

**Clinical Article**  
**Orthopaedics**

**THE OPERATIVE  
MANAGEMENT OF  
PSEUDOMENINGO-  
COELE, A STUDY  
OF TEN CASES,  
DETERMINATION  
OF THEIR CAUSES  
AND MANAGEMENT  
OUTCOMES**

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**Abstract:**

Pseudomeningocele is a rare entity that follows a dural injury during spine surgery. The dural fluid accumulates in the adjoining soft tissue to form a pseudomeningocele. This may manifest in various forms from a simple fluctuant swelling to extreme sensitivity to handling. We have managed these surgically identifying and sealing off the leak. The outcomes have been uniformly good with complete resolution of symptoms and no incidences of recurrence at two years post surgery. We recommend avoiding the use of topical steroid to the dura post surgery.

**Key-words:** Spine, dura, leak, meningocoele, laminectomy

**Introduction:**

An injury or weakened portion of the dura can leak cerebrospinal fluid (CSF) gradually into adjacent tissue that may be sub muscular, muscular or the subcutaneous planes.<sup>1</sup> Such a leak accumulates over time creating a large pseudo cyst or pseudomeningocele within said planes. This may manifest as an obvious swelling ranging in size from the very small to the very large. Symptoms vary from a very small asymptomatic swelling to a very large swelling causing syncope on palpation.<sup>2,3</sup>

**Material and methods:**

Our study included patients with proven pseudomeningocele who opted for surgical management. In our series, ten patients were studied. All patients had a history of spinal surgery performed either a discectomy or decompression of lumbar canal stenosis. The patient’s previous operative notes were looked into to determine if there was any dural injury recorded. Also noted were any incidences of steroids applied topically to the dura and nerve root post discectomy or post decompression.

Some patients were asymptomatic although anxious about the swelling. Some had local tenderness and one patient there had a history of severe pain and syncope on any pressure applied to the swelling.

The asymptomatic patients opted for surgery even after counseling on the condition and explanation of the benign nature of the lesion. Non operative modalities (spinal drainage, lumbar shunt) were discussed with the patients firmly opting for surgery.

A Magnetic Resonance Imaging (MRI) was performed on all patients, confirming the diagnosis<sup>2</sup>. None of the patients had any evidence of nerve

root prolapse into the lesion<sup>3</sup>.

Surgical management was via a posterior midline approach over the swelling, including and extending the scar of previous surgery. The pseudomeningocele was identified, freed from the adjoining tissue and the pedicle to the dura identified. This was traced right down to the dura, widening the previous bony exposure when necessary. The rent on the dura was identified and tied off with 5-0 non absorbable braided suture. This was then covered over with absorbent surgical gel and the incision closed over a negative suction drain.

The drain was maintained for three days and the patient allowed standing and walking after removal. The patient was maintained on tablet acetazolamide 250 mg thrice a day for three weeks to decrease CSF production.

**Results:**

Of the ten patients, one had severe symptoms, three had significant pain,

one complained of severe recurring headaches and the others except for a visible swelling were otherwise asymptomatic.

On examination of the previous operative notes, six patients did have local steroid installation immediately after discectomy or decompression possibly in an effort to minimize the incidence of inflammation and perineural fibrosis. The notes of the other patients did not reveal any dural injury.

All the patient were operated upon and all had an uneventful healing. Patients who were symptomatic reported an immediate improvement in their symptoms. None of the patients had any complications relating to the second surgery. All the patients were followed up to a period of two years when they were examined clinically and an MRI was done. None of the patients showed any recurrent symptoms and the MRI done showed no evidence of a recurrent or remnant pseudomeningocele.

**Table 1**

Total number	Visible swelling	Symptomatic	Asymptomatic	Neurological deficit
10	10	Syncope – 1 Recurrent headaches – 1 Severe pain - 3	5	0

**Discussion:**

There is a distinct possibility of local steroid administered topically immediately after decompression causing weakening of the dura and a subsequent slow leak<sup>4</sup>. The patients who did not have any steroid instilled possibly had a weakened dura either because of the initial lesion itself or inadvertant injury during surgery<sup>5</sup>.

The management of an asymptomatic pseudomeningocele

may be conservative<sup>6</sup>, it has been reported that some of these develop fibrosis enough to shut the leak and resolve the cyst.

When surgery is indicated, it is best to explore the lesion, identify the dural leak and close it off. The results of surgery are excellent, providing a complete resolution of symptoms without any added surgical complication.

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