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Meniscus Tear

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Introduction

Within the knee, the menisci are two crescent-shaped pieces of fibrocartilage, one in each the medial and lateral compartments, which act to dissipate loading forces, stabilize during rotation, and lubricate the joint. Injury or tearing of the meniscus is a common cause of knee pain and can underlie acute or chronic symptoms (Cardone & Jacobs, 2017; Wheeless, 2016).

The mechanism for acute tears is most commonly associated with a forceful twisting motion, which causes compression and shearing of the meniscus. Chronic meniscal pathology is part of the constellation of joint cartilage findings associated with degenerative joint disease/osteoarthritis (OA) and susceptible to aggravation from even minor events. Meniscal tears may be complex or partial, horizontal, vertical, radial, parrot beak, or bucket handle. Specific management is dependent on the patient's age, activity level, significance of pain, mechanical symptoms, and persistent effusion as well as the presence of OA (Brignardello-Peterson et al., 2017; Cardone & Jacobs, 2017; Wheeless, 2016).

Case Presentation

A 48-year-old man presented for evaluation of left knee pain. He was seen the previous week at urgent care after sustaining a twisting injury to the knee when slipped off curb of sidewalk. He noted immediate painful weight bearing following this injury. He presented to urgent care later that day when the pain continued and noted progressive swelling of the knee. Radiographs taken at that time were unrevealing for acute osseous injury but did note findings consistent with mild OA (see Figure 1). He was instructed on conservative management including rest, icing, and use of nonsteroidal anti-inflammatory drugs (NSAIDs), and was provided a knee sleeve and crutches. In the interim, he noted minimal improvement with continued medial and posterior knee pains that were worse with weight-bearing activities. He had, however, weaned off the crutches, noting they were too cumbersome.

Upon presentation he was an alert, oriented, affect appropriate, obese male in no apparent distress. He displayed an antalgic gait, lacking appropriate knee extension into heel strike. There was a trace effusion without deformity, abnormal warmth, discoloration, or abrasions. He noted focal tenderness of the posteromedial knee and medial joint line. Range of motion was equal bilaterally, measuring 0°–115°, with posteromedial pain noted at end ranges. The knee was stable with ligamentous testing. His strength was equal, 5/5. He was found to be distally neurovascularly intact. He displayed positive bounce home, Thessaly and McMurray's signs (Cardone & Jacobs, 2017; Wheeless, 2016).

Given these examination findings, the patient was referred for magnetic resonance imaging (MRI). The MRI was revealing for a complex, likely degenerative, tear of the body, and posterior horn of the medial meniscus (see Figure 2). The MRI also detailed more diffuse chondral cartilage wear, osteophytes, and tendinosis, which are consistent with degenerative joint disease/OA.

Management

With the MRI findings reviewed, options for management were discussed and the patient elected for continued conservative measures including another round of NSAIDs, activity modification, rest and ice for swelling, use of knee sleeve for ambulation, and range-of-motion exercises to be done until established with physical therapy. Several studies have reported the benefits of therapy in restoring quadriceps strength, knee motion, pain reduction, and functional gait mechanics with outcomes similar or superior to those following meniscectomy in the setting of OA (Brignardello-Peterson et al., 2017; Cardone & Jacobs, 2017; Kise et al., 2016; Mezhov, Teichtahl, Strasser, Wluka, & Cicuttini, 2014; Mordecai, Al-Hadithy, Ware, & Gupte, 2014; Thorlund, Juhl, Roos, & Lohmander, 2015). He followed up a month later with noted improvement of swelling and improved range of motion but had persistent issues with intermittent, albeit inconsistent, painful ambulation.

At this juncture we discussed a trial of intra-articular steroid injection versus referral to an orthopaedic sports medicine surgeon for consultation regarding arthroscopic intervention. Wanting to avoid surgery if possible, and understanding the less optimal outcomes of arthroscopic surgery in the setting of knee OA, he elected for intra-articular injection (Brignardello-Peterson et al., 2017; Cardone & Jacobs, 2017; Kise et al., 2016; Mordecai et al., 2014; Thorlund et al., 2015). He noted significant improvement in days following injection and returned to physical therapy the following week. Over the next month, he was able to return to normal activities

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FIGURE 1. A and B, Non-weight-bearing, anteroposterior and lateral radiographs of the left knee, taken in urgent care. No evident fracture or dislocation. Lateral and patellofemoral joint osteophytes consistent with mild osteoarthritis.

of daily living without continued knee symptoms and was discharged with a home exercise program.

Discussion

Meniscus pathology is a common cause of knee pain and should be considered in the differential for any patient presenting with acute onset of symptoms related to a forceful twisting injury of the knee. Suspicion should be even higher if the patient reports mechanical symptoms such as catching or locking especially if accompanied by persistent effusion. Findings of joint line tenderness, effusion, limited range of motion, and positive special tests like the McMurray, bounce home, Thessaly, or Apley's compression test should prompt the advance practice provider to obtain MRI to confirm the diagnosis (Brignardello-Peterson et al., 2017; Cardone & Jacobs, 2017; Kise et al., 2016; Mezhov et al., 2014; Wheeless, 2016).

In deciding on a course of treatment, the advance practice provider must take into account the patient's

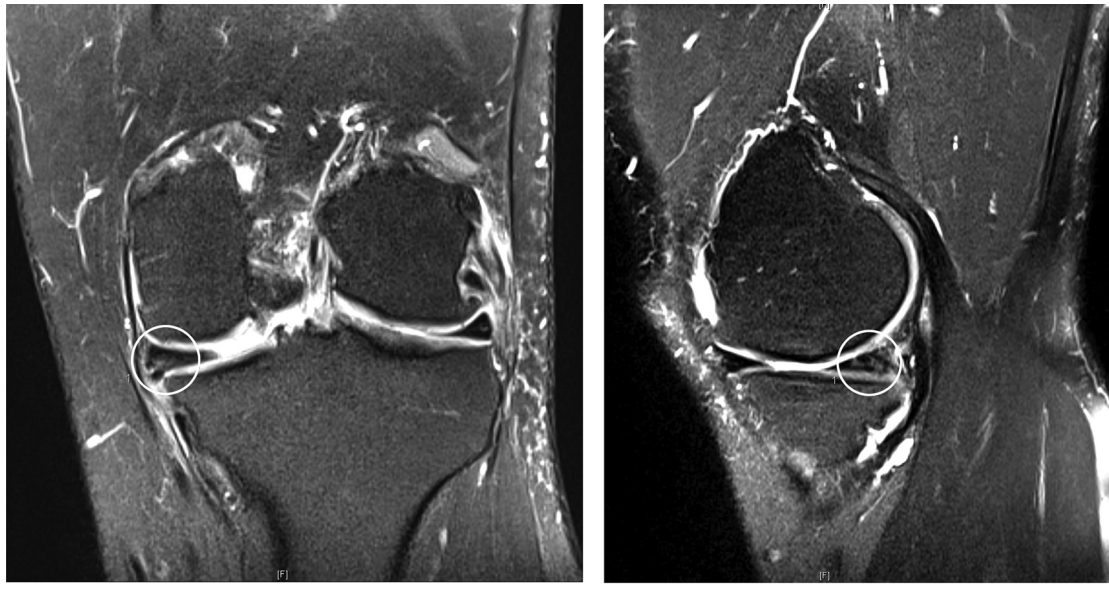

FIGURE 2. A and B, Coronal and sagittal T2-weighted, fat-suppressed, magnetic resonance imaging. Note bright signal within the body and posterior horn of the medial meniscus, extending to the joint line, consistent with a, likely degenerative, complex meniscal tear (ellipse).

age, activity level, associated mechanical symptoms, and the presence of OA (Brignardello-Peterson et al., 2017; Cardone & Jacobs, 2017; Kise et al., 2016; Mezhov et al., 2014). In the absence of OA, acute meniscus tears causing significant mechanical issues, pain, and effusions are likely best treated with arthroscopic intervention and should be referred to an orthopaedic sports medicine specialist for definitive management. In the setting of OA, one can provide reassurance that the majority of cases are treated successfully with conservative management when said plan includes physical therapy. Those patients whose symptoms, especially if mechanical in nature, persist beyond 6–8 weeks should be referred to an orthopaedic sports medicine surgeon to discuss option although the benefits of surgical intervention remain in question (Brignardello-Peterson et al., 2017; Cardone & Jacobs, 2017; Kise et al., 2016; Mordecai et al., 2014; Thorlund et al., 2015).

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