

## Synovial Cyst of the Midthoracic Spine

Synovial cysts are uncommon lesions of the lumbar spine and rarely occur in the lower cervical region. We present a case of a pathologically verified synovial cyst located adjacent to the right T7–T8 facet joint.

### Case Report

Over a period of 6 weeks, a 69-year-old woman had had gradual onset of low back pain with subsequent development of weakness in the right lower extremity and then numbness in the left lower extremity. Neurologic examination showed decreased sensation to pinprick in both lower extremities, starting at the umbilicus. Temperature and vibratory sensations were absent in the left lower extremity and decreased in the right lower extremity. Position sense was absent in the right lower extremity and decreased on the left. The patient denied any history of trauma. On motor examination, the left lower extremity was normal, and the right showed 3/5 weakness distally and 4/5 weakness proximally.

Myelography (Fig. 1A) showed narrowing of the spinal canal at T7–T8, caused primarily by a large posterior extradural defect. Compression from the anterior aspect was noted also and was thought to be the result of moderate posterior formation of osteophytes from the vertebral bodies. CT myelography (Fig. 1B) showed narrowing of the canal, degenerative facet changes, and what appeared to represent hypertrophied ligamentum flavum. MR imaging at 1.5 T showed a cystic-appearing lesion posterior to the thecal sac. The lesion was slightly hyperintense relative to the CSF on T1-weighted spin-echo 600/20/1 (TR/TE/excitations) images and iso- to slightly hyperintense relative to the CSF on T2\* gradient-echo 750/50/1 (flip angle 30°) images (Figs. 1C and 1D). A hypointense margin

of the cyst was noted on both types of images. Flexion and extension radiographs did not show any abnormal motion.

The patient had a two-level thoracic laminectomy centered on the area of stenosis. When the lamina was removed, the ligamentum flavum was found to be hypertrophied and invaginating into the posterior aspect of the dura. The ligamentum was densely adherent to the dura and laterally appeared to be cystic. This area of cystic dilatation was in direct continuity with the facet joint. Fluid was not expressed from the cystic area. The ligamentum, including the cystic region, was dissected from the dura and sent for microscopic examination. The dura was not opened. Pathologic examination verified the synovial component of the cystic ligamentum (Fig. 1E). Postoperatively, the patient had improvement in strength and sensation in the lower extremities and at 2 months was neurologically normal.

### Discussion

Intraspinous synovial cysts have been diagnosed with increasing frequency since the original description of the CT characteristics by Hemminghytt et al. [1]. Now the diagnosis often is made on the basis of MR imaging [2–4]. Most commonly, the cysts involve the lumbar spine below the L3 level, particularly at L4–L5, but cysts at the L2–L3 level have been described [5]. Rarely, they involve the lower cervical spine [6]. Such cysts generally are associated with osteoarthritic changes as in our case, although they also have been found in patients with posttraumatic instability and rheumatoid arthritis [5, 7]. Although surgery is the usual treatment, nonsurgical intervention, by intraarticular injection of steroids, has been occasionally successful

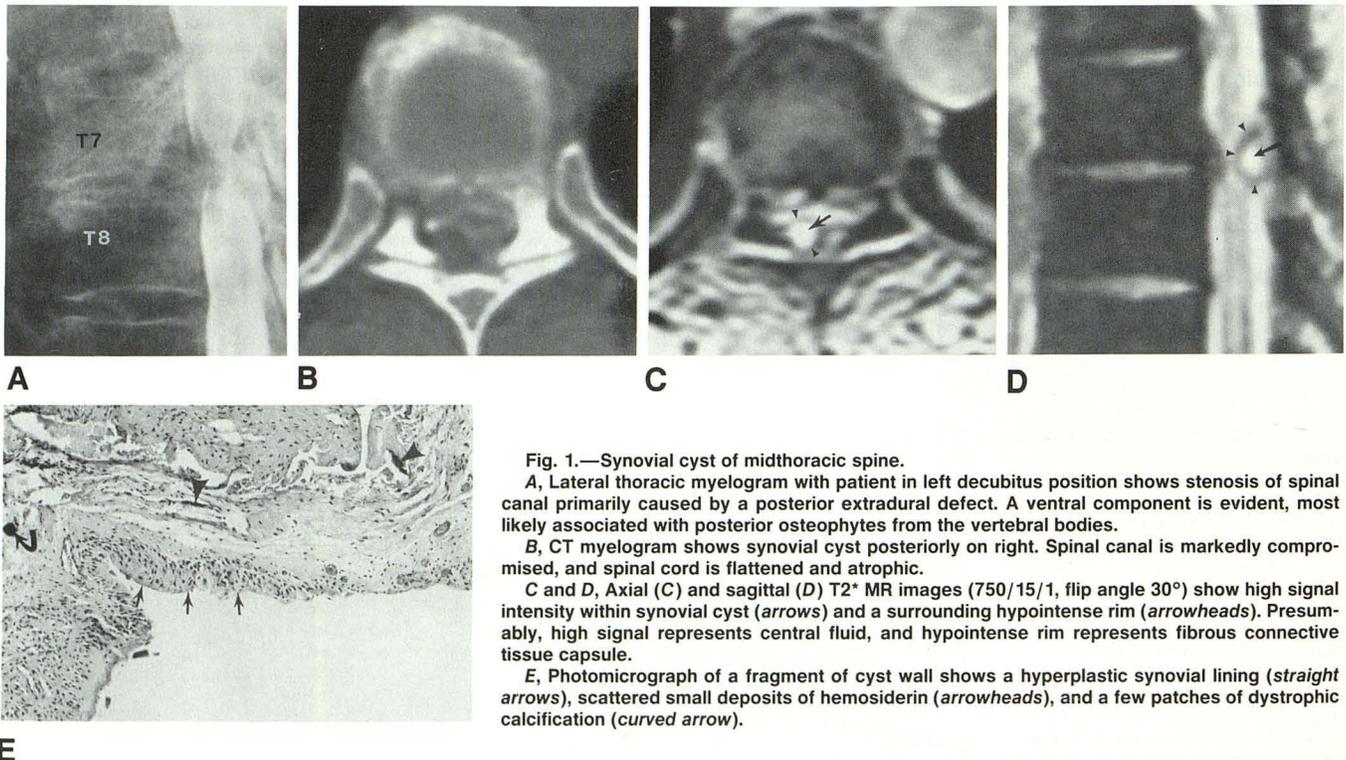


Fig. 1.—Synovial cyst of midthoracic spine.

A, Lateral thoracic myelogram with patient in left decubitus position shows stenosis of spinal canal primarily caused by a posterior extradural defect. A ventral component is evident, most likely associated with posterior osteophytes from the vertebral bodies.

B, CT myelogram shows synovial cyst posteriorly on right. Spinal canal is markedly compromised, and spinal cord is flattened and atrophic.

C and D, Axial (C) and sagittal (D) T2\* MR images (750/15/1, flip angle 30°) show high signal intensity within synovial cyst (arrows) and a surrounding hypointense rim (arrowheads). Presumably, high signal represents central fluid, and hypointense rim represents fibrous connective tissue capsule.

E, Photomicrograph of a fragment of cyst wall shows a hyperplastic synovial lining (straight arrows), scattered small deposits of hemosiderin (arrowheads), and a few patches of dystrophic calcification (curved arrow).

[7]. Furthermore, spontaneous resolution has been known to occur [1].

Eric E. Awwad  
David S. Martin  
Richard D. Bucholz  
Murali Sundaram  
St. Louis University Medical Center  
St. Louis, MO 63110-0250

#### REFERENCES

1. Hemminghytt S, Daniels DL, Williams AL, Haughton VM. Intraspinial synovial cysts: natural history and diagnosis by CT. *Radiology* **1982**;145:375-376
2. Rosenblum J, Mojtahedi S, Foust RJ. Synovial cysts in the lumbar spine: MR characteristics. *AJNR* **1989**;10[suppl]:S94
3. Liu SS, Williams KD, Drayer BP, Spetzler RF, Sonntag VKH. Synovial cysts of the lumbosacral spine: diagnosis by MR imaging. *AJNR* **1989**;10:1239-1242
4. Awwad EE, Martin DS, Smith KR Jr, Bucholz RD. MR imaging of lumbar juxta-articular cysts. *J Comput Assist Tomogr* **1990**;14:415-417
5. Awwad EE, Sundaram M, Bucholz RD. Post-traumatic spinal synovial cyst with spondylolysis: CT features. *J Comput Assist Tomogr* **1989**;13:334-337
6. Patel SC, Sanders WP. Synovial cyst of the cervical spine: case report and review of the literature. *AJNR* **1988**;9:602-603
7. Bjorkengren AG, Kurz LT, Resnick D, Sartoris DJ, Garfin SR. Symptomatic intraspinal synovial cysts: opacification and treatment by percutaneous injection. *AJR* **1987**;149:105-107