Spinal Cord Ependymal Cyst: A Case Report

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Abstract : In extreme rarity, spinal cord compression may be caused by intradural extramedullary cysts. One of these rare cysts, the ependymal cyst originates, from ectopic ependymal fragments situated parallel to the central canal development and may be seen anywhere in the spinal axis. Considering this rarity and reviewing the literature, we present a spinal cord ependymal cyst case along with a discussion of histopathological and surgical findings.
Key Words : Ependymal Cyst, Spinal Cord, MRI, Histopathology.

INTRODUCTION

Spinal cord ependymal cysts are rare. Since the first case reported in 1938 by Hyman, 8 extramedullary and 9 intramedullary cases have been reported (1,2,3,5,6,7,8,9,10,11,12,13,15) (Table I).

Table I: Summary Of Reported Cases

A. EXTRAMEDULLARY: (8)	
Hymann	1938
Hoffman	1960
Moore	1966
Hugh	1971
Mosso	1975
Findler	1985
Wackym	1986
Keyaki	1989
B. INTRAMEDULLARY: (9)	
Gainer	1974
Fortuna	1978 (2 cases)
Korasoa	1983
Roussa	1983
Sharmann	1987
Robertson	1991 (9 cases)

They originate from the ectopic ependymal fragments situated parallel to the central canal seen during the development of the spinal axis along the spinal column. We present a case of extramedullary intradural ependymal cyst admitted to hospital because of a lumbar mass thought to be a meningocele. After reviewing the literature, we discussed histopathological and surgical findings.

CASE

S.Ş., a 14-year-old male with a lumbar mass since birth, was admitted to hospital. He had no neurological deficit and medical examination was normal except for an ulcerated lesion of 5-x4-3 cm. X-rays of the spine revealed spine bifida. MRI showed a cystic structure containing a liquid with the same density as the CSF. Also there was a tethered cord view (Fig. 1).

Operation: Lumbar cyst resection was performed with the patient in the supine position. There was no neural element inside and it was attached to the cord, thus giving a tethered cord view. It was intradurally and extramedullary located and was excised totally.. The patient showed no neurological deficit postoperatively, and was dismissed on the

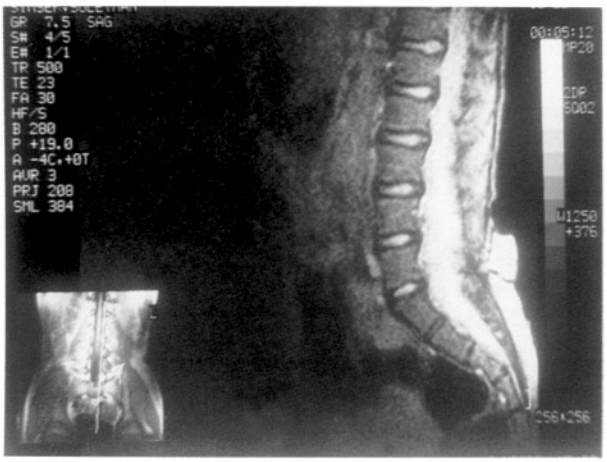

Fig. 1 : The MRI view of the case: The cyst and tethered cord are seen in the lumbar region in flash sequences series.

10th day after the operation. Consequent examinations revealed no neurological abnormality.

Histopathology: The sections were stained with HE, PAS, Muci-Carmine, Von-Gieson and PTAH. On one side of the cystic mass, there was skin on the surface. On the inside surface, there was a cyst wall that had been lined with either cilial or noncilial cuboidal pseudostratified epithelial cells in some layers. A few of these cells stained by PAS positive and there was no regular basement membrane. Response to Muci-Carmine stain was negative. Basement corpuscles were seen with PTAH. There no neural elements in the wall after Von-Gieson staining. Therefore, the specimen was reported as an ependymal cyst (Fig. 2 a-b).

DISCUSSION

Intradural-extramedullary cysts rarely cause spinal cord compression (1). They include of arachnoid cysts, teratomatous, ependymal, enterogenous (or neurogenic) and epithelial cysts (8,10). Ependymal cysts make up about 0.4 % of all primary spinal tumuors. As shown in the literature, almost all are embryonic in origin. Ependymal cysts derive from cells isolated on the floor plate of the neural tube at an early stage of embryonic development, but because they do not cause any clinical symptoms, they are not recognized early. The first clinical manifestations are mostly seen in adults, 30-45 years old, although three were seen in children younger than 10 years (7,10). Symptoms were

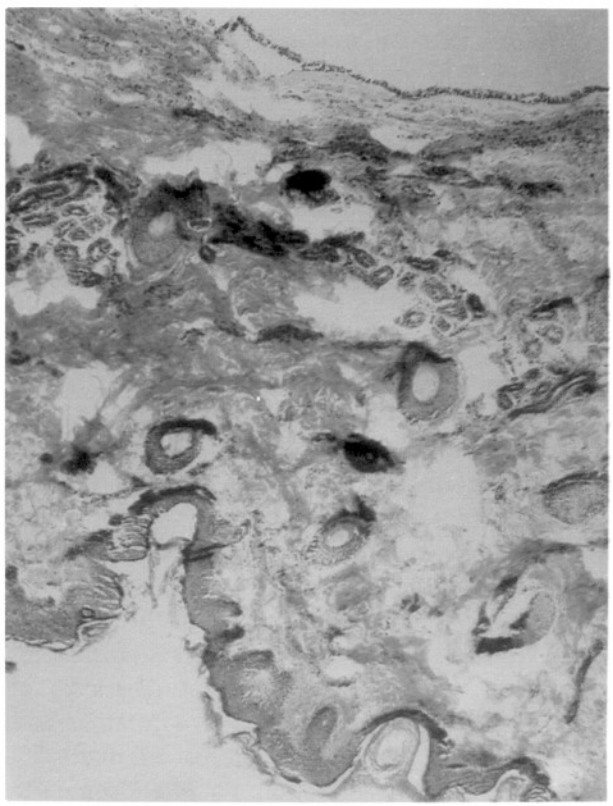

Fig. 2 : Histopathological Findings: A (HE 40X) Low power microphotograph of the cyst shows a thin collagenous wall lined by preudostratified squamous epithelial cells. The wall is cellular and hyalinized.

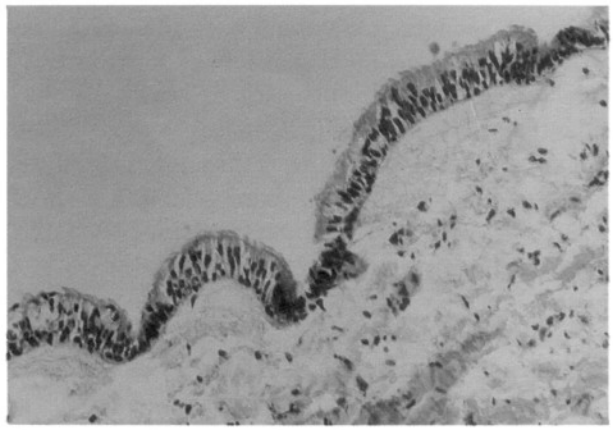

Fig. 2 : B (HE 400X) High power microphotograph of the cyst: cyst membrane shows lining cuboidal and columnar shape pseudostratified epithelial cells.

nonspecific and had either a sudden onset or a slowly progressive course. The major finding is pain and sometimes may be accompanied by progressive

neurological deficits (1,12,15). Sometimes symptoms are precipitated by trauma, strain or infections (1,10,12,15). The discovery of intradurally -located space- occupying lesions resulted in documented clinical findings, but there are cases who remain asymptomatic for many years. In our case, there was no neurological deficit only a mass in the lumbar region. This deviates from cases in the reviewed literature. Where in the majority of cases, X-ray of the spine showed congenital anomalies at the affected area such as bifid vertebrae, fused laminae, thinned pedicles and widened spinal canal. In our case, there was also spina bifida. CT and metrizamide myelography were used to diagnose and localize the cystic formation. A complete or an uncompleted block may be seen at myelography and CT, a cyst that contains a liquid similar to CSF is seen (1,15). In the reviewed literature, there was was not sufficient information on MRI. MRI reveals the cystic formation containing the liquid and other abnormalities not also helps in the differential diagnosis of arachnoidal cyst, syringomyelia, teratomatous and parasitic cysts (6). Final diagnosis in made by histopathological examination. There are some difficulties in determining of the cells located on the wall of the cyst. Some authors describe unciliated cuboidual or columnar epithelial cells, (4,5,6,7,8,10,11). Also pseudostratification may be seen. They include no subependymal glial elements. The cells in the cyst directly on connective tissue are similar to the epithelium in the respiratory tract (1,4). Routinely sections are stained with H.E., PAS, Vo-Gieson, PTAH and Muci-carmine. Cyst wall of our case was lined with and with and without cilial cuboidal pseudostrafied epithelial cells that most of them were stained by PAS negative. As in literature, the basement membrane was irregular and the wall was continuous with collagenous tissue. Negative response to mucicarmine showed that it was not a teratogenous cyst. After Von-Gieson staining no neural element in the wall showed an arachnoid cyst. While ependymal cysts are mostly located ventrally, our case was, like Wisoff's posterior (1,5,6,7,10,11). One must take into account the possibility of ependymal cyst in patients undergoing operations for meningocele and tethered cord.

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