

## Case 2027: MR imaging of post-surgical pseudomeningocele

Subspecialty: Neuroradiology

Date of Publication: 2003.11.04

Zuccoli G, de Berti G, Nicoli F, Tognini G, Ferrozzi F  
Arcispedale Santa Maria Nuova  
42100 - Reggio Emilia / ITALY

### Patient:

Age: 26 year(s)

Sex: male

### Clinical Summary

A patient with a spinal cystic lesion of the lumbar spinal canal underwent surgery. After the intervention the patient's condition worsened.

### Clinical History and Imaging Procedures

The patient presented with a 2-year history of low back pain with normal sensory, bladder and bowel functions. Preoperative MR imaging demonstrated a cystic lesion with CSF signal intensity displacing the thecal sac from L3 to S1. Postoperative MR images showed the presence of a large CSF collection extending from L5 to S1 through the laminectomy site and dissecting to the superficial subcutaneous layers of the lower back.

### Discussion

Causes of low back pain following lumbar surgery include epidural fibrosis, arachnoiditis, canal or foraminal stenosis, infection, haematoma and pseudomeningocele. MR is an excellent tool for evaluating the postoperative spine, especially when the patient shows chronic or recurrent symptoms. Teplick et al. postulated that the pseudomeningocele is caused either by herniation of the arachnoid through a dural tear, forming an arachnoid lined sac filled with CSF, or by direct extravasion of CSF into soft tissues, with possible development of a fibrous capsule. Pseudomeningocele is not a congenital condition; in fact it occurs after trauma or surgery. In most cases it occurs after surgery for a herniated lumbar disc. It occurs in 0.7-2% of laminectomies. Generally it develops posterior to the spine, however it may be found anterior to the spine presenting as a large abdominal cystic mass. Symptoms include severe headache, low back pain and sciatica due to nerve root entrapment. Therapy includes primary closure of the dural defect after complete surgical removal of the pseudomeningocele, surgical drainage along with autologous fibrin patch injection at the collection site and lumboperitoneal shunt positioning.

### Final Diagnosis

Lumbar post-surgical pseudomeningocele

**Figure 1:** Preoperative sagittal MR images



**Figure 1a**

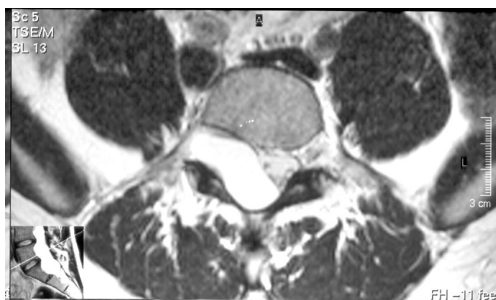
T2-weighted preoperative sagittal MR image shows the presence of a spinal cystic lesion with CSF signal intensity extending from L3 to S1.



**Figure 1b**

T1-weighted preoperative sagittal MR image shows the presence of a spinal cystic lesion with CSF signal intensity extending from L3 to S1.

**Figure 2:** T2-weighted preoperative axial image



**Figure 2a**

T2-weighted axial image shows the cyst extending through the right L5-S1 neural foramina. Note that the thecal sac is displaced.

**Figure 3:** MR myelogram



**Figure 3a**

MR myelogram shows the extent of the cystic lesion.

**Figure 4:** Postoperative T2-weighted sagittal image

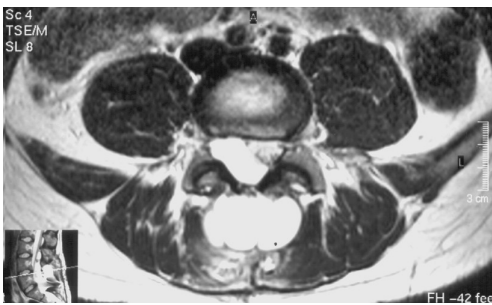
**Figure 4:** Postoperative T2-weighted sagittal image



**Figure 4a**

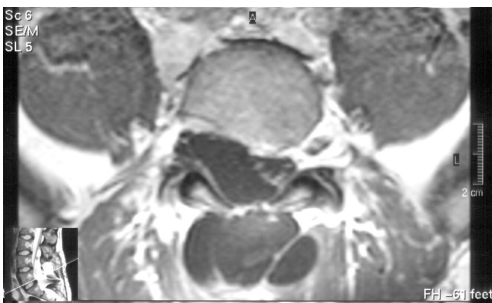
Postoperative T2-weighted sagittal image shows the presence of a lumbar pseudomeningocele dissecting to the superficial subcutaneous tissues.

**Figure 5:** Postoperative axial images



**Figure 5a**

Postoperative T2-weighted axial image shows the presence of the pseudomeningocele; no significant changes of the spinal cyst are seen.



**Figure 5b**

T1-weighted axial image confirms the findings shown in Figure 5a.

**MeSH:**

[C23.550.767] Postoperative Complications

Pathologic processes that affect patients after a surgical procedure. They may or may not be related to the disease for which the surgery was done, and they may or may not be direct results of the surgery.

[C16.131.666.680.598] Meningocele

A congenital or acquired protrusion of the meninges, unaccompanied by neural tissue, through a bony defect in the skull or vertebral column.

**References:**

[1] Teplick JG, Peyster RG, Teplick SK, Goodman LR, Haskin ME. CT identification of postlaminectomy pseudomeningocele. *AJR Am J Roentgenol.* 1983 Jun;140(6):1203-6.

[2] Lee KS, Hardy IM 2nd. Postlaminectomy lumbar pseudomeningocele: report of four cases. *Neurosurgery.* 1992 Jan;30(1):111-14.

[3] O'Connor D, Maskery N, Griffiths WE. Pseudomeningocele nerve root entrapment after lumbar discectomy. *Spine.* 1998 Jul 1;23(13):1501-2.

[4] Aldrete JA, Ghaly R. Postlaminectomy pseudomeningocele. An unsuspected cause of low back pain. *Reg Anesth.* 1995 Jan-Feb;20(1):75-9.

**Citation:**

**Zuccoli G, de Berti G, Nicoli F, Tognini G, Ferrozzi F (2003.11.04)**

MR imaging of post-surgical pseudomeningocele, {Online}  
URL: <http://www.eurorad.org/case.php?id=2027>