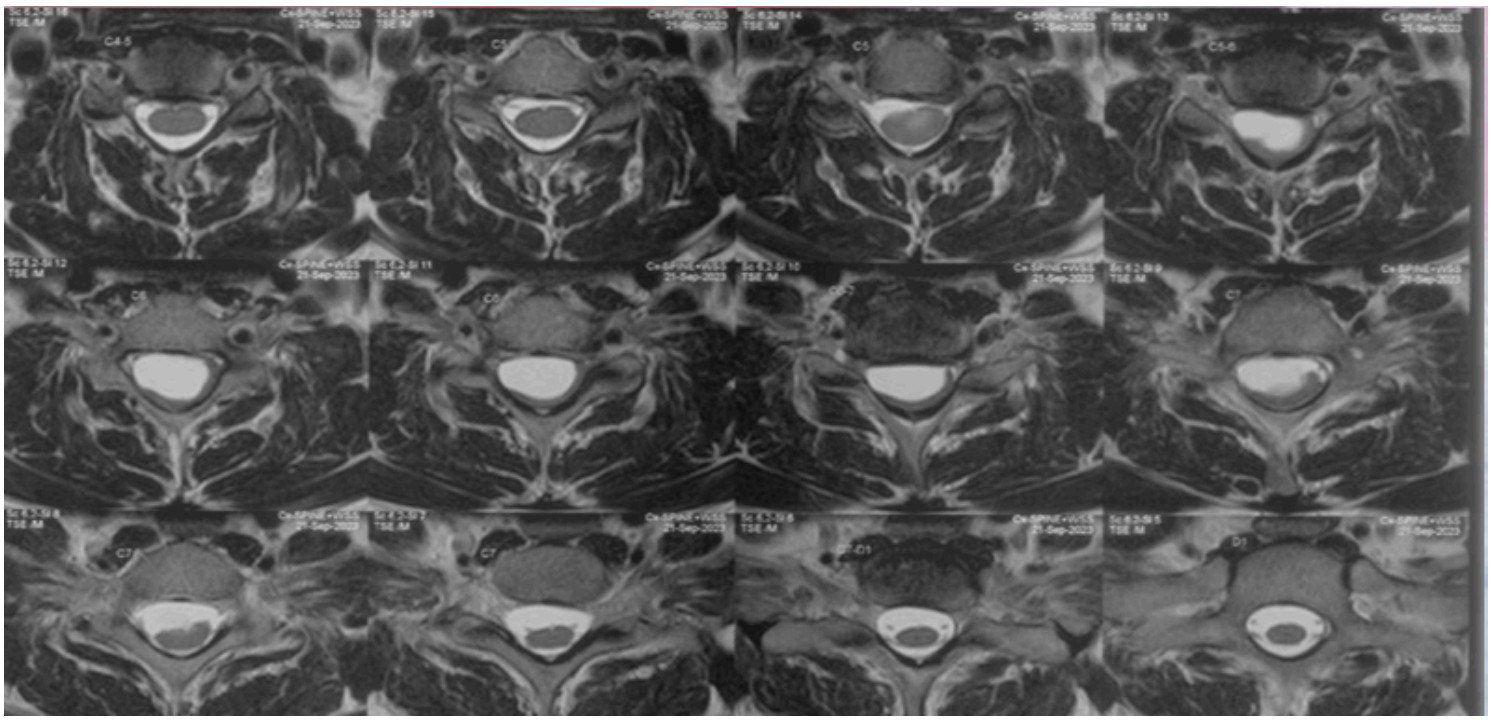


Figure 2

MRI Cervical Spine axial T2 section showing intradural extramedullary lesion

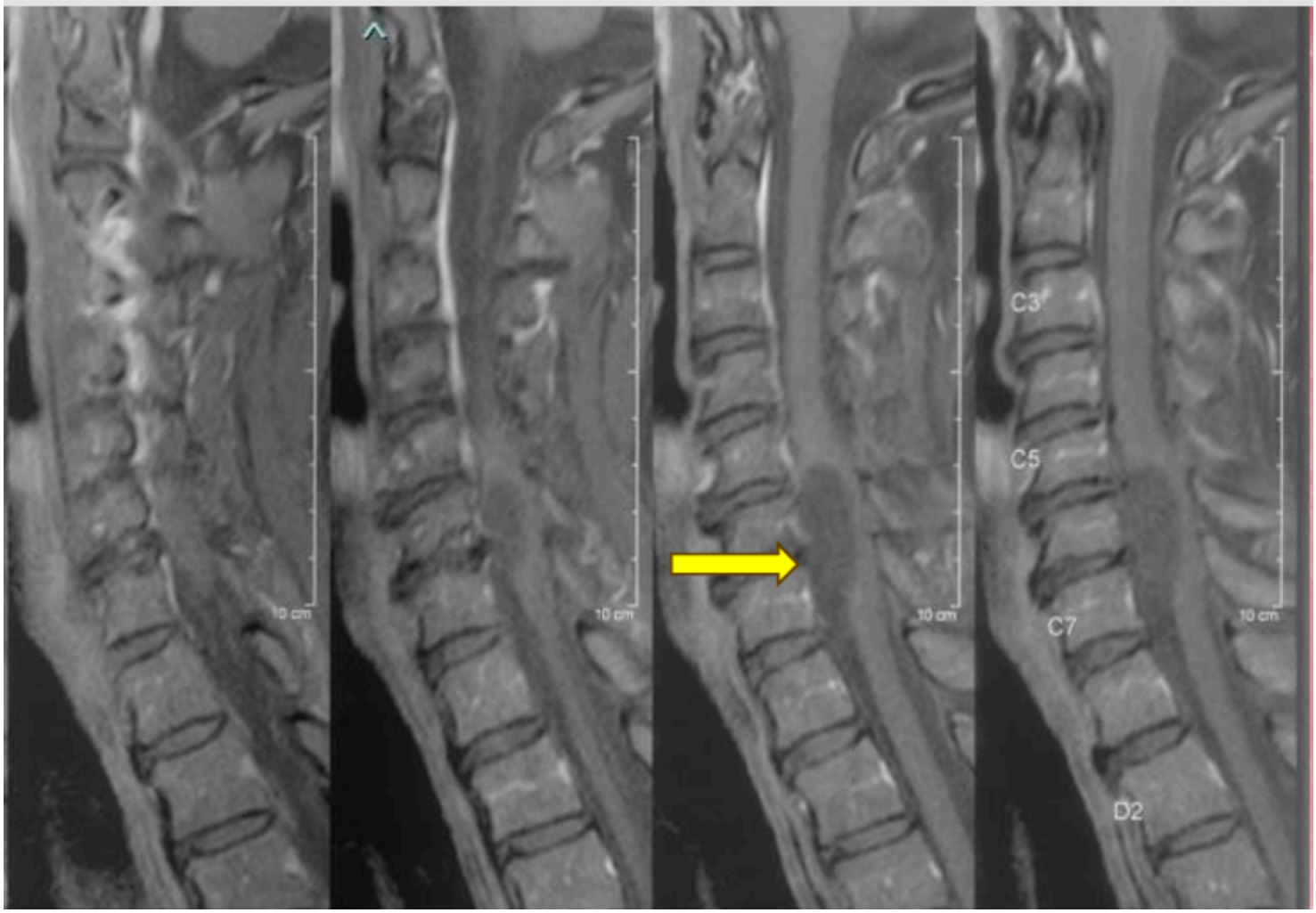


Figure 3

MRI Cervical Spine Post Contrast t1 section showing intradural extramedullary lesion

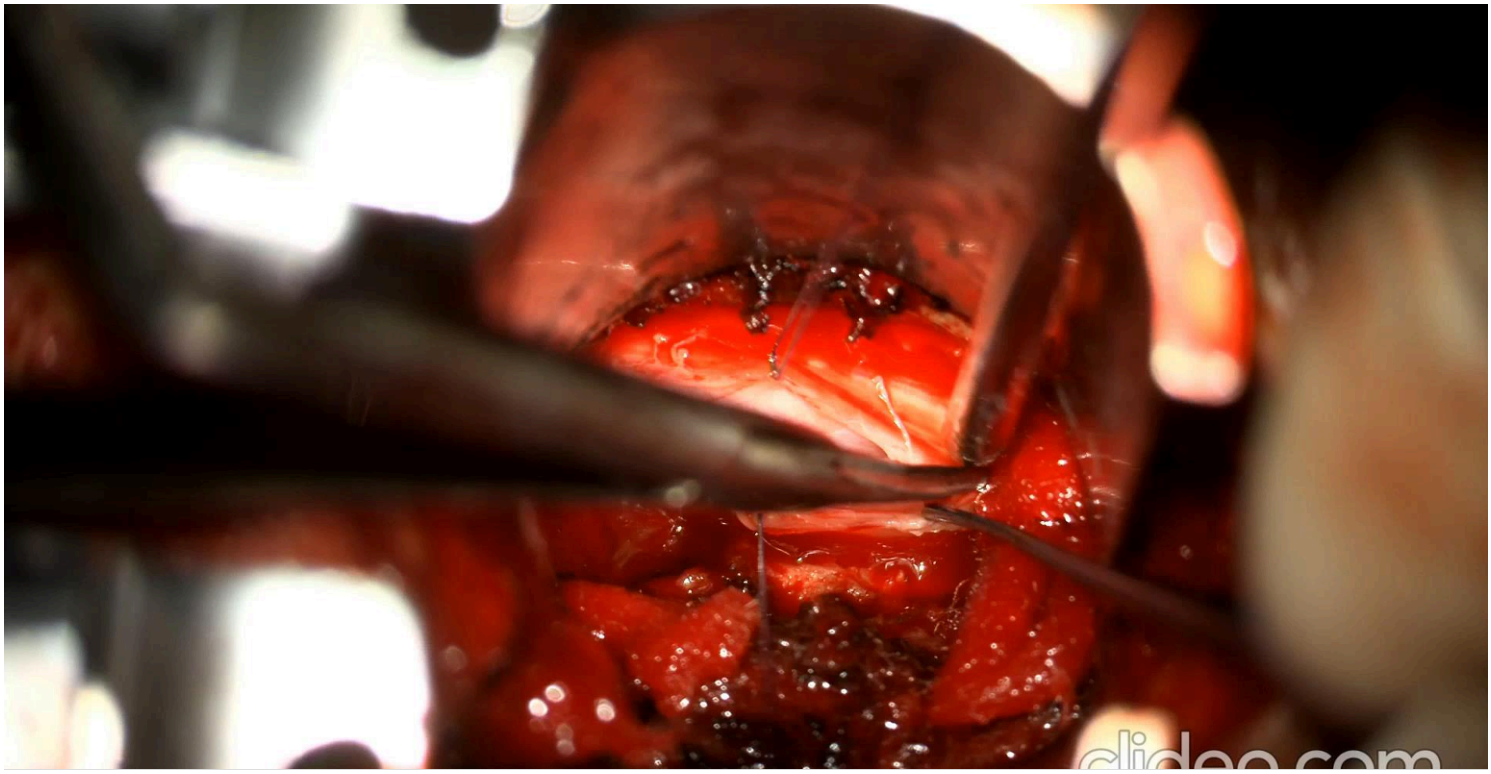


Figure 4

Intraoperative image posterior cervical approach was used to acess tumour

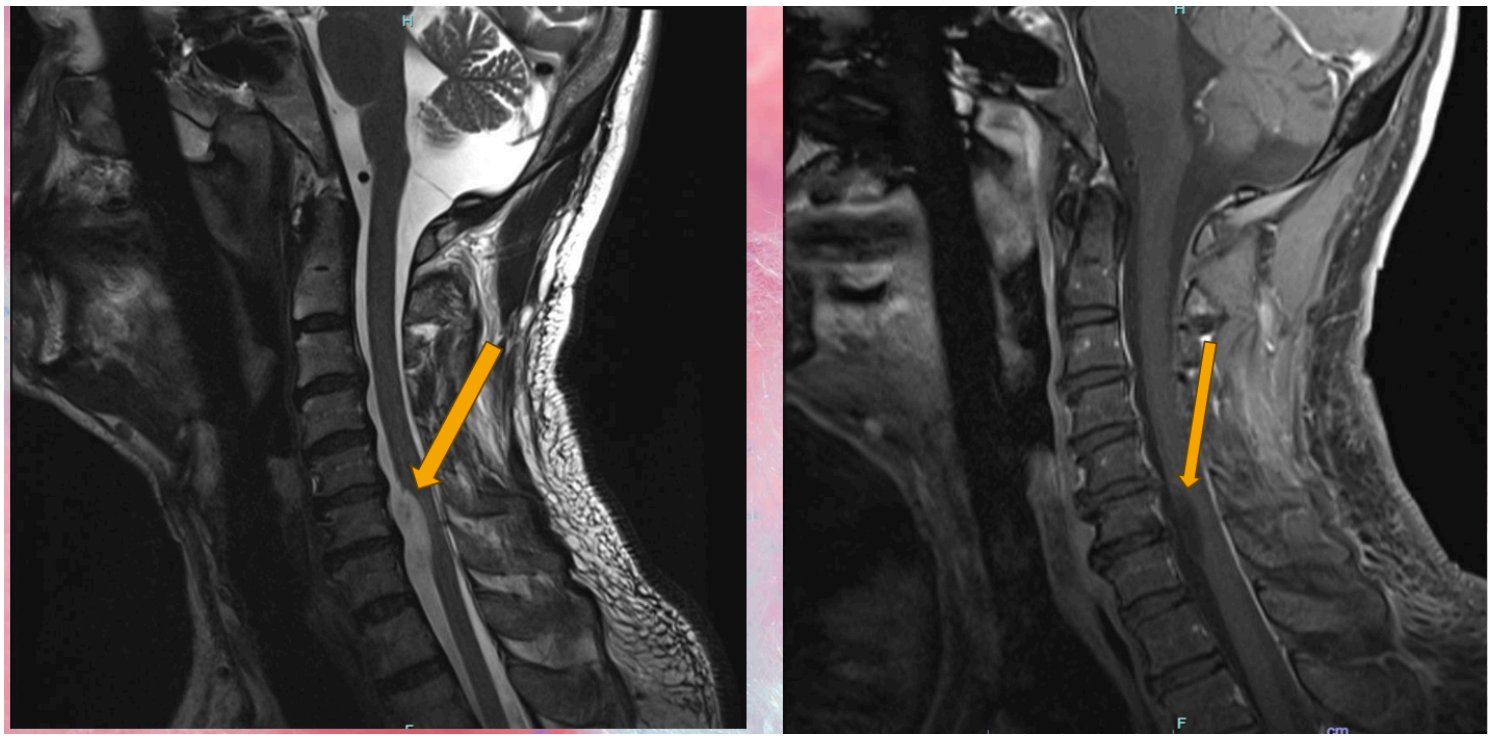


Figure 5

Post op MRI Cervical Spine sagittal t2 and t1 post contrast image showing complete excision of lesion