

Symptomatic Extra-Dural Arachnoid Cyst

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Abstract

Objective: The aim of this study is to report a case of arachnoid cyst due to mass effect on the thoracic marrow. **Observation:** A 15-year-old patient was admitted to our institution and complaining of high back pain. Three months before he developed progressive and occasional back pain with thoracic irradiation in hemi-belt, increased by the dorsal decubitus. Neurological examination revealed a spasmodic paraplegia. The muscular strength was quoted as 2 to the left and 3 to the right on a scale of 5. Magnetic resonance imaging (MRI) revealed and extradural cyst located to the dorsal spinal cord. The ablation of a voluminous translucent cyst was achieved after a vast decompressive laminectomy from the sixth to the eighth thoracic vertebra. The dural communication with the cyst was stitched. After surgery, the pain has disappeared and the neurological recovery was progressive over a period of 21 days. The diagnosis of arachnoid cyst was confirmed by histological examination. **Conclusion:** The extradural thoracic arachnoid cyst is a rare affection of good forecast. In the symptomatic form, the surgery as soon as possible remains the solution. The MRI keeps all its interest for the diagnostic orientation and the therapeutic strategy.

Keywords

Arachnoid Cyst, Extradural, Marrow, Surgery

1. Introduction

The thoracic extradural spinal arachnoid cyst is a relatively rare affection. This

affection is benign. However, it could be functional life-threatening, by the evolutionary potential. The objective of this article is to report a rare cause of symptomatic thoracic medullary compression which is curable and of good outcome.

2. Observation

A 15-year-old patient was admitted to our institution and complaining of high back pain. Three months before, he developed progressive and occasional back pain with thoracic irradiation in hemi-belt, increased by the dorsal decubitus. Neurological examination revealed a spasmodic paraplegia. The muscular strength was quoted as 2 to the left and 3 to the right on a scale of 5. The osteo-tendinous reflexes were lively. The sensibility and the sphincter control were kept. The MRI revealed an intra-ductal and epidural vast cystic lesion from fifth to nine thoracic vertebra. The lesion was hypo intense signal in T1, hyper intense in T2 with no enhancement after gadolinium (**Figure 1**). The spinal cord was compressed. The spinal cord was compressed.

The cyst excision was made after an extended laminectomy through the fifth to the nine thoracic vertebra. The cyst was voluminous and translucent (**Figure 2(A)**) and the wall was adherent to the dural sac. The ligation of the snare in its upper pole (communication between the cysts and the intra dural subarachnoid space) has been had allowed to remove it in mono block releasing the dural sheath (**Figure 2(B)**) by the upper pole of the snare. The diagnosis of arachnoid cyst was confirmed by the histological examination (**Figure 3**). The disappearance of back pain and paresthesia was considered. The complete recovery of the deficit was obtained in 21 days after the physiotherapy. Physiotherapy included an active motor functional rehabilitation with a muscle building in isometry, mobilization, and a training of the walk.

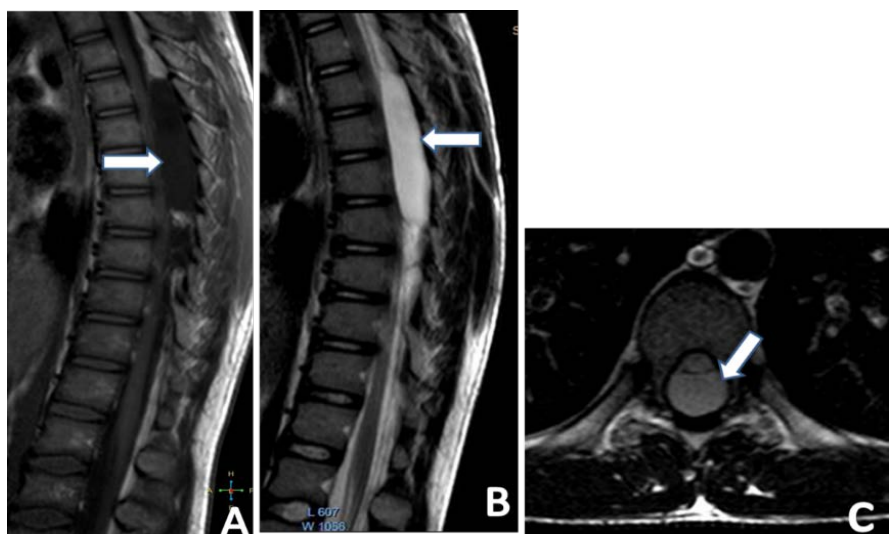


Figure 1. Sagittal MRI of thoracic medullary T1-weighted (A) T2-weighted (B) and axial (C) showing the arachnoid Cyst (White arrow).

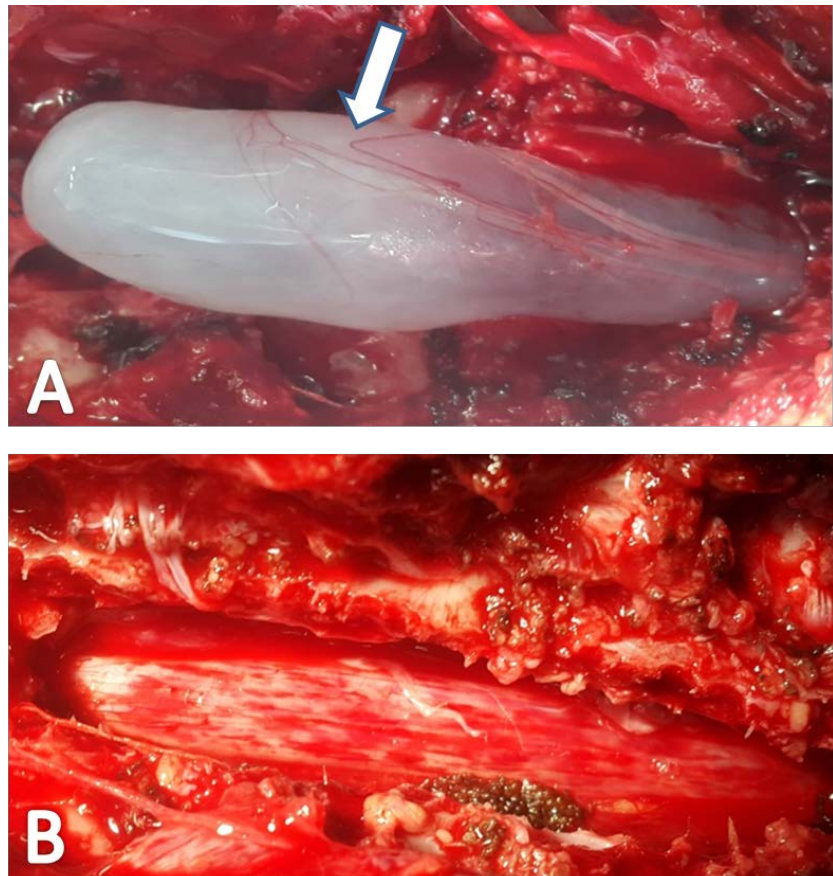


Figure 2. Arachnoid Cyst per operating (A), thoracic spinal cord freed (released) after exeresis of the cyst (B).

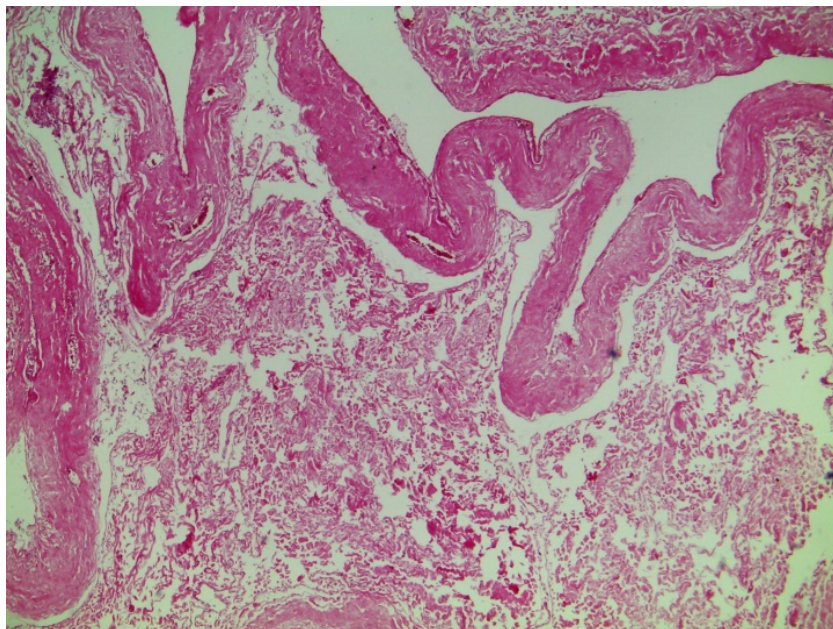


Figure 3. Collagenous fibrous tissue surrounded by regular flattened epithelium and fibrin deposits which confirm an arachnoid cyst (Hematoxylin Eosin, original magnification $\times 4$).

3. Discussion

The extradural arachnoid cyst is a rare clinical entity [1] [2]. This case is the first case listed in our practice. The localization was thoracic, the most frequent seat [3] at this age, and would be understandable by the ductal narrowness at this level [1]. The etiology remains still unclear. The cause of extradural arachnoid cyst can be the result of a hernia of the arachnoid membrane through a congenital aplasia of the spinal dura-matter, arachnoiditis, a neural tube defect, trauma or iatrogenic [3] [4]. The patient did not have a specific underlying disease documented and no history of trauma was found. The mechanism of ball valve is the widely accepted by the authors. This theory explains the expansion of the cyst and the compression of the spinal cord [4] [5]. The cyst is generally asymptomatic. But in certain cases, he can engender important neurological disorders as observed in our case. The inaugural back pain varied with the posture and evolved by relapsing-remitting. This variation may be explained by the intermittent expansion of the cyst due to the posture change [1] [3] [4]. This pain can be isolated or associated with a medullary or radicular suffering [2] [6].

MRI is the technique of choice for diagnosis [2] [7]. The preoperative MRI is of a big interest in the therapeutic strategy [3] [4] [8]. The preoperative epidural cystography and the myelo-scanner are successful techniques which have the same objective however their invasive character limits their use [4] [5] [8].

We proceeded to the evacuation of the cyst and its contents; the dural defect was median and it has been sutured. The dural defect can be shut by ligation of the snare or by a dural patch implant [1] [4]. In the symptomatic forms, the complete resection of the cyst's wall, as soon as possible, remains the standard gold of the treatment [3] [5]. The total remove allows a fast improvement of the symptomatology because of the decompression. The widened exposure by laminectomy presents some inconveniences: post-operative instability, subluxation, kyphosis deformation of the spine. The complete preservation of the posterior spinal vertebral elements is recommended by most part of the authors [4] [5] [6]. A laminoplasty would allow to avoid a possible dorsal Kyphosis [3] [5] [7]. The forecast of the symptomatic forms is favorable in the majority of the cases. In our case, it is about an extradural meningeal cyst, a thoracic and posterior seat, not containing nerve tissues and presenting a communication with the thecal bag (Type Ia). More rarely he can involve a meningocele sacred without communication (Type Ib). The extradural meningeal cyst can sometimes contain of the nerve tissue and the sacred seat (Type II). The meningeal cyst can be intra-dural called cyst Tarlov or diverticula of the nervous root (Type III) [9]. The coverage as soon as possible as well as the severity of the infringement establishes factors forecast. A fast improvement of the initial clinical signs was noted for our patient as observed in the literature [1]. Do not hesitate to make an MRI quickly and especially early decompression in order to get a good recovery. The histological examination remains the only examination which allows the diagnostic confirmation of the arachnoid cyst.

4. Conclusion

The extradural thoracic arachnoid cyst is a rare affection of good forecast. In the symptomatic forms, the surgery remains inescapable if it's done as soon as possible. The imaging keeps all its interest in the diagnostic orientation and the therapeutic strategy.

Acknowledgements

The authors have no competing interests to declare.

The Patient has been informed on the scientific interest of his pathology and he had given his consent for the presentation in a scientific journal.

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