

Calcific Tendinitis of the Shoulder

Patrick Graham

Introduction

A multifocal, cell-mediated process, calcific tendinitis is characterized by deposits of calcium hydroxyapatite crystals within or around a tendon (de Carlie, Pulcinelli, Delle Rose, Pitino, & Ferretti, 2014; Merolla, Singh, Paladini, & Porcellini, 2016). In most cases, this process will resolve spontaneously but a subset of the population will have continued pain and functional issues related to lack of resorption of said deposit (de Carlie et al., 2014). Calcific tendinitis commonly affects those aged 30–60 years and occurs with a greater frequency in females than in males (Louwerens, Sierevelt, van Hove, van den Bekerom, & van Noort, 2015).

Concerning the shoulder and rotator cuff, the supraspinatus tendon is the most commonly affected, reportedly accounting for up to 63% of all cases (de Carlie et al., 2014; Louwerens et al., 2015). Onset is typically insidious, with patients reporting severe, aching shoulder pain and associated stiffness. Interestingly, there is no evidence to confirm a higher incidence in those patients with more physically demanding jobs, even if requiring overhead work (de Carlie et al., 2014; Merolla et al., 2016).

Case Presentation

A 51-year-old woman presented with approximately 4 months of waxing and waning left shoulder pain. She denied any specific injury or incident. Employed as an administrative assistant, she was most frequently typing and described aching shoulder pains with this as well as activities such as carrying home groceries or taking a laundry basket upstairs. She would sometimes have to stop in the midst of these carrying types of activities to stretch or “shake out” the arm. Occasionally, she would take Advil (ibuprofen) and found this helpful. She had not noted any swelling or discoloration, and there were no reported numbness, tingling, burning, or incoordination.

She initially saw her primary care provider who obtained radiographs and referred her to physical therapy. She completed 3 weeks of therapy but reportedly not able to tolerate many of the exercises. She returned to her primary care provider who then referred her for magnetic resonance imaging and instructed her to follow-up with an orthopaedic provider.

Upon presentation was an obese woman, alert, oriented, and in no apparent distress. She postured with

protracted shoulders, left slightly hiked. There was no gross deformity, swelling, or discoloration. There was tenderness to palpation about the lateral and posterior subacromial space. Active range of motion was grossly equal, with a painful arc of motion in forward flexion and abduction. Her strength was equal, measuring 5/5, with reported discomfort upon resisted abduction and external rotation. She was found to be distally neurovascularly intact. She displayed positive empty can, lift off, Hawkins, Neer’s, and O’Brien’s tests.

The patient presented with magnetic resonance images (see Figure 1), which were reviewed and found to be significant for calcific tendinitis involving the supraspinatus tendon of the left shoulder. The calcific deposit presents as a dark signal that here is seen within the tendon substance, near its attachment to the greater tuberosity. There was also evidence of mild articular cartilage loss, associated tendon fraying, and tendinosis.

Management

Initial conservative management of calcific tendinitis includes activity modification to avoid aggravation, use of anti-inflammatory and pain-relieving medications, and referral to physical therapy for stretching, postural cues, rotator cuff exercises, and pain relief modalities (de Carlie et al., 2014; Louwerens et al., 2015; Merolla et al., 2016). A small percentage of patients will be refractory to these measures, requiring consideration for extracorporeal shock wave therapy (ESWT), as well as ultrasound-guided procedures for the administration of corticosteroid, with or without percutaneous needle lavage, or platelet-rich plasma (PRP) (de Carlie et al., 2014; Seijas et al., 2012).

Given the previously unsuccessful attempt with dedicated course of anti-inflammatories and physical therapy, she elected to undergo ultrasound-guided, percutaneous needling/lavage, followed by corticosteroid injection. Percutaneous needling/lavage, accompanied by the administration of steroids, has shown more favorable outcomes in terms of pain relief and function gains than ESWT or steroid injection alone (de Witte et al., 2013; Kim, Lee, Kim, & Kong, 2014). It is an

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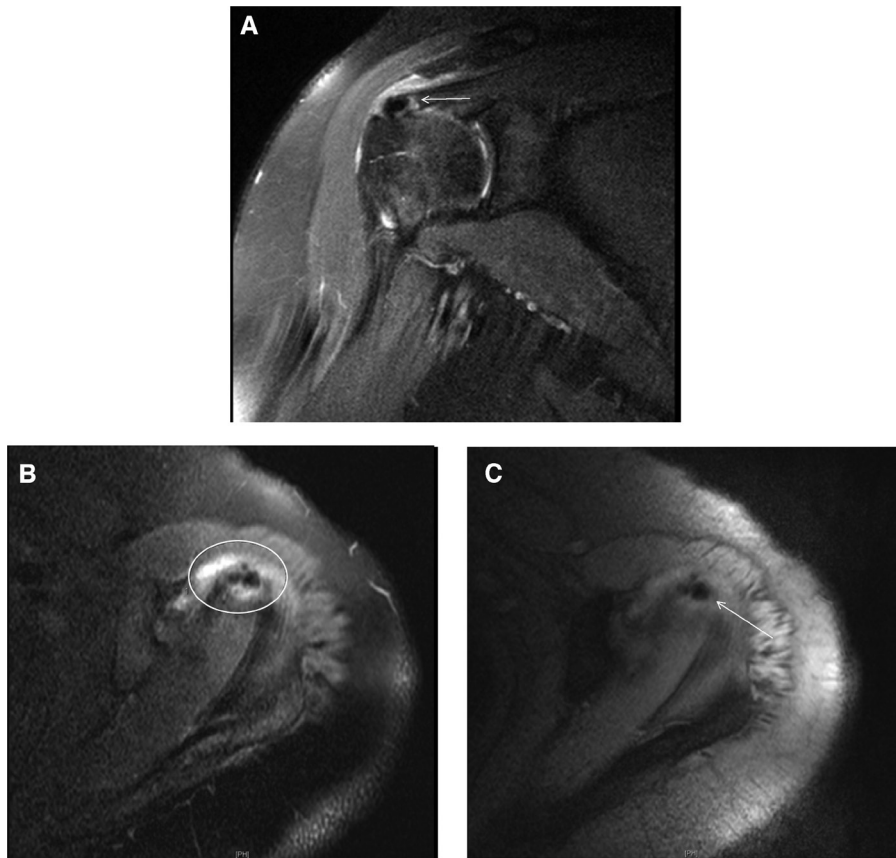


FIGURE 1. (A) Coronal T2 with fat suppression: Arrow denotes calcific deposit (dark) within the supraspinatus tendon with mild surrounding edema. (B) Axial T2 with fat suppression: Ellipse denoting calcific deposit (dark) with mild surrounding edema. (C) Axial T2: Arrow denoting calcific deposit.

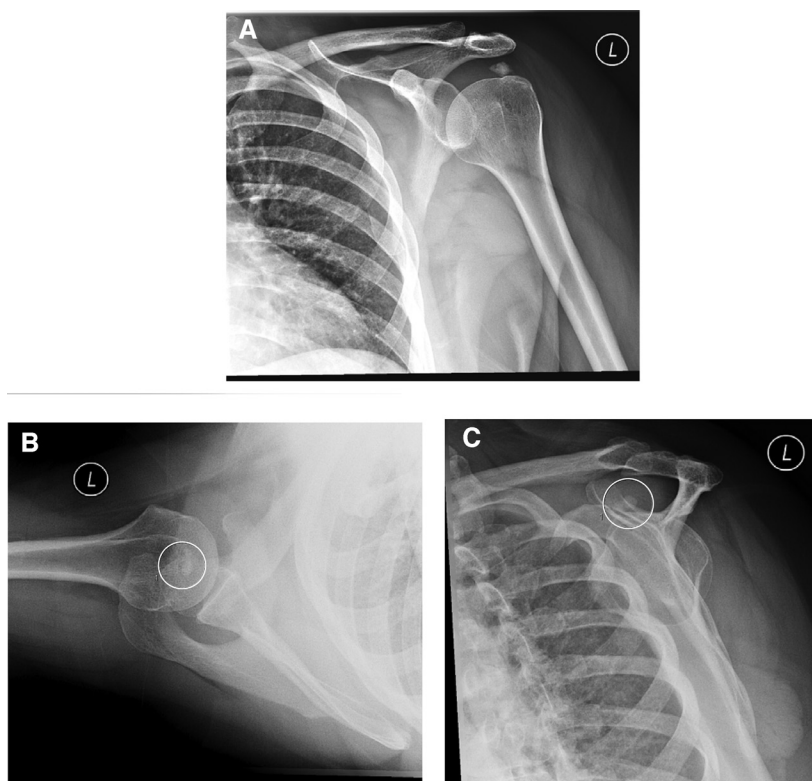


FIGURE 2. Anteroposterior (A), axillary (B), and Y-view (C) radiographs of the left shoulder. Note calcified body in the subacromial space, denoted with ellipse on the axillary and Y-view radiographs.

outpatient procedure that requires little downtime. The patient may have a transient increase in pain after the lavage procedure but is likely to have favorable outcomes within weeks of intervention (de Carlie et al., 2014; de Witte et al., 2013; Kim et al., 2014).

The patient reported about 2 months of relief following the ultrasound-guided lavage/needling and steroid injection. Her symptoms then gradually worsened again over the course of a week, at which time she presented for follow-up. She displayed recurrent tenderness in the subacromial space, painful resisted motion, and positive rotator cuff signs. Repeat radiographs revealed a persistent calcific density (see Figure 2). It was at this juncture that the patient was referred to a sports medicine surgeon to discuss options for arthroscopic intervention.

Arthroscopy, considered the gold standard for definitive treatment, involves debridement of the calcific deposit, followed by tendon repair (Balke, Bielefeld, Schmidt, Dedy, & Liem, 2012; de Carlie et al., 2014; Merolla et al., 2016; Verstaraelen, Fievez, Janssen, & Morrenhof, 2017). Intraoperative use of PRP has also been reported but without significant impact on patient functional or clinical outcomes (Verhaegen, Brys, & Debeer, 2016). Patients typically follow a post-rotator cuff repair protocol and have similar functional outcomes (Balke et al., 2012; Verstaraelen et al., 2017). Consideration must be given to concomitant rotator cuff, labral, and articular cartilage pathology in determining the most appropriate surgical intervention.

Discussion

Calcific tendinitis is a painful, sometimes debilitating, shoulder condition typically with insidious onset. The advance practice provider should be aware of the higher rates of occurrence in females, especially those aged 30–60 years (de Carlie et al., 2014; Louwerens et al., 2014; Merolla et al., 2016). Appropriate imaging studies should be conducted and, if diagnostic, reveal calcified body within the shoulder. Patients can be offered reassurance that the majority of cases are successfully treated with conservative management. New research into the use of PRP may present providers another less invasive option to assist in tendon healing, but, given conflicting results, further study is needed (Seijas et al.,

2012; Verhaegen et al., 2016). Those patient who are refractory to conservative measures should be referred to a sports medicine surgeon for consideration of arthroscopic intervention.

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