CASE REPORT

ADHESIVE CAPSULITIS OF THE HIP

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Adhesive capsulitis in the shoulder has been described often.1-4 It has been described only rarely in other joints including the ankle5,6 and wrist.7 Only four reports of adhesive capsulitis in the hip appear in the literature, and all four describe the condition as post-traumatic.8-10

Treatment methods usually include analgesics and physical therapy. However, resolution has been unpredictable, requiring more than 1 year in most cases.

This article describes a case of adhesive capsulitis of the hip in which the patient’s symptoms resolved only after open surgery.

CASE REPORT

A 35-year-old man presented with right hip pain of 3 months’ duration. He had no history of antecedent trauma or infection. On physical examination, the patient had decreased range of motion, which the patient stated had existed since the onset of hip pain.

Radiographs of the pelvis and hip were normal. A technetium-99 three-phase bone scan revealed no increased uptake. Magnetic resonance images were interpreted as normal (Fig 1). Erythrocyte sedimentation rate, complete blood cell count, electrolyte and chemistry panels, and rapid plasma reagent were within normal limits.

The patient started physiotherapy and nonsteroidal anti-inflammatory medications, which did not improve his symptoms. Arthroscopic examination was attempted but failed, and the patient was scheduled for surgical exploration.

At surgery, articular cartilage was normal and mild synovitis was noted. Range of motion under anesthesia was 5° of internal rotation, 50° of external rotation, and 95° of flexion. Synovial and subacapital bone biopsy was evaluated by a pathologist and found to be positive only for mild synovial inflammation. Cultures and acid-fast stain of the joint fluid were negative. He then was referred to our institution for further evaluation, which was 6 months after the onset of hip pain.

The patient continued to complain of persistent right hip pain. The pain was dull and constant, but was exacerbated with activity and at night in the groin area with radiation to the medial thigh, which limited his ability to work. The pain was only partially relieved by oral narcotic medications and analgesics, and did not appreciably change the patient’s range of motion.

On examination, his hip range of motion was 0° of internal rotation, 45° of external rotation, and 90° of flexion with no flexion contracture. On his contralateral pain-free left hip, he had 40° of internal rotation, 70° of external rotation, and 120° of flexion. He was found to be neurovascularly intact.

Hip aspiration under fluoroscopy was attempted on two separate occasions. The first attempt was unsuccessful in withdrawing fluid despite several passes, indicating a decreased joint space. The second attempt successfully injected contrast, bupivacaine, and corticosteroid, which resulted in significant pain relief for the duration of the anesthetic agent (approximately 2 hours). No cartilaginous abnormalities were noted in the arthrogram, although contrast extravasated along the path of the needle upon removal, which also indicated decreased joint space (Fig 2).

Conservative therapy consisting of nonsteroidal anti-inflammatory medications and physiotherapy was again unsuccessful in relieving his symptoms. Another MRI performed 8 months postoperatively revealed increasing right-sided anterior capsular thickness compared with the preoperative MRI (Fig 3).

A bone scan performed 9 months postoperatively showed diffuse mildly increased activity in the right hip compared with the left hip on the first two phases of the study involving the entire area of the right femoral head. The third (bone) phase of the study was negative. Thus, the study was indicative of soft-tissue activity (capsule or synovium) with no bone activity.

The symptoms, MRI, and arthographic evidence were consistent with a diagnosis of adhesive capsulitis. The patient began physical therapy consisting primarily of range of motion and stretching exercises. Because of his lack of a positive response to physical therapy, the patient underwent right hip capsulectomy through an anterolateral approach 1 year after presentation. Examination under anesthesia revealed 30° of external rotation, 0° of internal rotation, and 90° of hip flexion. Forty-five degrees of internal rotation of the hip was achieved intraoperatively.

Postoperatively, the patient was treated with continuous passive motion and oral analgesics for 5 days and then discharged. Cultures and acid-fast stains of the joint fluid were negative. The pathology report of the capsulectomy specimen revealed extensive mature fibrosis with no evidence of a synovial lining.

Two weeks postoperatively, he was able to return to work full-time and his symptoms were improved. At his most recent follow-up, 2 years postcapsulectomy, he was pain-free, and hip range of motion had improved to 30° of internal rotation and 40° of external rotation. External rotation was 70° with the hip in extension. Hip flexion was 100° with abduction at 60° with adduction at 15°.
Fig 1: Initial preoperative MRI shows subtle evidence of capsular thickening in the right hip compared with the left.

**DISCUSSION**

Although subtle, the MRI findings of adhesive capsulitis of the hip were present prior to this patient’s exploratory surgery. The etiology could not be attributed to any known disease. In this case, it is difficult to make a definite diagnosis of “idiopathic” capsulitis because the patient had undergone a previous surgical intervention at another institution. The patient also had multiple other procedures that could have led to the pathologic findings diagnosed at the final procedure, although this is unlikely since no reports have been published of adhesive capsulitis after hip arthroscopy, exploration, or aspiration.

Capsular constriction of the hip has been described by Lequesne et al. as either idiopathic or secondary. Secondary capsular constriction of the hip requires surgical intervention since it is accompanied by loose bodies from synovial chondromatosis or other entities. Idiopathic capsular constriction of the hip is analogous to the “frozen shoulder,” with a reduction in joint space volume. While adhesive capsulitis of the shoulder can be either primary (idiopathic) or secondary (environmental or trauma), all of the cases involving the hip that have been reported in the literature have been secondary to trauma.

In the previous reports on this disease, it was believed that treatment should be nonoperative as the disease is usually self-limiting. However, in 13 cases the average spontaneous recovery time was 13 months (range: 5 to 18 months). In our patient, despite physical therapy, anti-inflammatory medications, and arthrographic injection, his severe symptoms persisted for 15 months, limiting his ability to work and perform activities of daily living. Therefore, surgical release was deemed appropriate.

In adhesive capsulitis of the shoulder, pathologic examination of excised capsule tissue reveals subsynovial fibrosis, hyalinization, and fibrinoid degeneration. Often, there is a partial or complete absence of synovial lining as was found in our case.

Several interesting features of this case are common to adhesive capsulitis of the shoulder. On physical examination, the patient had a painful decreased range of motion and normal radiographs. Although not appreciated at the time, subtle capsular thickening was present on initial MRI evaluation. An attempt at arthroscopy was aborted due to capsular tightness, suggesting the diagnosis. During arthrography, the increased pressure necessary to force fluid into the joint and extravasation of dye along the tract of the needle were diagnostic.

There are no reports of manipulation of a hip under anesthesia for adhesive capsulitis, and we also do not have any experience with this method of treatment for the hip. Because of the possible risk of fracture, chondrolysis, or vascular or neurologic insult, we would be apprehensive about using this method. Continuous passive range of motion was used and is recommended in the early postoperative period to maintain motion.

Surgical exploration was believed to be a reasonable treatment in this patient with all attempts made for an atraumatic approach to the hip capsule. This included using an anterior approach to preserve femoral head vascularity and minimizing postoperative bleeding, which can result in additional fibrosis. Histologic features included the absence of a synovial lining but increased fibrosis. An underlying identifiable cause for the capsular constriction was not found.

**REFERENCES**

8. Caroll M, Dijan A, Hubault A, Normandin C, de Seze S. Deux cas de capsule
ÉDITORIAL DISCUSSION

ORTHOPEDICS: Although an anterior approach protects the posterior vascular supply to the head via the medial femoral circumflex artery, a posterior approach would be expected to improve an internal rotation contracture more successfully. Can you comment on this?

Mont et al: We believe it is more important to protect the blood supply of the femoral head via an anterolateral approach than to gain better exposure of the posterior capsule using a posterior approach. The posterior capsule can be reached indirectly using a Smillie knife to effect its release using an anterolateral approach.