Acute Gluteus Medius and Minimus Intramuscular Tear in a 59-Year-Old Half-Marathon Runner: A Case Report

Claire E. Zeorlin, MD[*]; Eric R. Reynolds, MD[*]; Dustin L. Richter, MD[†]; Christopher A. McGrew, MD[†‡]

[*]Department of Pediatrics, The University of New Mexico Health Sciences Center, Albuquerque, New Mexico

[†]Department of Orthopaedics & Rehabilitation, The University of New Mexico Health Sciences Center, Albuquerque, New Mexico

[‡]Department of Family & Community Medicine, The University of New Mexico Health Sciences Center, Albuquerque, New Mexico

Corresponding Author Christopher A. McGrew. Department of Family & Community Medicine, MSC 09 5040, 1 University of New Mexico (FPC), Albuquerque, NM 87131 (email: CMcgrew@salud.unm.edu).

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ABSTRACT

Acute gluteus medius and minimus tears are an infrequent and possibly underdiagnosed cause of lateral hip pain. When reported, they most commonly occur at the distal tendinous attachment at the insertion on the greater trochanter or at the musculotendinous junction. It is rare for muscle belly or proximal muscle tears to occur. They are more prevalent in the setting of degenerative joint disease, but cases have also been described in previously healthy athletes without preexisting joint or muscle disease. We describe a 59-year-old man who developed considerable pain and swelling on the left side of the hip during a half-marathon race. We subsequently diagnosed acute intramuscular tears of the gluteus medius and minimus muscles. Acute tears of the gluteus medius and minimus are rare, and to our knowledge this is the first reported acute intramuscular rupture with an intact tendinous attachment.

Keywords: Gluteus Minimus, Gluteus Medius, Muscle Tears, Running Injuries

INTRODUCTION

The gluteus medius and minimus muscles are the main abductors and internal rotators of the hip and thigh, which are important stabilizers during running and walking. Weakness or tearing of these muscles or tendons can result in decreased range of motion of the hip and alterations in gait. Tears of the gluteus medius and minimus muscles, especially at their tendinous insertion on the greater trochanter, have been compared to a rotator cuff injury of the shoulder and were originally described by Bunker et al[1] in 1997.

Similar to rotator cuff injuries, tears of the gluteus medius and minimus have most commonly been described as the result of progressive degenerative hip disease.[2,3] Acute tears of the gluteus medius and minimus tendons are infrequently described,[4-8] and it is even more uncommon to have acute intramuscular tears of these muscles. This case describes an acute gluteus medius and minimus intramuscular tear in a 59-year-old half-marathon runner.

CASE REPORT

A 59-year-old male runner visited a sports medicine clinic and reported a 5-day history of pain and swelling on the left side of the hip, which had an acute onset early during a half marathon, a 21-km (13.1-mi) race. He was an experienced long-distance runner and prepared for the race with a 3-month progressive training program before the event. He reported some soreness on the left side of the hip about 2 days before his race, which occurred before flying to the race site. He was unsure of the cause of the discomfort but on race day he had no symptoms. At the start of the run, he joined the group that averaged 7 minutes and 45 seconds per mile. About 1.6 km (1 mi) into the race, he said he felt a popping sensation in the left lateral side of his hip, followed by notable shooting and stabbing pains radiating down the left thigh.

Owing to the pain and hip dysfunction, he almost fell during the race. He reported that he tried to continue with the pacing group for the next 8 km to 9 km (5 mi to 6 mi), but at 10 km (7 mi) he was unable to continue.

The man said he decided to complete the 21-km (13.1-mi) race by alternating between walking and running, which resulted in notable ecchymosis and swelling in his left-sided hip at the end of the race. He underwent evaluation in the post-race medical tent and was advised to use a cane or crutches to assist ambulation. Three days later, he returned home and visited the sports medicine clinic for further evaluation.

At this visit, he reported he experienced severe pain and difficulty in walking, but no paresthesia or loss of sensation. Findings of his physical examination were suggestive of an antalgic, Trendelenburg gait and difficulty standing on his left foot. While standing only on his left leg, he exhibited balance issues and the right side of his hip dropped, indicating a Trendelenburg gait. While in supine position, the patient underwent a left-sided straight leg raise test. Results were normal, without pain or weakness noted. On the left side of the hip, he had flexion to 115°, internal rotation to 30°, and external rotation to 50°. The flexion-adduction-internal and abduction-external rotation maneuvers caused no pain. Weakness was present during active and resisted hip abduction while in both supine and lateral positions. He had tenderness to palpation over the proximal left greater trochanter.

Findings of radiographs of the pelvis and the left side of the hip were notable for moderate hip joint osteoarthritis, with joint narrowing and osteophyte formation. No fractures or dislocations were noted, but a small calcific density was present in the soft tissues of the lateral thigh, consistent with a dystrophic calcification. Soft-tissue edema was also noted (Figure 1).

Figure 1. Anteroposterior radiograph of the left side of the hip, showing moderate osteoarthritis with joint space narrowing and osteophyte formation. Incidental note of dystrophic calcification in lateral soft tissues.

We obtained magnetic resonance imaging (MRI) of the pelvis and left side of the hip without contrast. Findings on the MRI revealed mild degenerative joint disease of both sides of the hip, as well as edema of the left gluteus minimus and medius muscles, with partial interruption of the fascia of both muscles consistent with an intramuscular tear (Figures 2A and 2B). The tendon at the greater trochanter was noted to be intact, and edema was present over the greater trochanter (Figures 3A and 3B). No fractures were noted.

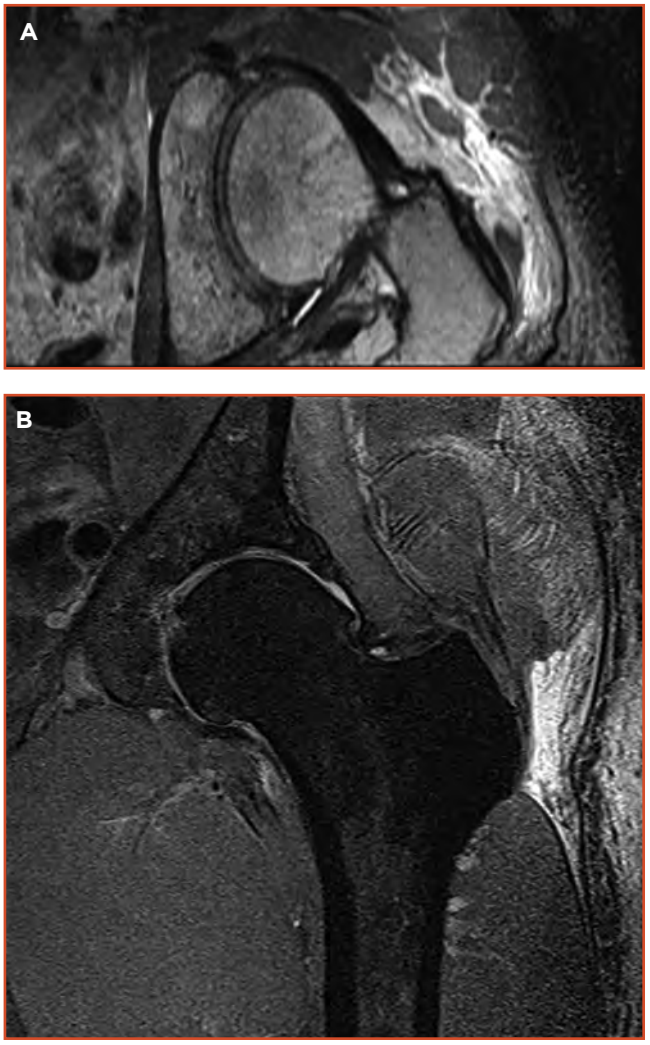

Figure 2. A) Axial and B) coronal magnetic resonance imaging of the left side of the hip, showing gluteus minimus and medius muscle edema consistent with an intramuscular tear.

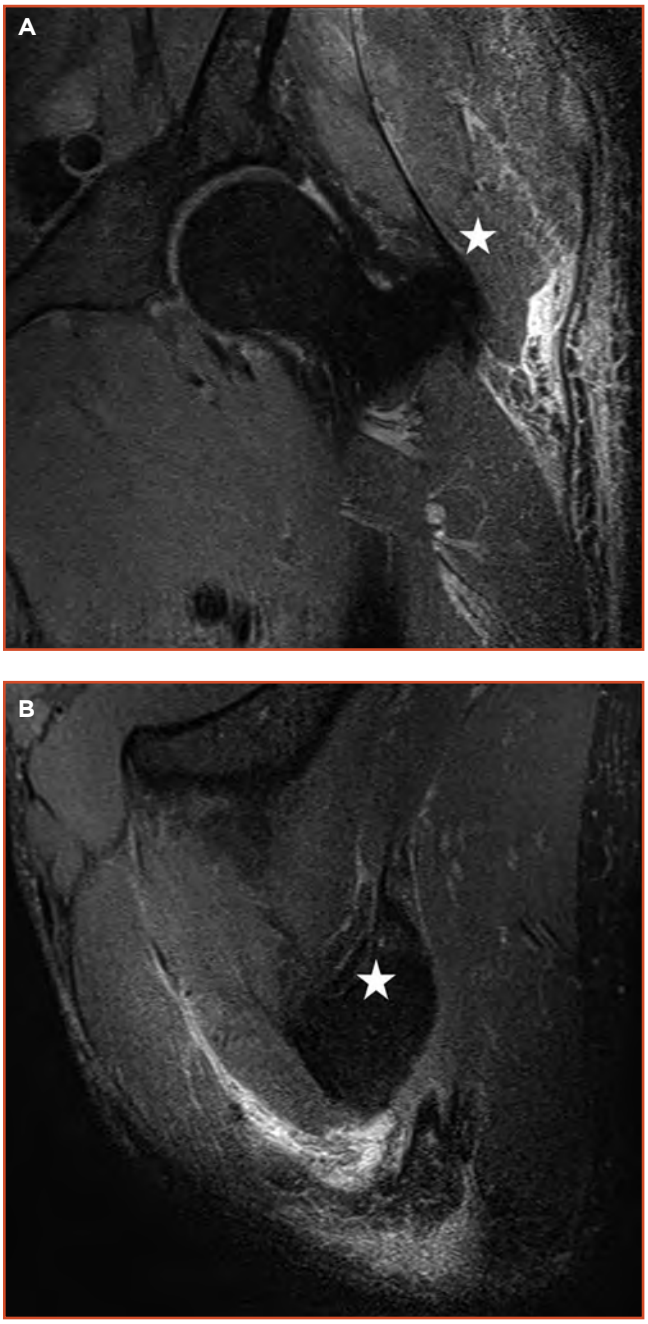

Figure 3. A) Coronal and ***B)*** sagittal magnetic resonance imaging of the left side of the hip, showing an intact gluteus tendon insertion (star) on the greater trochanter.

The patient's muscular tears were treating conservatively with physical therapy and a temporary discontinuation of running. He underwent an intensive 10-week rehabilitation program involving open- and closed-chained exercises and cross training on a rowing machine and bicycle. After physical therapy, the symptoms were resolved and the patient returned to running at 12 weeks postoperatively. At 9 months after the injury, he was averaging 40 km to 48 km (25 mi to 30 mi) per week in preparation for another half marathon and will not likely require any surgical intervention.

DISCUSSION

Lower-extremity injuries in runners are quite common, with an incidence ranging from 19.4% to 79.3% in a 2007 systematic review.[9] Of these, only 3.3% to 11.5% were classified as hip and pelvis injuries, whereas the knee was the most commonly injured. Gluteus medius and minimus tears should be considered in patients with acute lateral hip pain.[10] Although distal tears at the tendinous insertion on the greater trochanter are most common, intramuscular or more proximal tears may occur.

Patients with this injury frequently experience sudden onset of severe, sharp pain and difficulty walking after forceful hip abduction.[8] Physical examination findings reveal weakness with hip abduction maneuvers and tenderness to palpation over the greater trochanter on the affected side. Symptoms include the classic Trendelenburg gait or sign. Tearing of the hip abductor muscles is frequently associated with degenerative joint disease, which was consistent with the radiographic findings of this patient.

Treatment is generally conservative, involving rest from strenuous activity and physical therapy to rehabilitate the injured muscles and tendons. The methods focus on hip range of motion and strength and core strengthening, with emphasis on abductor strength to ensure pelvis stability when walking. In cases in which physical therapy does not improve mobility, surgical procedure is recommended. Open and endoscopic repair techniques have been described, but these are typically reserved for distal tendon tears or avulsions in patients with more severe, refractory pain.[11]

In a 2018 case series, the outcome of patients who underwent isolated transtendinous gluteus medius repairs improved considerably across all subjective and objective measures.[12] A total of 86% of patients showed improvement in gait measured by subjective decrease in presence of a limp, and 64% showed objective improvements in strength testing. Their results are similar to that of other studies that have evaluated efficacy of full-thickness repairs.[13] Given the varied and sometimes inconclusive clinical presentation of acute lateral-sided hip pain in athletic patients, a high index of suspicion and thorough workup are critical to guide appropriate treatment. Unlike distal avulsions and tendinous tears, intramuscular tears of the hip abductors can be successfully managed with conservative treatment.

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