

Editorial Commentary: Is Magnetic Resonance Imaging of the Shoulder Ever Appropriate in Evaluating Patients With Calcific Tendinopathy of the Rotator Cuff?



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Abstract: Calcific tendinopathy of the rotator cuff is a common pathology that often presents with clinical symptoms simulating a rotator cuff tear. The reported incidence of rotator cuff tear in the setting of calcific tendinopathy varies widely; however, the reported incidence of full-thickness rotator cuff tear on imaging in calcific tendinopathy is consistently low (<5%). In patients with symptomatic calcific tendinopathy, initial conservative management followed by minimally invasive treatments should be employed prior to performing shoulder magnetic resonance imaging to assess for a rotator cuff tear. A shoulder magnetic resonance imaging may be performed for preoperative planning prior to surgical removal of calcium deposits, but even in this patient population, the incidence of full-thickness rotator cuff tear is low.

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Calcific tendinopathy of the rotator cuff is a common pathology, and the symptoms of calcific tendinopathy can mimic rotator cuff tears, which makes distinguishing between these 2 entities challenging on clinical examination. Fortunately, the gold standard for identifying calcific tendinopathy, conventional radiography, is relatively inexpensive and easily accessible. Therefore, identifying patients with calcific tendinopathy is not difficult. The challenge lies in determining whether calcific tendinopathy can be presumed to be the source of pain in patients presenting with symptoms of rotator cuff pathology and confirmed calcific tendinopathy on radiographs or whether additional imaging to exclude an underlying rotator cuff tear is required.

“Calcific Tendonitis of the Shoulder: Protector or Predictor of Cuff Pathology? A Magnetic Resonance Imaging-Based Study” by Brinkman, Zaw, Fox, Wilcox, Hatstrup, Chhabra, Neville, and Hartigan¹ explores the

relationship of rotator cuff tears and calcific tendinopathy based on magnetic resonance imaging (MRI). This study found a 56% incidence of rotator cuff tears in patients with calcific tendinopathy who underwent shoulder MRI after failing conservative therapy, which is higher than the previously reported incidence of 0-28% of rotator cuff tears seen on imaging in the setting of calcific tendinopathy.²⁻⁴ It is not surprising that a high incidence of rotator cuff tears can be found in patients with calcific tendinopathy because degenerative tearing of the rotator cuff becomes increasingly common as patients age, and calcific tendinopathy is predominantly a disease of middle-aged and elderly people. However, caution should be exercised not to equate a partial tear of the rotator cuff as seen on MRI with a surgically confirmed rotator cuff tear. A Cochrane systemic review of the performance of MRI in diagnosing rotator cuff tears found MRI to have a specificity of only 79% for diagnosing surgically confirmed rotator cuff tears.⁵ MRI has much better correlation with surgery for the diagnosis of full-thickness rotator cuff tears, with a sensitivity and specificity of 94% and 93%, respectively,⁵ which is also the patient population in whom surgical management is more clearly defined. Brinkman et al. found a 4% incidence of full-thickness rotator cuff tear in the setting of calcific tendinopathy, which is very similar to a 3%

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incidence of full-thickness rotator cuff tear in patients with calcific tendinopathy found in another study performed by my group when looking at the incidence of rotator cuff tear in the setting of calcific tendinopathy on MRI.^{1,4} Given the rarity of full-thickness cuff tears in patients with calcific tendinopathy, it can be generally accepted that patients with cuff symptoms and calcific tendinopathy on radiographs can undergo conservative management prior to the performance of advanced imaging.

The question remains: how to manage patients with rotator cuff symptoms and calcific tendinopathy who fail initial conservative measures. In a large majority of cases, calcific tendinopathy is a self-limited process, typically resolving within a few weeks or months. During this period, conservative therapy with non-steroidal anti-inflammatory drugs, physiotherapy, warm compresses, and potentially a corticosteroid injection into the subacromial bursa can be administered for symptomatic pain relief. Approximately 10% of patients with calcific tendinopathy will have protracted symptoms that are refractory to conservative management.⁶ As the study by Brinkman et al. shows, even in this population of patients with calcific tendinopathy and failed conservative management, the incidence of full-thickness tear remains low. Extracorporeal shock-wave therapy and ultrasound-guided needle techniques are effective in relieving pain and resolving the calcium deposits in chronic calcific tendinopathy of the rotator cuff that has failed initial conservative treatment.⁷ These treatments are minimally invasive and involve mostly minor complications of soreness, local bruising/swelling and subcutaneous hemorrhage, which occur in 10% of patients treated with ultrasound-guided needle techniques and 7%-19% of patients treated with extracorporeal shockwave therapy.^{8,9} Surgical removal of the calcium deposits of calcific tendinopathy is also effective in decreasing pain and improving function by using either arthroscopic or open techniques.¹⁰ However, surgery comes at greater cost, exposure to anesthesia and a longer recovery period compared with other less invasive treatments. For these reasons, surgery should be reserved for patients who have protracted, activity-limiting pain and have failed initial conservative and minimally invasive treatments. In this

select population of patients with chronic calcific tendinopathy and prolonged refractory pain being considered for surgical removal of the calcifications, shoulder MRI may be warranted for preoperative planning. However, even in this subset of patients, the probability of identifying additional cuff pathology requiring surgical intervention is very low.

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