Calcific tendinitis, or calcium deposition disease, is relatively rare. The pathogenesis involves the inappropriate sequestration of calcium into tendons, resulting in an inflammatory reaction that causes local irritation and discomfort. The consequences can be debilitating, with patients sometimes experiencing severe pain and limitations in function. Treatment varies based on the clinical severity and stage of the disease, although initial therapy is generally conservative.

The majority of cases involve the shoulder, especially the rotator cuff. However, cases involving the peroneus longus, rectus femoris, and other muscles have been described. The authors report a case of an amateur golfer presenting with 2 years of right hip pain. He was found to have calcific tendinitis of the gluteus maximus tendon and was treated with surgical management because rest, medications, and therapy provided insufficient relief. The frequency, pathogenesis, and treatment of this condition are discussed, as well as the possible link to golf-related overuse.

Calcific tendinitis is a relatively rare condition in which calcium is inappropriately deposited in tendons, resulting in a local inflammatory reaction that can cause severe symptoms in certain cases. The cause of this disease process is not completely understood, although repetitive microtrauma likely plays a role in its development. Although the disorder most often involves the rotator cuff, it can affect other structures throughout the body, such as the tendons about the ankle and hip—including the rectus femoris and gluteus maximus. Nonoperative management typically involves using an anti-inflammatory medication and activity modification and can be augmented with formal physical therapy and modalities. Although nonoperative management provides adequate relief for many patients, sometimes operative debridement of the calcific deposit with or without repair of the involved tendon is required. The authors report an unusual case of calcific tendinitis of the gluteus maximus insertion in a golfer. The patient had tried nonoperative treatment for approximately 2 years with no real relief, and a recent exacerbation of the pain was significantly delaying his return to sport. Although plain radiographs did not show abnormalities, magnetic resonance imaging showed a calcific deposit in the insertion of the gluteus maximus tendon. After discussing further treatment options with the patient, the decision was made to remove the deposit and repair the insertion. He recovered completely and was able to return to play. The frequency, pathogenesis, and treatment of this condition are discussed in this case report, as well as the possible link to golf in this patient. [Orthopedics. 2016; 39(5):e997-e1000.]

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A 32-year-old, otherwise healthy, male retail manager and amateur golfer presented with right hip pain of 2 years’ duration. The onset of pain was insidious. It had been chronic and dull until a recent round of golf, which caused it to increase markedly. Attempted hip motion exacerbated the pain. Conservative management options, including nonsteroidal anti-inflammatory medications and physical therapy, provided no relief.

On physical examination, the patient walked with a nonantalgic gait. The patient had full and symmetric range of motion of the hip. Muscle strength was congruent and strong bilaterally. He was tender along the gluteus maximus insertion distal to the trochanteric bursa. Radiographs showed no evidence of abnormality (Figure 1). Magnetic resonance imaging showed a calcific lesion measuring 2×1.4 cm at the femoral insertion of the gluteus maximus muscle approximately 4 cm distal to the right greater trochanter (Figure 2A). There was moderate surrounding inflammation (Figure 2B) and an associated chronic partial-thickness insertional tear of the gluteus maximus.

Given the severity and chronicity of his symptoms, the decision was made to proceed surgically. A standard lateral approach to the hip was used. After incising the tensor fascia lata, the gluteus maximus insertion was identified. The proximal-most aspect of the insertion had marked tendinosis, although no gross calcinosis was observed. This region was excised and sent for pathology. The tendon defect was then repaired and augmented using a suture anchor and the wound was closed. Histologic analysis of the tendon specimen showed vascular proliferation and calcification characteristic of calcific tendinitis (Figure 3).

At 10 months postoperatively, the patient had only an occasional ache in the area and no tenderness. He was able to return fully to golf and all other activities.

**Discussion**

Calcific tendinitis is an uncommon entity that can cause significant pain and discomfort. It often fails to respond to conservative management. The pathogen-
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Gondos found that the gluteus maximus tendon was affected in 2. Other reports of gluteus maximus calcific tendinitis exist, but it is a relatively poorly known entity.4-9

Because calcific tendinitis of the gluteus maximus is unusual and is associated with several nonspecific clinical and radiologic findings, it may present a diagnostic challenge. Clinically, the signs and symptoms may be suggestive of infection or inflammatory arthritis. In these cases, it can be differentiated by normal laboratory values. In addition to calcium deposition, calcific tendinitis has also been associated with cortical erosion on radiographs and computed tomography scans and soft tissue and marrow edema on magnetic resonance images that can be confused with infection or neoplasm.8-9 The flame-like configuration of calcium deposition observed with calcific tendinitis along with its location at the tendon insertion are diagnostic.6

The patient in this study was an avid golfer. The golf swing is typically broken down into 5 phases: back swing, forward swing, acceleration, early follow through, and late follow through. In a golfer, electromyographic studies have shown that the upper and lower gluteus maximus muscles are among the most active during both the forward swing and the acceleration phases.10 When tested with a dynamometer, low-handicap golfers, when compared with high-handicap golfers, have significantly higher gluteus maximus strength.11 One other case of gluteus maximus tendinitis in a golfer has been described, although in that case, the authors did not speculate as to the pathogenesis of the patient’s condition.12 The current authors suspect that overuse of the gluteus maximus during golf may have played a role in both that case and their case. Although calcific tendinitis is not commonly described as a sports injury, overuse and repetitive microtrauma have been posited to be involved.13 This case highlights the importance of coaches and trainers advising golfers, both amateur and professional, of the need to strengthen the hip girdle muscles to help prevent overuse syndromes.11

Calcific tendinitis is usually a self-limited disease and can be treated conservatively. In addition to nonsteroidal anti-inflammatory medication and physical therapy, some authors describe guided corticosteroid injections with and without needling for nonsurgical treatment about the hip. These injections can be either computed tomography or ultrasound guided.14-16 More recently, extracorporeal shock wave therapy has shown promise as a nonoperative treatment modality.17 Surgery is generally reserved or indicated for long-standing or refractory cases. That was ultimately the case in the current patient, who had 2 years of pain that did not respond to therapy or medication and whose symptoms continued to progress. The authors performed an open excision of the affected tissue with repair of the tendon and the patient responded well. Arthroscopic treatment of calcific tendinitis of the gluteus medius has been described with good results.13,16 Although some surgeons might consider arthroscopic excision, the authors elected to use an open approach to allow safe, simple, and direct visualization of the diseased tendon with an easy repair.

Conclusion

Calcific tendinitis of the gluteus maximus tendon is an unusual entity. Diagnosis can be challenging, but clinical and radiographic studies are usually adequate. Although it is likely multifactorial, activity-related overuse may play a role, and individuals participating in activities involving large loads on the gluteus maximus should be cognizant of maintaining proper conditioning. Although calcific tendinitis of the gluteus maximus may be self-limiting, patients with recalcitrant disease may respond well to surgical excision.

REFERENCES


