Extradural arachnoid cysts are uncommon entities, accounting for approximately 1% of all spinal tumors. With the development of imaging techniques, reports concerning such lesions are increasing.

This article presents a case of a large thoracolumbar extradural cyst treated surgically.

**CASE REPORT**

A 24-year-old man presented with low-back pain with no obvious cause of 1 year’s duration. The pain was aggravated by trunk flexion and relieved by bathing. No leg pain, numbness, or sphincter dysfunction was reported.

Physical examination revealed knocked pain of the lower back. When the legs were raised to 70°, low back pain increased. Left ankle reflex was absent, with no other neurological abnormalities. Laboratory examination of blood samples disclosed normal findings.

Plain radiographs of the thoracolumbar spine demonstrated thinning of the pedicles and increased interpedicular distances of the Th12-L2; these distances were markedly longer than those previously reported. Scalloping vertebrae of the posterior margins was noted. T2-weighted magnetic resonance imaging (MRI) disclosed a sharply-defined tumor with a signal intensity equal to cerebrospinal fluid extending from Th12 to L4, compressing the dural sac (Figure).

The posterior epidural fat was noted above and below the lesion. Myelography and a 3-hour delayed computed tomography (CT) myelography revealed a complete block of the subarachnoid space at L2/L3 and an extradural cyst, extending to the foramen. Recapping laminectomy from Th12 to L4 and tumor extirpation were performed. The tumor was located dorsal to the dural sac of Th12-L4 with a wide conduit communicating with the subarachnoid space at the left posterolateral dural sac of L1-L2. Slight adhesion was present. The cyst was excised completely, and the conduit was obliterated by ligations.

The resected laminae were recapped and fixed with absorbable screws. The length of the cyst was 13 cm. The cyst wall consisted of a hypertrophied arachnoid membrane without neural elements or inflammatory reactions on pathology.

Three months postoperatively, low-back pain resolved completely and the patient returned to work. No symptoms reappeared after 2-year follow-up.

**DISCUSSION**

In 1988, Nabors et al classified spinal arachnoid cysts into three major categories: type I, spinal extradural meningeal cysts without neural elements (subclassified: type IA—extradural meningeal cysts and type IB—sacral meningocele); type II, spinal extradural meningeal cysts with neural elements; and type III, spinal intradural meningeal cysts. The present case is type IA. According to previous reports, type I cysts usually extend across three or four vertebrae; the present cyst extended across five vertebrae.

The precise pathogenesis and origin of spinal arachnoid cysts remain uncertain, although the theory of a congenital dural defect is widely accepted. Nabors et al proposed that spinal meningeal cysts are diverticula of the spinal meningeal sac, nerve root sheath, or arachnoid. The mechanism of cyst enlargement may be related to a one-way valve mechanism that develops at the narrow conduit between the cyst and dural sac. The
authors are uncertain of the etiology of the present case, but assume the cyst may have formed on the basis of a congenital dural defect. The exact etiology warrants further investigation.

Several studies indicate that the most frequent location of arachnoid cysts is the thoracic spine (65%-80%), followed by the lumbosacral (6.6%-13%) and cervical spine (3%-15%).\textsuperscript{7,12} Thoracic extradural cysts occur mainly in adolescents, whereas lumbar and sacral cysts are more often found in adults.

Symptoms vary according to the level of compression of the spinal cord or the nerve roots, and such cases generally present with remissions and exacerbations.\textsuperscript{5} Pain and motor deficit are most common, and the size of the cyst, as in this case, may not be the predominant factor.\textsuperscript{10} Despite the wide extension from Th12 to L4, the patient only had low-back pain at L4. The authors speculate that it may be the result of gravity that predisposed the fluids to accumulate within the lower basement of the cyst.

Plain radiographs of a large arachnoid cyst usually demonstrate slender pedicles, interpedicular distance expansion, and scalloping of the vertebral bodies. An enhancing cystic lesion may be revealed on myelography. CT myelography may show enlargement of the spinal canal, widened foramen, and a cystic lesion lying posteriorly within the spinal canal.

Delayed myelography and CT myelography may be necessary for the differential diagnosis between an intradural and extradural lesion. Contrast medium within the lesion on myelography and CT myelography, or no enhancement by Gd-DTPA on MRI, may indicate a cystic lesion rather than a mass lesion.\textsuperscript{8}

The differential diagnosis includes intra- or extradural tumors. The epidural fat image may be important for the differential diagnosis between an intradural and extradural lesion. Contrast medium within the lesion on myelography and CT myelography, or no enhancement by Gd-DTPA on MRI, may indicate a cystic lesion rather than a mass lesion.\textsuperscript{8}

Treatment methods for arachnoid cysts include observation, surgical extirpation, and percutaneous cyst puncture using computed tomography or MRI guidance.\textsuperscript{14,15} Unfortunately, fluids readily reaccumulate following cyst puncture. Surgical extirpation of the cyst by laminctomy to avoid permanent damage to the nerve roots or the spinal cord is recommended. The most common complications of laminectomy are postoperative instability, kyphosis, and iatrogenic stenosis due to laminectomy membrane. To prevent these complications in this case, recapping laminectomy and cyst extirpation were performed.

**REFERENCES**