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Extradural Arachnoid Cyst: A case report

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Abstract

Spinal extradural arachnoid cysts (SEACs) are rare lesions and uncommon cause of spinal cord compression. The etiology still remains unclear, but the most accepted explanation is the existence of areas of weakness in the spinal dura. Symptoms depend on the location in the spine. Surgery is the treatment of choice in such lesions, but asymptomatic patients can be managed conservatively. We present a case of symptomatic, probable congenital origin, spinal extradural arachnoid cyst. Magnetic resonance imaging spine showed well-defined, nonenhancing, posterior extradural cystic lesion extending from T11 to L2 vertebrae level compressing spinal cord anteriorly. Complete resection of the SEAC resulted in neurological improvement. Histological examination was consistent with SEAC.

Keywords: Extradural arachnoid cyst, foot drop, cerebrospinal fluid

Introduction

Spinal extradural arachnoid cyst (SEAC) is a very rare disease entity.[1]These cysts most commonly occur in the thoracic spine (65%) followed by the lumbar, and lumbosacral (13%), thoracolumbar (12%), sacral (7%), and cervical regions (3%).[3]SEACs develop from protrusions of arachnoid herniating through a small dural defect, and cyst enlargement can result in symptomatic spinal cord compression. The cysts have a pedicle which

communicates with the spinal subarachnoid space and because of their origin, contain CSF.The etiology and pathogenesis of spinal extradural arachnoid cysts are not clear. They are suspected to be congenital in origin, however they might be acquired through trauma, iatrogenic damage, infections, inflammation or other causes.[4]Magnetic resonance imaging (MRI) is the diagnostic procedure of choice as it is noninvasive and can demonstrate the nature of cyst, size, and the anatomic relationship with the spinal cord.[3]In this article, we report a case of spinal extradural arachnoid cyst with unusual presentation, of probable congenital origin treated with surgical excision of cyst and obliteration of the communicating dural defect.

Case report

A 52-year-old male patient with presented with history of progressive weakness in right lower limb below knee since 5 years, difficulty in walking with dragging of right forefoot and frequent tripping since 3 years and numbness in right great toe since 3 years. There was no history of trauma, spinal surgery, infection, or spinal anesthesia. There was no urinary or bowel involvement. Physical examination revealed wasting of anterior compartment muscles of right leg, right foot drop with 0/5 power in right ankle dorsiflexors and evertors and hypoesthesia in right L5 dermatome. Magnetic resonance imaging (MRI) spine showed well-defined, nonenhancing, posterior extradural cystic lesion extending from T11 to L2 vertebrae level compressing spinal cord anteriorly [Figure 1]. The patient underwent T11 to L2 laminectomy with complete excision of the cyst and dural repair. The cyst was exposed and excised [Figure 2]. After excision of the cyst the dorsal portion of the cord gradually regained its normal diameter and adequate cord pulsation returned. The postoperative period was uneventful. With aggressive postoperative rehabilitation, the patient had significant improvement in his right foot drop. He can now walk independently without support and perform his activities of daily living. Histologically, the cyst wall comprised of delicate fibrous connective tissue lined variably by meningothelial cells.

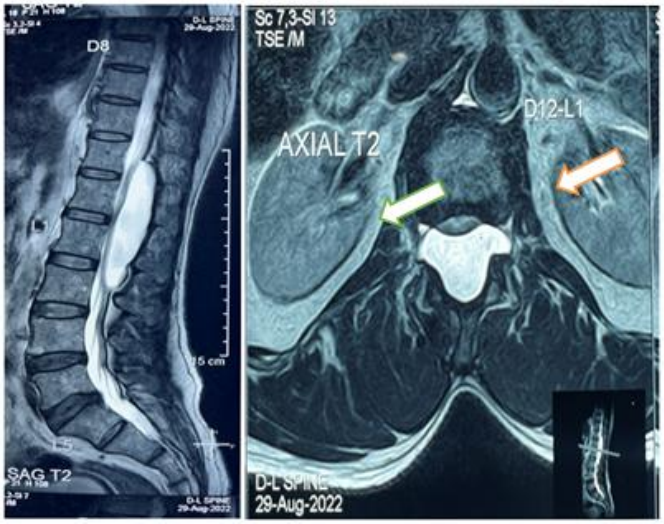
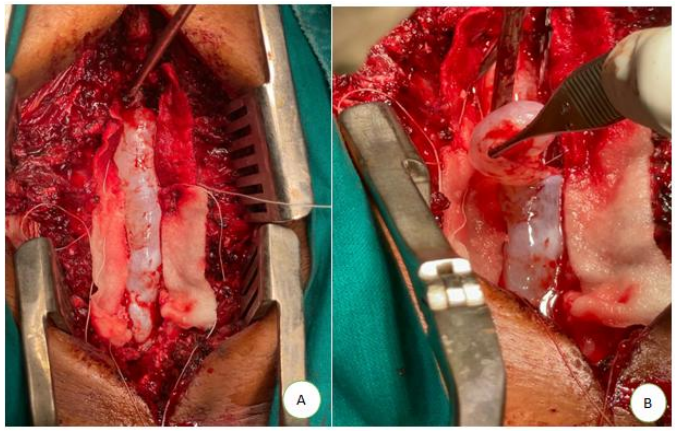


Figure 1:Preoperative sagittal (A) and axial (B) T2-weighted MR imaging sequences showing long segmental arachnoid cyst with high signal intensity at T11 to L2 level. Arrow shows spinal extradural arachnoid cyst compressing the cord.



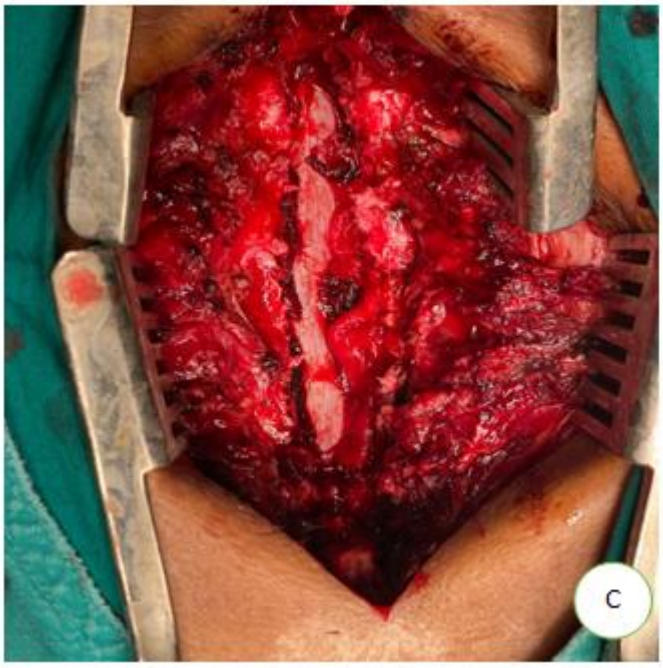


Figure 2: Intraoperative photographs (A) Extradural cystic lesion (B) Cystic lesion being dissected from the underlying spinal cord, (C) Decompressed Spinal cord after excision of extradural cystic lesion.

Discussion

Spinal extradural arachnoid cysts are rare disease entity accounting for 1% of all spinal tumors.[4]Most reported cases are solitary lesion. Our patient had no low backache, no radiculopathy and no local spinal tenderness which was an unusual presentation. Nabors divided SEACs into three types: extradural cysts without spinal nerve root fibers (Type I), extradural cysts with spinal nerve root fibers (Type II), and intradural cysts (Type III). According to this classification, our case is characterized as a Type I SEAC.[5]SEAC could occur either dorsal or ventral to the cord, with the former being more common. Pulsatile CSF dynamics, osmotic gradient between the subarachnoid space and cyst, and the valve-like mechanism between the cyst and subarachnoid space may play an important role in the enlargement of SEACs.[2]The management can vary according to the patient's symptoms. Diverse surgical techniques have been reported in the literature, however complete microsurgical resection of cyst with meticulous repair of dural defect is considered as treatment of choice for SEACs. In asymptomatic patients, conservative management with subsequent clinical observation is recommended.[3,6]

Conclusion

Although spinal extradural arachnoid cysts are rare, surgeons should always suspect them as a diagnosis. Various ways of treating these lesions has been described in medical literature but the objective of all of them is decompression of the neural elements. More evidence is needed to standardize a management option in patients with asymptomatic or those with mild neurological symptoms.

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