



# Pseudomeningoceles: An Unusual Cause of Orthostatic Headache

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Pseudomeningocele, an uncommon complication of spinal and cranial surgery or trauma, is an extradural accumulation of cerebrospinal fluid (CSF) without dura covering and usually results from incidental durotomy or traumatic dural tear. We presented here a 43-year-old man with a history of lumbar spine surgery complaining of postural headache for three days. Physical examination revealed an indolent soft lump on his low back and a subsequent magnetic resonance imaging (MRI) of the spine revealed a large subcutaneous fluid collection with epidural effusion that was compatible with pseudomeningoceles. The patient was successfully treated with surgical repair of the dural defect.

**Key words:** pseudomeningoceles, orthostatic headache, intracranial hypotension

## Case Report

A 43-year-old man, a truck driver without previous trauma events or other systemic disease, presented to the emergency department with a three-day history of headache. His headache, which was unrelieved by oral and intramuscular analgesics, got worse in an upright position but was relieved when lying flat. He had an operation history of decompression surgery for his sciatica two months ago and the post-operative course was uneventful. On physical examination, he was hemodynamically stable without neurological deficit. An indistinct soft lump with a tactile sensation of water balloon was noted on his low back without tenderness (Fig. 1). A clinical diagnosis of “low-pressure headache with suspected delayed postoperative pseudomeningocele”

was made after consultation with the neurologist. Magnetic resonance imaging (MRI) of the



Fig. 1 A soft and flat mass (arrowheads) on the lower back beneath the surgical scar.

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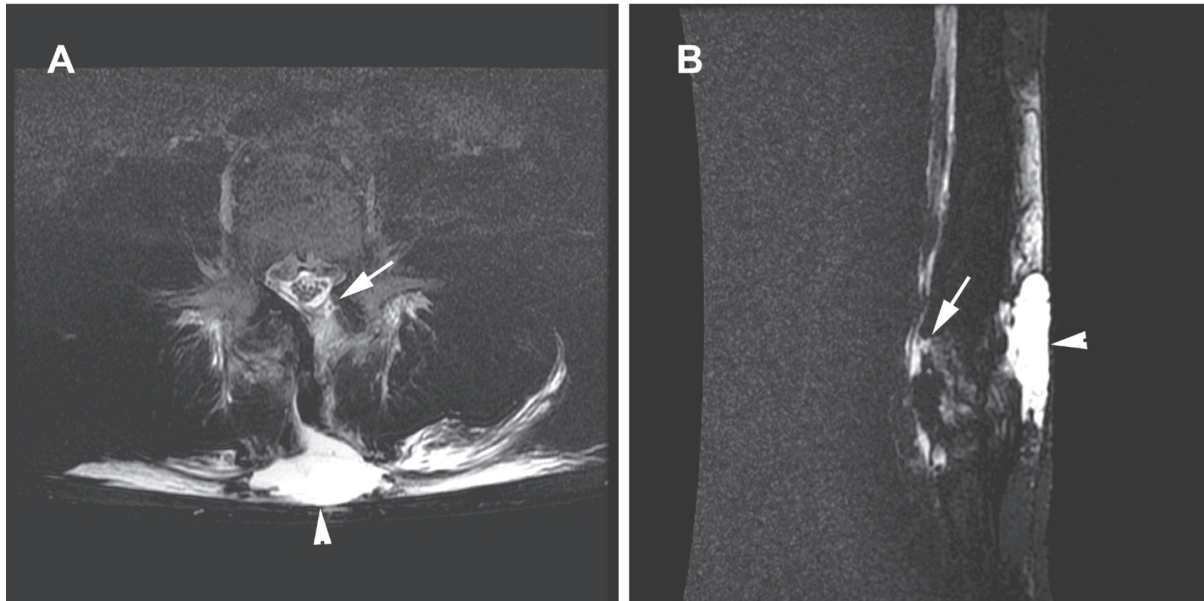


Fig. 2 Examination of the lumbar spine with (A) T2-weighted fat-suppressed magnetic resonance imaging (MRI) (cross-sectional view), and (B) heavily T2-weighted MRI (sagittal view) revealing a large subcutaneous fluid collection (arrowheads) and small epidural effusion (arrows) with a signal intensity identical to that of cerebrospinal fluid, suggesting the diagnosis of pseudomeningoceles.

spine demonstrated an epidural effusion with a large subcutaneous fluid collection (Fig. 2) compatible with the diagnosis of pseudomeningoceles. Surgical exploration of his lower back after a two-day bed rest without improvement in headache revealed a dural opening which was successfully repaired without further complication after one-month follow-up.

Pseudomeningocele, an extradural accumulation of cerebrospinal fluid (CSF) without dura covering, is an uncommon complication of spinal and cranial surgery or trauma resulting from incidental durotomy or traumatic dural tear. Although intraoperative detection of most iatrogenic CSF leaks allows immediate repair of the dural tears, unnoticed dural injuries can lead to prolonged CSF leaks and the formation of pseudomeningoceles. The reported incidence of postoperative pseudomeningoceles from spinal surgeries was 2 – 13%.<sup>1</sup> The incidence may be underestimated because of its delayed onset from days to months following surgery as well as its small size and lack of symptoms in most cases before reaching a considerable size.<sup>2</sup> The most common presenta-

tions of pseudomeningocele are low back pain and headache. While the backache is usually aggravated by straining due to mass effect from the expanding CSF, most of the headaches are orthostatic and exacerbated in upright position frequently accompanied by blurred vision, dizziness, diplopia, photophobia, tinnitus, nausea and vomiting. In addition, some pseudomeningoceles may result in radiculopathy through nerve root compression.<sup>1-5</sup> The diagnosis of pseudomeningocele requires a combination of detailed history, physical examination, and imaging studies. MRI remains a useful non-invasive modality to detect pseudomeningoceles as well as to help identify their level of communication with the thecal sac.

Small pseudomeningoceles may resolve spontaneously on initial conservative treatment with complete bed rest to reduce intrathecal fluid pressure.<sup>1,3</sup> Symptomatic pseudomeningoceles, if persistent, mandate surgical intervention which includes epidural patch technique (i.e., autografts, allografts, or fibrin glue), CSF diversion (i.e., subarachnoid drain or lumbar shunt), and direct dural repair.<sup>1,4</sup> These

surgical options should be tailored to the size or location of the dural defect. Large pseudomeningoceles, if left untreated, may produce giant pseudomeningoceles (defined as > 8 cm in size) and lead to spinal cord compression with neurological deficit.<sup>5</sup>

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