Postoperative Lumbar Pseudomeningocele

SERVET İNCİ, ATİLLA AKBAY, VURAL BERTAN

Hacettepe University, Medical School, Department of Neurosurgery Ankara, Türkiye

Abstract : Pseudomeningocele formation is a rare complication after lumbar disc surgery. In the present paper, we report a case of symptomatic postoperative lumbar pseudomeningocele diagnosed by magnetic resonance imaging and treated surgically.

Key Words : Complication, lumbar disc surgery, pseudomeningocele

INTRODUCTION

Postoperative pseudomeningocele is a rare complication of spine surgery. It is a cerebrospinal fluid (CSF)- filled pouch that extends into the paraspinal tissues because of CSF leakage and was first reported by Hyndman and Gerber in 1946 (10). Pseudomeningocele occurs more frequently in the lumbar than the cervical region (4, 11). Computed tomography (CT) and magnetic resonance imaging (MRI) are useful for diagnosis. Surgical treatment is required in symptomatic cases. We report a patient with symptomatic postlaminectomy pseudomeningocele.

CASE REPORT

A 47 year-old woman with low back pain and weakness of the legs had had two previous surgical procedures. The first, in January 1991, was excision of a herniated disc at the L4-L5 interspace with an eventful postoperative course (operative and postoperative details are not available). In September 1991, low back pain recurred and in a repeat operation, scar tissue was removed via laminectomy. In December 1991, the patient was admitted with low back pain and motor weakness. Clinical symptoms were moderate paraparesis with decreased deep reflexes, sphincter disturbance and anaesthesia in the perineal region. MRI showed an extradural cyst in the lumbar paraspinous area. The cyst cavity seemed to be connected with the subarachnoid spaces and to compress the cauda equina (Fig.1A-B). A postoperative pseudomeningocele was considered. At operation, the skin was opened through the old operation scar and a subcutaneous cyst from L4 to S1 was identified. The cyst cavity was opened and clear fluid was evacuated but no filaments of cauda equina were found. At the bottom of the cyst, the dura mater presented a round hole about 3mm diameter communicating with the subarachnoid space. L4 laminectomy was performed and the extradural cyst was totally excised. The dura mater was repaired with interrupted 4-0 sutures. In the postoperative period, low back pain and sphincter disturbance resolved and perineal anaesthesia and motor weakness slightly decreased. Three months later, she was admitted again because of low back pain with radiations into both gluteal regions. Radiological studies showed a pseudomeningocele which was smaller than first. At surgery the cyst was excised and duraplasty performed. At follow- up, twenty two months later, there was no recurrence.

DISCUSSION

Lumbar disc surgery is the most common operation performed by neurosurgeons. Fortunately, postoperative pseudomeningocele formation is very rare (5, 6, 11, 22, 23) with an incidence ranging from 0.068% to 2% (21, 22). In 1964, Lombardini and

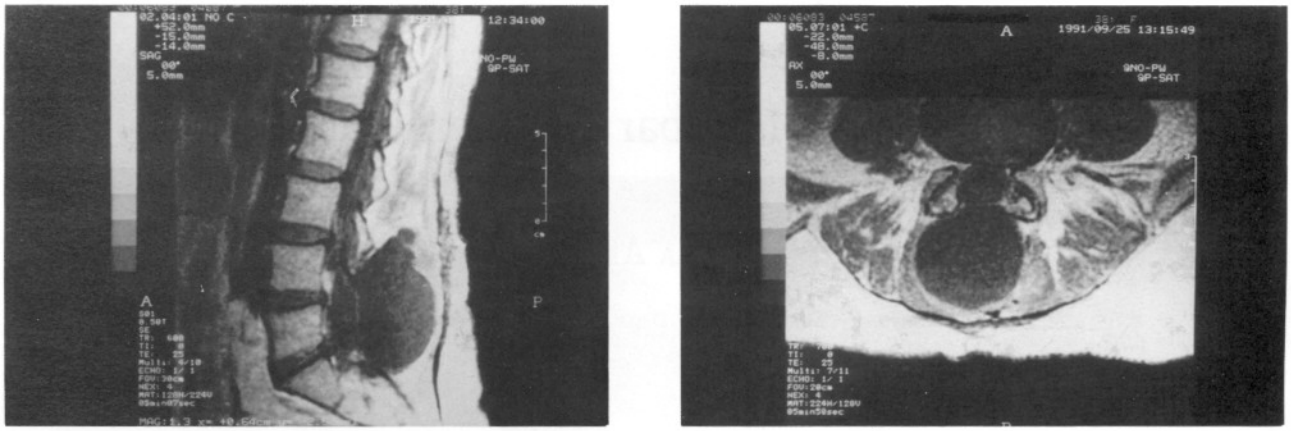

Fig. 1 : Sagittal (A) and axial (B) T1-Weighted MRI studies demonstrate a large subcutaneous and paraspinal pseudomeningocele.

Passerini described this pathology as "Circumscribed ectasia of the dural sac" (12).

At operation, if the dura mater is torn and the arachnoid remains intact, the arachnoid may herniate to the epidural space, resulting in extradural cyst (14, 15, 18, 19, 22). A tear in the dura and arachnoid will cause extravasation of CSF into the soft tissue. Initially, the CSF is easily absorbed, but later the progressive connective fibrous reaction hinders the reabsorbtion and CSF accumulates in the paravertebral tissues and finally a pseudomeningocele occurs (3, 5, 11, 15, 16, 17, 22). Postoperative meningocele may occur when an area of the dura remains open. Sometimes, nerve roots may herniate into the pseudomeningocele cavity (6,15,19, 24). In our patient, there were no neural structures in the cavity. Pseudomeningocele may cause signs and symptoms by mass effect with compression of neural elements. The interval between laminectomy and discovery of the pseudomeningocele varies from a few months to many years. This interval was approximately three months in our case. The size of the cyst is determined by the CSF pressure and the resistance of the paravertebral tissues (23).

Postoperative pseudomeningocele may occur in the cervical spine (2, 8, 9,13) but is more frequent in the lumbar region. It may also occur after trauma (1, 4, 7). Pseudomeningocele may rarely be calcified (20, 23) but most are small and asymptomatic (5). The most common complaint is lumbar pain in symptomatic cases (3, 11) but occasionally patients complain of motor weakness or sphincter disturbance due to involvement of the nerve roots . According to Miller and Elder, there is no correlation between the size of the cyst and the degree of symptoms (15).

Pseudomeningocele may not be diagnosed by routine myelography. The late phase of myelography should also be performed for diagnosis. Spinal CT and MRI are very useful especially, for radiologic visualization of the pseudomeningocele stalk. In addition, MRI gives multiplanar images and provides superior soft tissue imaging with information about fluid characteristics.

We believe that a postoperative pseudomeningocele should be suspected in patients submitted to lumbar discectomy when delayed postoperative neurological deficit occurs, even many months or years after the surgical procedure.. Surgical treatment is required in symptomatic cases to prevent progressive neurological damage. Any dural opening made during lumbar surgery should be tightly closed at the time of the original operation.

Correspondence : Dr. Servet İnci
Emek Mah. 4. Cad. 70/8
Ankara, Türkiye

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