Radiologic Recognition of Symptomatic Spinal Synovial Cysts

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Synovial cysts of diarthrodial joints have long been recognized [1]. Clinically, they have most often been found in association with one of the arthritides [2, 3]. Though synovial cysts can involve the facet joints of the spine, this fact was little appreciated until very recently [4, 5]. Radiographically, these lesions were extremely difficult to diagnose and were rarely recognized preoperatively. With the advent of computed tomography (CT), spinal synovial cysts could be clearly imaged. In a recent case report, Hemminghytt et al. [6] emphasized that these cysts usually present with pain but without additional sensory or motor findings. Therefore, surgery would not be indicated in most cases, presumably because these cysts incidentally accompany the facet syndrome of lumbar facet arthropathy. The lumbar synovial cyst described here, which was documented by contrast opacification at facet arthrography and by subsequent surgery, compressed the adjacent nerve root and ultimately required excision to relieve the patient's radiculopathy.

Case Report

A 65-year-old woman developed pain radiating to her left buttock, hip, thigh, and calf as far as the ankle. The pain was aggravated by motion but not by coughing. Physical examination 4 months later revealed mild weakness of the dorsiflexors of the left foot and positive straight leg raising at 70°. No other sensory or motor findings were present. There were no signs or symptoms on the right side. Radiographically, plain films of the lumbar spine showed moderate degenerative arthritic changes of the L4–L5 facet joint to the left side. Subsequently, a CT scan was obtained on a GE 8800 scanner using contiguous 5-mm-thick slices. No contrast material was administered. The scan confirmed facet arthropathy and revealed an 8 mm calcified, spherical mass adjacent to the left L4–L5 facet joint extending superiorly and medially into the spinal canal (figs. 1A and 1B). Facet arthrography was subsequently performed. Two ml of Conray 60 (iothalamate meglumine), 40 mg of Marcaine (0.25% bupivacaine hydrochloride), and 40 mg of Depo-Medrol (methyl prednisolone acetate) were injected into the facet joint (fig. 1C). Immediately thereafter, the region was rescanned, documenting the intracapsular location of the contrast material and demonstrating the communication of the calcified mass with the facet joint space (fig. 1D). Within days, the patient experienced moderate improvement of her symptoms, but within 3 months, they had worsened.

Four months later, metrizamide myelography showed an extradural defect at L4–L5 on the left. A CT scan was obtained immediately, using the same technique described above. The metrizamide injection confirmed that the defect was the calcified mass seen 4 months earlier, that it was extradural, and that it compressed the L5 nerve root to the left (figs. 1E and 1F). At surgery, a “firm, white, glistening capsule containing white grumous material” was found attached to and extending from the medial articular surface of the left L4–L5 facet joint. It was removed. The anulus fibrosus was noted to be intact. Pathologic review of the surgery specimen was consistent with but not diagnostic of synovial cyst. Postoperative CT of the region revealed absence of the previously identified mass (fig. 1G). The patient was virtually symptom-free on the first postoperative day. She was still asymptomatic 9 months after surgery.

Discussion

This case report confirms the conclusion of Hemminghytt et al. [6] that the diagnosis of intraspinal synovial cyst can be strongly suggested by CT scanning. It is further noted here that a virtually conclusive diagnosis can be reached if CT is performed after facet arthrography, a rather simple procedure with low morbidity [7]. Furthermore, this case illustrates that, at least occasionally, synovial cysts can cause nerve root compression with resultant motor and sensory radiculopathy requiring surgical excision for cure.

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REFERENCES

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Fig. 1.—A, L4-L5 facet joint (at soft-tissue window setting) shows 8 mm calcified mass (arrowhead) adjacent to left facet joint, extending into spinal canal. B, L4-L5 facet joint, bone window setting. Joint space narrowing and eburnation on symptomatic left side (arrowhead). C, Arthrography at L4-L5 identifies intraarticular injection of contrast material (arrowhead). D, CT scan at L4-L5 immediately after arthrogram. Contrast enhancement within calcified mass (arrow) verifies its communication with synovium of facet joint. E, CT metrizamide myelogram at L4-L5. Extradural mass (arrow) at same location as in A. F, More caudal location. Poor filling at L5 nerve root sleeve to left (arrow) indicates nerve-root compression at more cephalad level in E. G, Postoperative CT scan at L4-L5. Partial hemilaminectomy at L4 with surgical removal of intracanalicular synovial cyst (arrow). (Cf. A at comparable level.)

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