Intradural Spinal Arachnoid Cyst: A Long-Term Postlaminectomy Complication: A Case Report and Review of the Literature

Pratap Chandra Nath, Sudhansu Sekhar Mishra, Rama Chandra Deo, Mani Charan Satapathy

Key words
- Arachnoid cyst
- Extramedullary
- Intradural
- Postlaminectomy complication
- Surgical treatment

Abbreviations and Acronyms
C: Cervical
D: Thoracic
CSF: Cerebrospinal fluid
L: Lumbar

Department of Neurosurgery, SCB Medical College, Cuttack, Odisha, India.

To whom correspondence should be addressed: Pratap Chandra Nath, M.B.B.S., M.S. Mch Trainee Neurosurgery [E-mail: drpratapnath@rediffmail.com]

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BACKGROUND: **Spinal arachnoid cysts are a rare cause of spinal cord compression. Intradural arachnoid cysts are rarer than extradural arachnoid cysts. Spinal arachnoid cysts are mostly congenital in origin. Arachnoid cysts due to trauma, lumbar puncture, or surgery are rarely reported. Most arachnoid cysts are located posterior to the spinal cord in the thoracic regions. The ideal treatment is laminectomy or laminoplasty with puncture, marsupialization, or excision. But the development of a cervico-thoracic spinal intradural extramedullary arachnoid cyst anteriorly located 28 years after laminectomy is a recognizable complication of laminectomy.**

CASE DESCRIPTION: **We report here a case of a 45-year-old man who underwent C6-T1 laminectomy at the age of 17 years for cervical intervertebral disc prolapse (C6/7, C7/T1) and compressive myelopathy. Twenty-eight years after laminectomy, he developed spastic quadriparesis and was diagnosed with a spinal intradural extramedullary anterior arachnoid cyst at the laminectomy site with compressive myelopathy.**

CONCLUSIONS: **So, although laminectomy with excision is usually practiced to treat spinal arachnoid cysts, laminectomy itself is a cause of development of intradural arachnoid cysts.**

INTRODUCTION

Intradural spinal arachnoid cyst is a rare cause of spinal cord compression.[1,2] They are either primary (congenital) or secondary (acquired). Primary spinal arachnoid cysts are uncommon congenital lesions that arise during development from splitting of the arachnoid membrane, which contains cerebrospinal fluid (CSF)-like fluid. Secondary arachnoid cysts are associated with neoplasm, arachnoiditis, trauma, lumbar puncture, or spinal surgery. Arachnoid cysts due to surgery are rarely reported and their occurrence after laminectomy is rare. Spinal intradural arachnoid cysts are most commonly found in the thoracic spine dorsal to spinal cord. The cervico-thoracic location anterior to the spinal cord is even more rare. We report here an unusual case of an intradural extramedullary spinal arachnoid cyst that developed after 28 years at the site of a previous laminectomy for cervical compressive myelopathy due to cervical prolapsed intervertebral discs (C6/7, C7/T1). The patient presented with spastic quadriparesis and the anteriorly located large arachnoid cyst was managed through the previous incision site. Thus, laminectomy, which is usually used for excision of an arachnoid cyst, can be the cause of a secondary intradural arachnoid cyst.

CASE REPORT

Case History and Examination

A 45-year-old man presented to us with progressive weakness, stiffness, and numbness of both lower limbs with walking difficulty for 6 months. He also had gradual progressive weakness and numbness of both hands with involuntary movement of the fingers of the right hand for 2 months.

On neurological examination, the patient was quadriparetic. There was bilateral thenar and hypothenar atrophy in the upper limbs. In both the upper limbs, the power of the brachio-radialis and triceps was 4/5 with gross grip weakness in both hands. The tone in the both lower limbs was grossly increased. The power around all joints in the lower limb was around 4/5. There was an extensor plantar response with absent abdominal and cremasteric reflexes. All the deep tendon reflexes in both lower limbs were exaggerated. There was well-sustained bilateral ankle clonus. Posterior column sensations were impaired in the lower limbs. There was loss of pain, touch, and temperature in a graded manner from upper to lower limbs. There was no involvement of the bowel and bladder. There was no history of spinal trauma, vaccination, infection, tuberculosis, or spinal anesthesia. On further enquiry, he had a history of spinal surgery 28 years previously. He had undergone cervicothoracic (C6,7 and T1) laminectomy for cervical compressive myelopathy due to prolapsed intervertebral discs at the age of 17 years. The operation was undertaken at our hospital based on myelogram findings and the patient had been performing his normal activities since then.

Investigation and Imaging

A computed tomography scan of the spine revealed C6-D1 posterior element

Figure 1. Computed tomography scan showing the postlaminectomy defect (C6-D1).

laminectomy defects (Figure 1). Magnetic resonance imaging of the spine revealed a 15 × 13 × 24 mm, well-defined, eccentric expansile intradural extramedullary cystic attenuated lesion anterior to the cervical cord (C6-D3) with internal septations and a mass effect showing posterior displacement of the cord without wall or septal enhancement. There was subtle cord edema with a T2 hyperintense signal at the proximal cord (C5) level suggestive of an arachnoid cyst (Figure 2).

Surgery

With the patient in the prone position, an incision was made over the posterior midline on the previous scar mark and the intact lamina and spine at D2 was traced below. Normal dura was identified underneath the lamina, the dura was carefully separated from the overlying scar, and the incision was extended to C6-C7. The dura was tense and bulging. The upper part of the dura was opened. An extramedullary bluish arachnoid cyst was found anteriorly and more toward the right side (Figure 3). The arachnoid was opened on the right side by slightly displacing the cord posteriorly and toward the left. The cystic lesion with capsule was separated laterally, proximally, and distally. Clear cystic fluid was aspirated. Part of the cystic wall was excised. Marsupialization of the cyst wall to the arachnoid space was done. Water-

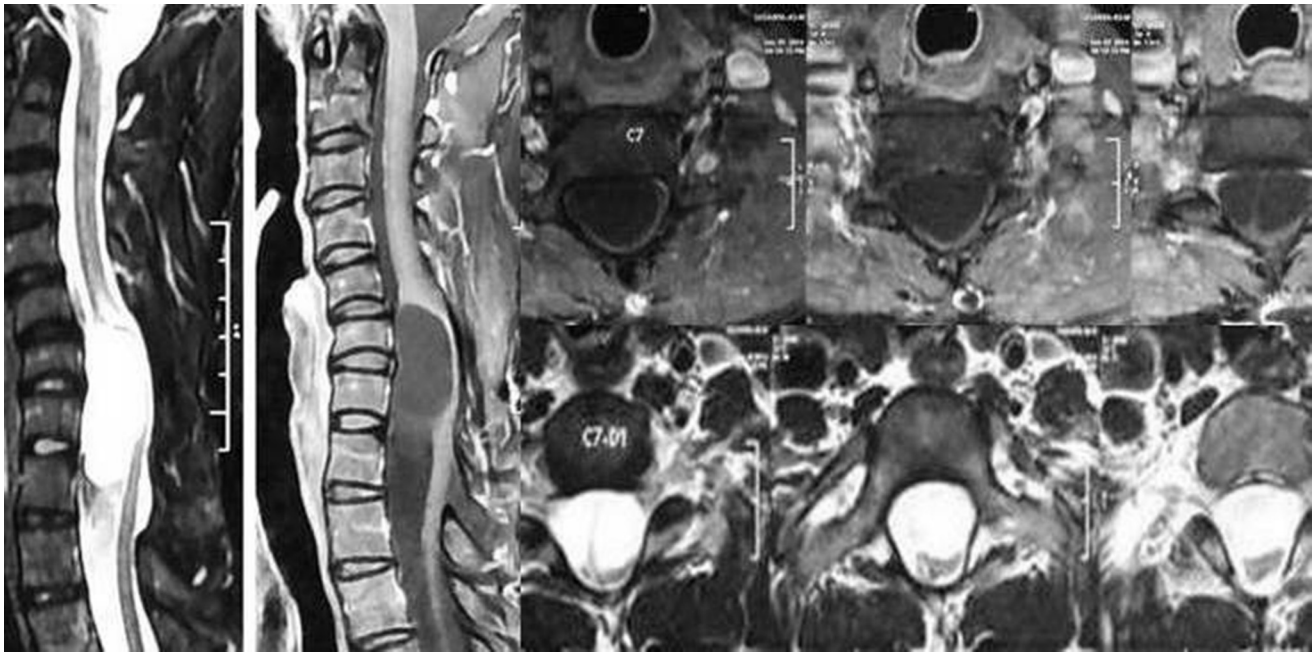

Figure 2. Magnetic resonance image showing a large anteriorly placed septet arachnoid cyst extending from C6 to D3.