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SPINAL ARACHNOID CYSTS

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ABSTRACT

Aim: Spinal arachnoid cysts are rare seen and uncommon lesions in the spinal canal. The aim of this study is to investigate the spinal arachnoid cysts in our series.

Material and Methods: We inspected 322 patients who were admitted to outpatient clinic from patient file system retrospectively. The patients that admitted for cranial pathologies were excluded. We found only 10 spinal arachnoid cyst lesions and only one of them had been operated. Neurological examinations, symptoms, type of SAC and demographic characteristics of patients were evaluated.

Results: A total of 322 patients were evaluated. 172 patients (53.5 %) were female and 150 patients (46.5 %) were male and the mean age was 53.11 ± 14.03 years old. We found 10 patients (3.1 %) with SAC. Female ratio was 60 % and male was 40 % patients with SAC. Extradural type SAC rate was 70 %.

Conclusion: Spinal arachnoid cysts are rare entities that present with symptoms and signs as a result of focal spinal cord compression. Surgical fenestration or excision could improve mostly in motor, gait and sensory components of the patient's clinical presentation.

Keywords: Spinal arachnoid cysts, meningeal cysts, spinal cystic lesions

Level of Evidence: Retrospective clinical study, Level III.

INTRODUCTION

Arachnoid cysts are entrapment of cerebro-spinal fluid (CSF) or CSF-like fluid presenting adjacent to normal CSF spaces. Spinal arachnoid cysts (SAC) are relatively uncommon but a well-described entity [(2)]. Spinal arachnoid cysts (SACs) are rare lesions that account for 1 %-3 % of all mass lesions in the spinal canal [(3)]. The cause of these cysts has not been definitively determined and many theories have been postulated to explain their origin and expansion [(6)]. These cysts are usually extradural, but they can be intradural, perineural and intramedullary also [(11)].

First classification about SAC was made by Nabors et al. as spinal meningeal cysts on the basis of their anatomical location and tissue of origin following histological assessment [(12)]. The classification classified lesions as Type-1 are extradural being anterior or lateral meningocoeles, Type-2 are extradural meningeal cysts containing nerve root fibres and Type-3 representing the true intra-dural arachnoid cysts which are the subjective of this study. A more recent classification was made by Klekamp for the pathologies of the spinal meninges concurs that SAC are fundamentally intra-dural lesions that are either primary in origin or secondary to inflammatory reactions as a result of hemorrhage, trauma, surgical procedure or infection [(8)].

Magnetic resonance imaging (MRI) is the gold standard radiodiagnostic tool to expose location and the resultant spinal cord compression, however computed tomography (CT) myelography is better in displaying the dural defect through which an extradural cyst communicates with the subarachnoid space. Thoracic region is most commonly seen spinal

region for SAC. Only a small percentage of these patients may be asymptomatic. Mostly they present with symptoms due to spinal cord compression affecting motor, sensory and bladder functions [6]. Good outcomes have been reported following surgery in symptomatic patients [5].

MATERIAL AND METHODS

We inspected 322 patients who were admitted to outpatient clinic from patient file system retrospectively. The patients that admitted for cranial pathologies were excluded. We found only 10 spinal arachnoid cyst lesions. Neurological examinations, symptoms, type of SAC and demographic characteristics of patients were evaluated. Only one of the patients with SAC was operated. She had been operated for a thoracic mass lesion. Her motor weakness began after one year of surgery. SAC was seen when MRI displayed. After she had been operated motor deficit decrease and walking ability improve (Figure-1-4).

RESULTS

A total of 322 patients were evaluated. 172 patients (53.5 %) were female and 150 patients (46.5 %) were male and the mean age was 53.11 ± 14.03 years old. We found 10 patients (3.1 %) with SAC. Female ratio was 60 % and male was 40 % patients with SAC. Extradural type SAC rate was 70 %. The characteristics of patients with SAC are presented. (Table-1).

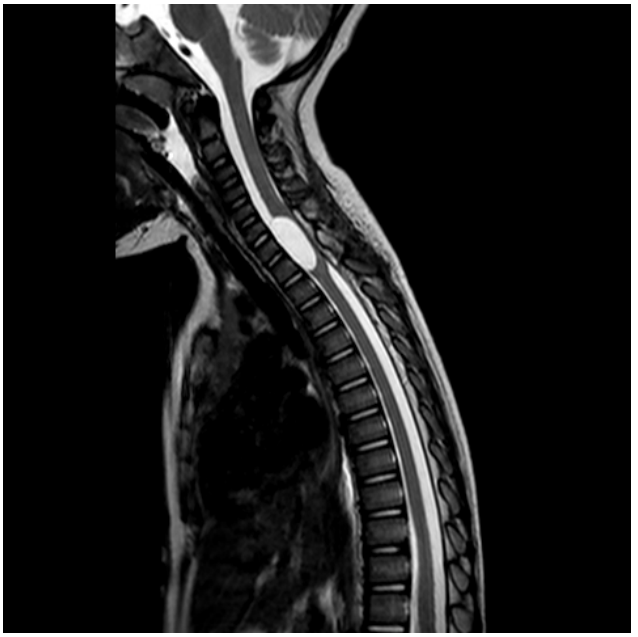

Figure-1. Preoperative sagittal MRI image of SCA

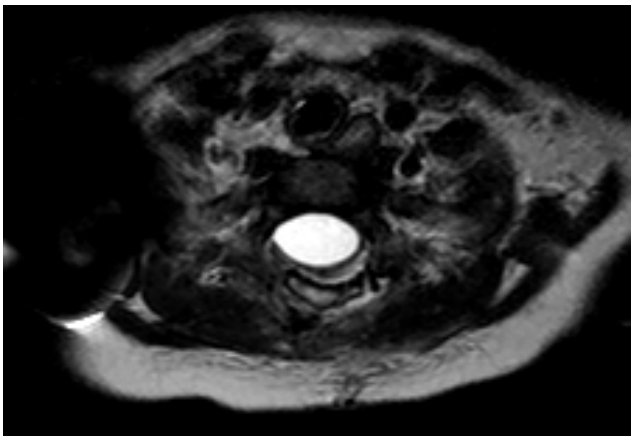

Figure-2. Preoperative axial MRI image of SCA

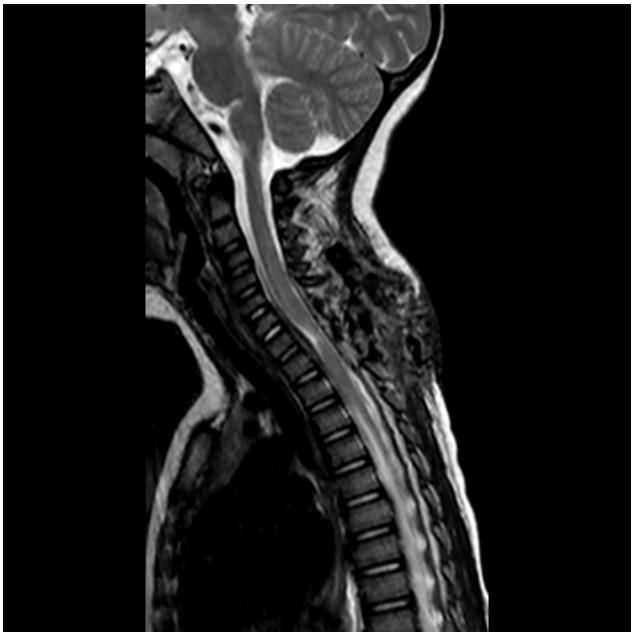

Figure-3. Postoperative sagittal MRI image of SCA

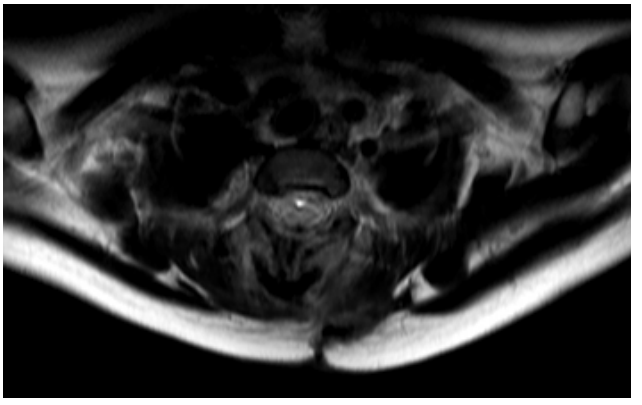

Figure-4. Postoperative axial MRI image of SCA

Table-1. Characteristics of patients with SAC

AGE	GENDER	LOCATION	TYPE	SYMPTOMS
30	Female	Thoracic	Extradural	Back pain
56	Male	Thoracic	Intradural	Back pain
41	Male	Lumbar	Intradural	Lower extremity numbness
29	Female	Thoracic	Extradural	Back pain
3	Female	Cervical+Thoracic	Extradural	Motor deficit
49	Female	Thoracic	Extradural	Back pain
59	Male	Lumbar	Extradural	Low back pain
33	Female	Thoracic+Lumbar	Intradural	Back pain
60	Female	Thoracic	Extradural	Back pain
36	Male	Thoracic	Extradural	Back pain

DISCUSSION

The origin of primary idiopathic SAC is ill-defined with several theories proposed explaining their origin[4]. The leading theory is that SAC arise from the septum posticum; a thin midline arachnoid membrane spanning the subarachnoid space from the pial surface to the arachnoid mater and was first described by Magendie [1,13]. SAC may be extradural or intradural. Most reports show that extradural are more common than intradural arachnoid cysts [7,9]. Extradural was mostly seen in our series too.

Arachnoid cysts are classified into primary or secondary. The etiology for the cause of cyst formation remains uncertain. An inflammatory process as a result of trauma, infection, surgery, or hemorrhage is the cause of process. SAC probably cause patients to develop neural symptoms due to pressure on the spinal cord or nerve root [10]. Patients with SAC usually present with back pain, numbness, paresthesia, motor weakness, gait disturbance and neuropathic pain. The gold standart radiodiagnostic tool do diagnose sac is MRI because of its high sensitivity and specificity and SAC appear as homogeneous low-intensity-signals on T1-weighted sequences and high-intensity signals on T2-weighted sequences, consistent with CSF characteristics [14].

Sadek et al reported 17 patients with thoracic arachnoid cysts that observed with complaints of motor weakness (47 %), paresthesia (76 %), unsteadiness (53 %) and neuropathic pain (76 %) [13]. They inspected that all patients experienced improvement in at least of one their presenting symptoms and or clinical signs six months following surgery and they conluded with that weakness, gait and paresthesia were most likely to improve following surgery.

Eroglu et al. inspected 13 patients that operated for SAC and they found that the majority of cases were located in the thoracic spine (54 %) and all but one case was located dorsally or dorsolateral [3]. They also reported 38% SAC were located extradural and 54 % were located intradural. Pain (80 %) was the most common presenting symptom and most patients had improvement or complete resolution of their symptoms after intervention in their series.

Garg et al. evaluated 11 patients were operated for SAC during the study period, the mean age at surgery was 32.9 ± 20.8 years and male to female ratio was 2.7:1 [6]. They reported that common presenting complaints were lower limb weakness and pain; the median duration of symptoms before surgery was nine months. Ten patients had extradural cysts while one had intradural cyst. Their rates were similar to our study.

CONCLUSION

Spinal arachnoid cysts are rare entities that present with symptoms and signs as a result of focal spinal cord compression. Surgical fenestration or excision could improve mostly in motor, gait and sensory components of the patients clinical presentation.

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