

## Spinal Arachnoid CYST Causing Hydrocephalus and Paraparesis A Case Report

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**Abstract:** Arachnoid cysts of the spinal canal communicating with the subarachnoid space are benign lesions and generally asymptomatic. In this article we report a case of intradural arachnoid cyst

presenting with hydrocephalus and paraparesis. The case is reviewed with pertinent literature.

**Key words:** Arachnoid cyst, hydrocephalus, magnetic resonance imaging, paraparesis

### INTRODUCTION

Spinal arachnoid cysts generally communicate with the subarachnoid space. They are considered as benign entities and are rarely seen in neurosurgical practice (2, 9-11).

Presentation with compression of the spinal cord and/or roots may sometimes occur and this may be symptomatic, as myelopathy and/or radiculopathy (1-12).

In this paper a case of intradural arachnoid cyst in the midthoracic region non-communicating with the subarachnoid space and with resultant hydrocephalus and paraparesis is presented.

### CASE REPORT

A 37-year-old male presented with headache, paraparesis and sphincter disturbances. Which had increased gradually in a month.

Neurological examination revealed papilla oedema, hypoaesthesia below T6, hyperactive reflexes, positive Babinski sign, decreased anal sphincter tonus and paraparesis.

Cranial computed tomography (CT) revealed a communicating hydrocephalus. Cranial MRI revealed no obstructive lesions in the aqueduct or the fourth ventricular region (Fig.1). Spinal MRI

revealed an intradural cyst at the T4-5 level which was diagnosed as an arachnoid cyst (Fig.2). A cervical omnipaque myelography was performed to document the relation between the cyst and the subarachnoid space. Opening pressure was 240

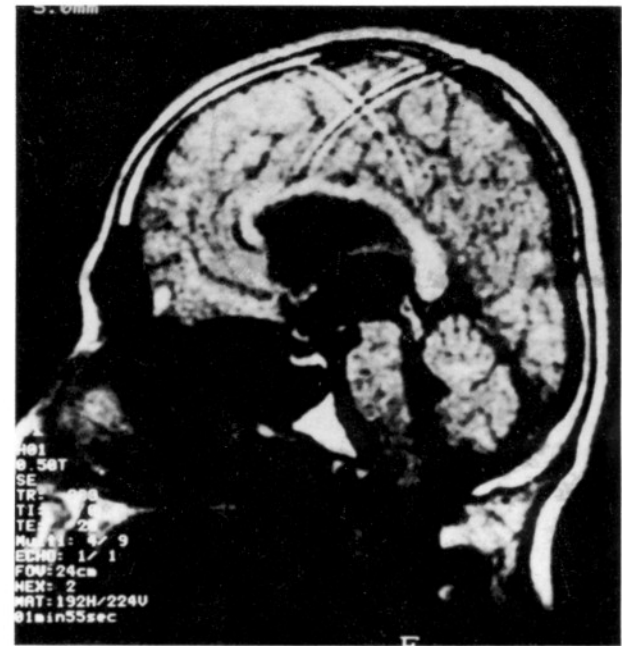


Fig. 1: T1- weighted sagittal MRI showing no obstruction of the aqueductus sylvii and ventricular dilatation

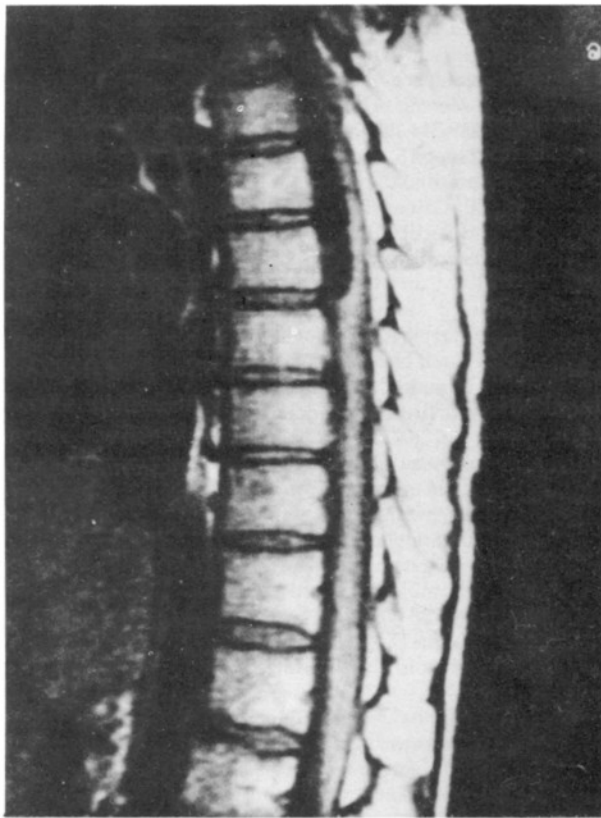


Fig. 2: Spinal MRI showing an intradural extramedullary hypointense lesion and displacement of the spinal cord at the level of T4-T5.

mmH<sub>2</sub>O and protein content was 147 mg/dl. A total intradural block was observed

To clarify the existence of any relationship with the cyst, delayed films (1/2 hour later) were taken and a decrease in contrast density was noted, however no contrast in the cyst was detected.

Total laminectomy of T4-T5 was performed and when the dura was opened, the spinal cord appeared to be displaced dorsally. The wall of the cyst was opened bilaterally through the upper and lower borders.

Communication of the cyst with the subarachnoid space was achieved but the spinal cord did not replace the space of the cyst. A ventriculo-peritoneal shunt operation was performed in the early period due to persistent hydrocephalus.

Paraparesis improved 2/5 the first postoperative week. Postoperative spinal MRI revealed CSF accumulation in the former cyst space, the dimensions of the cyst had decreased and there was communication of the cyst with the subarachnoid space, which was considered to be a wide compartmentalization (Fig. 3).

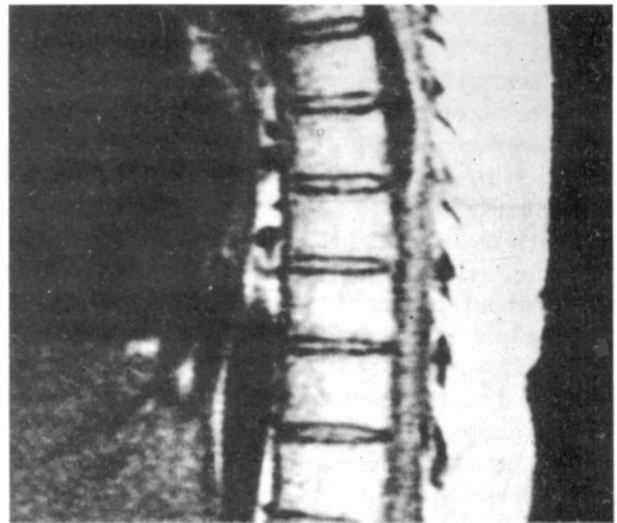


Fig 3: Spinal MRI showing the postoperative appearance of the spinal cord.

The patient was referred to a physical therapy and rehabilitation programme.

At the second postoperative week the patient had 2/5 paraparesis.

## DISCUSSION

Spinal arachnoid cysts are lined by a single layer of normal arachnoid cells and filled with CSF (2, 3, 6, 10). Intradural arachnoid cysts can be classified as congenital and acquired (1, 2, 13).

The mechanisms that explain the formation of congenital spinal arachnoid cysts are: 1) These lesions arise from the septum posticum (13-15). 2) Arachnoid cysts are formed due to the presence of areas of lower resistance in the arachnoidea which may be dilated by continued stress caused by normal everyday variations in CSF hydrodynamics (16, 17).

Spinal arachnoid cysts are usually located at the dorsal aspect of the thoracic spinal canal and sometimes in the anterior cervical or lumbar spine (24).

Cysts are usually related with the subarachnoid space and the ostium of the cyst is almost always directed cranially (7, 24).

They may be symptomatic or asymptomatic. Asymptomatic cysts may be a common incidental finding at myelography (3, 4, 16, 21). Symptomatic spinal arachnoid cysts are rare and may present with intermittent myelopathy and/or radiculopathy. This is the first reported case of midthoracic arachnoid cyst causing hydrocephalus (1-12, 24).

The cyst in our case was not communicating with the spinal subarachnoid space and the

hydrocephalus that occurred may be attributed to this fact. The arachnoid cyst may block the passage of CSF and as the protein content of CSF increases, causes a decrease in CSF absorption.

Compression of the spinal venous plexus and elevation of venous intracranial pressure may subsequently interfere with absorption of CSF (25) and cause hydrocephalus.

The relationship of the cyst and the subarachnoid space can be demonstrated by delayed myelography which shows entrance of the contrast material to in the cyst or by spinal MRI after intrathecal contrast injection.

Although cysts of the spinal canal are rare benign lesions, their communication with the subarachnoid space is very important. We believe that if there is no communication the cyst's mass effect may cause hydrocephalus.

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