Percutaneous Aspiration of Lumbar Facet Synovial Cyst

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SYNOVIAL cysts of the facet joints are uncommon intraspinal abnormalities thought to be secondary to degenerative changes of the joints. They can cause chronic back pain, radiculopathy, and symptoms of spinal stenosis. We report a case of aspiration of a lumbar facet synovial cyst resulting in marked improvement in symptoms.

Case Report

History

A 51-yr-old woman was healthy until October 1993, when she experienced a sudden onset of pain in the right knee. The pain was described as intermittent and spontaneous without triggering factors. Sometimes she had burning in the lower calf and the medial thigh area, and other times she experienced shooting pain from the right knee up to the anterior thigh and down to the anterior tibial area. Symptoms seemed to increase with activity but were relieved by bed rest. Numerous therapies, including antiinflammatory drugs, steroid injections into both knee joints, and aspiration of a small baker’s cyst on the right knee, provided no relief. Her blood test results and thyroid function were normal. X-ray results of the knee, femur, and hip of the right lower extremities were negative. Venogram and bone scan results were unremarkable. Physical therapy was recommended. Her symptoms waxed and waned. After 6 months, she visited an orthopedic surgeon, who ordered an x-ray lumbar series and magnetic resonance imaging of her back. X-rays of the lumbar spine showed discogenic changes at L4–L5 with facet joint arthropathy. The magnetic resonance images showed characteristic findings of a midline synovial cyst at the L4–L5 facet with resultant spinal stenosis at this level (fig. 1). The surgeon referred the patient to our pain clinic for percutaneous aspiration in an attempt to avoid open laminectomy.

Physical Examination

Physical examination revealed obesity (weight 82 kg, height 1.62 m) and a normal gait. She had minimal pain during the examination because she had not been walking or exercising. Her hips and lower extremities appeared normal. Straight leg raising test and Patrick’s sign results were negative. Back examination showed no deformity and no facet tenderness, and range of motion of the back was normal. Motor strength, sensation, and reflexes were intact.

Procedure

The patient was placed prone with right side tilted upward, and the L4–L5 facet joint was identified under fluoroscopy. Under aseptic condition, a puncture point on the skin was selected overlying the

Fig. 1. Sagittal T2-weighted magnetic resonance images. At L4–L5, there is a well defined intermediate signal intensity mass arising in the midline posteriorly and imparting a mass effect on the thecal sac (arrow). The mass becomes uniformly hypointense on the T2-weighted images, consistent with a synovial cyst. This cyst mass extends from the L4–L5 inferiorly to the L5 vertebral body. A small amount of fluid is identified with the facet joint at this level.

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target joint space and was anesthetized with lidocaine. A 7.7-cm 18-G spinal needle was inserted into the joint space under direction of fluoroscopic guidance. A second 11-cm 22-G spinal needle was introduced through the larger needle. Three milliliters of clear proteinaceous fluid was aspirated from the joint. The fluid contained glucose (less than that of cerebrospinal fluid). One milliliter of Omnipaque dye was injected, and a suboptimal arthrogram was seen. Inadvertent dural puncture was obtained during random adjustment of the probing needle. No steroid was injected into the facet joint.

Results

Although no immediate relief of symptoms was observed, there was a gradual and complete resolution of symptoms 1 week after the aspiration. Six months later, the patient had no pain and was able to exercise more and ride her bike for 16 km daily. She had lost more than 15 kg because of her increased activity. No follow-up magnetic resonance imaging was done because the patient was asymptomatic and reluctant to bear the expenses and discomfort of the examination.

Discussion

Synovial cysts of the lumbar facet joints are intraspinal but extradural lesions. Extradural cysts can occur at the intraspinous ligament, facet joint, ligamentum flavum, dura mater, or anterior longitudinal ligament.1,2 Cysts lined by synovium and containing fluid of cerebrospinal fluid are true synovial cysts. Those without a synovial lining but filled with myxoid material have been termed ganglion cysts.3,4 Juxtafacet cysts appear most commonly after the fourth decade of life and are more common in women than in men.5 Their occurrence originally was reported to be uncommon; however, because of the awareness of such lesions and advances in imaging technique, more cases have been reported. Depending on the size and location, they may cause chronic back pain, radiculopathy, neurogenic claudication, myelopathy, and cauda equina syndrome.5,6 Most patients are asymptomatic at the time of diagnosis. X-ray findings of the lumbar spine are nonspecific, frequently showing spondylolisthesis and degenerative changes of the lower facet joints. Myelograms may show large posterolateral impressions on the contrast column at the level of the facet joint, compressing one or more nerve roots. These defects are distinctly different from those usually caused by herniated lumbar discs, when the defect is situated more anteriorly or anterolaterally.6,5 Computed tomography usually shows a cystic structure, occasionally with calcifications within its wall. The lesion is seen more easily on T2-weighted magnetic resonance images with a homogeneous core hyperintense to cerebrospinal fluid. Gas-containing or bloody “ganglion” cyst of the lumbar spine had been reported.2 Injection of gadolinium DTPA (diethylenetriamine pentaacetic acid) produces a characteristic enhancement of the rim of the cyst.6 Treatment usually consists of surgical resection. This case is believed to be the first documented case of therapeutic percutaneous aspiration of facet cyst. Previous cases of facet injections with local anesthetics and steroids had been reported with limited early success.4,5 Recurrent rate and prognosis are unknown.

Under fluoroscopy, complications are rare but include infection, bleeding, nerve injury, dural puncture, and back muscle spasm due to traumatic needle sticks.7 In this case, the patient had an inadvertent dural puncture. We opted not to inject the facet joint with steroids because intradural injection of steroids is associated with adhesive arachnoiditis.8

Because the occurrence and the incidence of such cysts in the general population (asymptomatic) is not known, it may be that most synovial cysts are benign and occult and have a natural history of spontaneous resolution. Cysts that are clearly associated with symptoms probably should be drained surgically or, as in this case, percutaneously; especially if there is a threat of progressive neurologic loss or intractable, unremitting symptoms.

In summary, we have reported a case of a 57-year-old woman with chronic left lower extremity pain due to a lumbar facet cyst. Percutaneous aspiration was followed by marked clinical improvement.

References


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After induction of anesthesia and nasotracheal intubation, the patient was placed in the lateral position. A 15-cm incision was made on the right side over the submentum. The platysma was incised, and the underlying strap muscles were dissected. The subcutaneous fat was elevated and a 15-cm incision was made on the right side over the submentum. The platysma was incised, and the underlying strap muscles were dissected. The subcutaneous fat was elevated and a 15-cm incision was made on the right side. A 15-cm incision was made on the left side over the submentum. The platysma was incised, and the underlying strap muscles were dissected. The subcutaneous fat was elevated and a 15-cm incision was made on the left side. A 15-cm incision was made on the back over the submentum. The platysma was incised, and the underlying strap muscles were dissected. The subcutaneous fat was elevated and a 15-cm incision was made on the back. The patient was placed in the supine position and the head was extended. A 15-cm incision was made on the neck. The platysma was incised, and the underlying strap muscles were dissected. The subcutaneous fat was elevated and a 15-cm incision was made on the neck. The patient was placed in the sitting position and the head was extended. A 15-cm incision was made on the back over the submentum. The platysma was incised, and the underlying strap muscles were dissected. The subcutaneous fat was elevated and a 15-cm incision was made on the back. The patient was placed in the prone position and the head was extended. A 15-cm incision was made on the neck over the submentum. The platysma was incised, and the underlying strap muscles were dissected. The subcutaneous fat was elevated and a 15-cm incision was made on the neck. The patient was placed in the prone position and the head was extended. A 15-cm incision was made on the neck over the submentum. The platysma was incised, and the underlying strap muscles were dissected. The subcutaneous fat was elevated and a 15-cm incision was made on the neck. The patient was placed in the sitting position and the head was extended. A 15-cm incision was made on the neck over the submentum. The platysma was incised, and the underlying strap muscles were dissected. The subcutaneous fat was elevated and a 15-cm incision was made on the neck. The patient was placed in the sitting position and the head was extended. A 15-cm incision was made on the neck over the submentum. The platysma was incised, and the underlying strap muscles were dissected. The subcutaneous fat was elevated and a 15-cm incision was made on the neck.