# Shoulder calcific tendonitis (Symptoms, Diagnosis and treatment options)

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## Abstract

Shoulder calcific tendonitis is a pathological condition characterized by the deposition of calcium hydroxyapatite crystals within the tendons of the rotator cuff. This condition manifests clinically with acute or chronic shoulder pain, restricted range of motion, and significant functional impairment. Diagnostic evaluation includes a thorough physical examination complemented by imaging modalities such as radiography, ultrasonography, and magnetic resonance imaging (MRI) to identify and assess the extent of calcific deposits. Management strategies encompass conservative treatments, including non-steroidal anti-inflammatory drugs (NSAIDs) and structured physical therapy programs, as well as interventional approaches like corticosteroid injections, ultrasound-guided lavage, extracorporeal shock wave therapy, and surgical intervention in refractory cases. Early and accurate diagnosis, coupled with an individualized treatment plan, is imperative for optimal patient outcomes and the restoration of shoulder function.

Keywords: shoulder pain, calcific tendinitis

## Introduction

Calcific tendinopathy is a shoulder condition characterized by the accumulation of calcium crystals in one or more of the rotator cuff tendons, resulting in pain and impaired function. It is the most common cause of shoulder pain [1,2]. Many cases are self-limiting or resolve with conservative management. Surgery is required in patients with persistent symptoms.

The cause of calcific tendinopathy is still unknown. It may be associated with endocrine disorders such as diabetes, thyroid disorders, nephrolithiasis, estrogen metabolism and it is rarely a part of a systemic disease [3, 4].

This paper will review the pathophysiology, diagnosis, and management of calcific tendinopathy of the shoulder.

## Clinical Presentation

Shoulder pain is a frequent presenting complaint in adults, with lifetime prevalence estimates reaching up to 67 percent [6]. The majority of these patients experience sub acromial pain, which is also characteristic of calcific tendinopathy. The prevalence of calcific tendinopathy in the general population has been reported to range from 3 to 10 percent [2,7], and it affects 7 to 17 percent of individuals with shoulder pain.

Symptoms are different according to the stage of disease [5].

• **Pre-calcific stage:** part of the tendon transforms into fibrocartilaginous tissue; this stage is asymptomatic.

• **Calcific or formative stage:** calcific formations within the tendon. Symptoms are variable from none to pain on movement.

• **Resorptive stage**

It is the most symptomatic phase; the pain is due to leakage of the calcific deposit into the sub acromial bursa causing calcific bursitis. Pain typically lasts two weeks.

• **Post calcific stage** the deposits are absorbed. In this stage the severity and duration of pain varies from one patient to another, some patients experience painful periods that alternate with pain free periods, while others develop severe pain.

## Diagnosis

The diagnosis of calcific tendinopathy can be made reliably based on history, clinical examination, and diagnostic imaging (X-ray and US). No abnormal laboratory findings can be detected in patients of calcific tendonitis.

**Diagnostic Imaging:**

The first step in diagnostic imaging is shoulder X-ray, Anteroposterior (AP), internal and external rotation views. These views enable the clinician to determine the calcific deposits as homogeneous radiopaque density with variable morphology, but typically globular/amorphous with smooth or ill-defined margins [16]. (Figure 1)

Also Ultrasound [8] has an important role in the diagnosis by identifying and localizing calcifications within the rotator cuff tendons. On US deposits appear as an oval shape or curvilinear calcification with shadowing and capsular soft tissue swelling. (Figure 2)

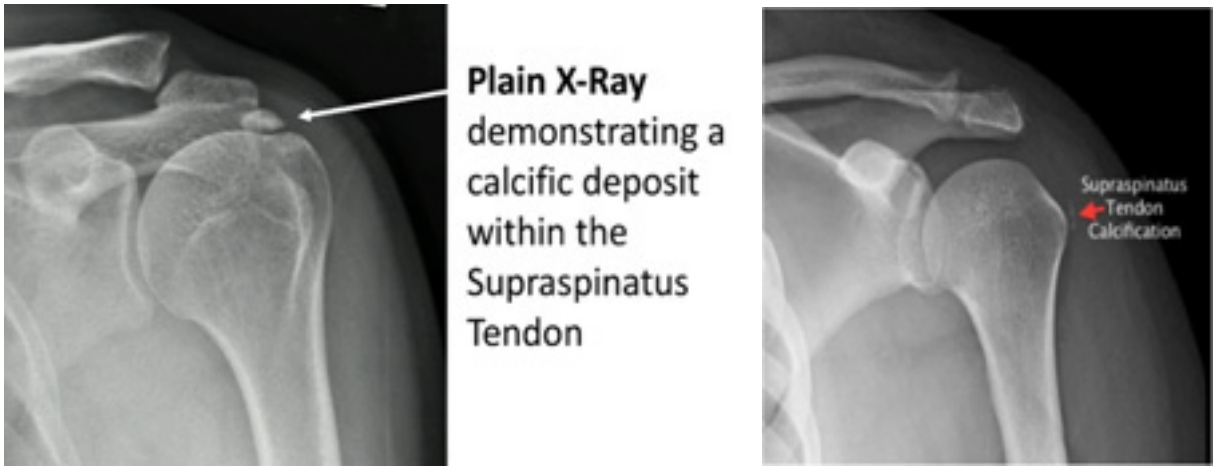


**Figure 1**

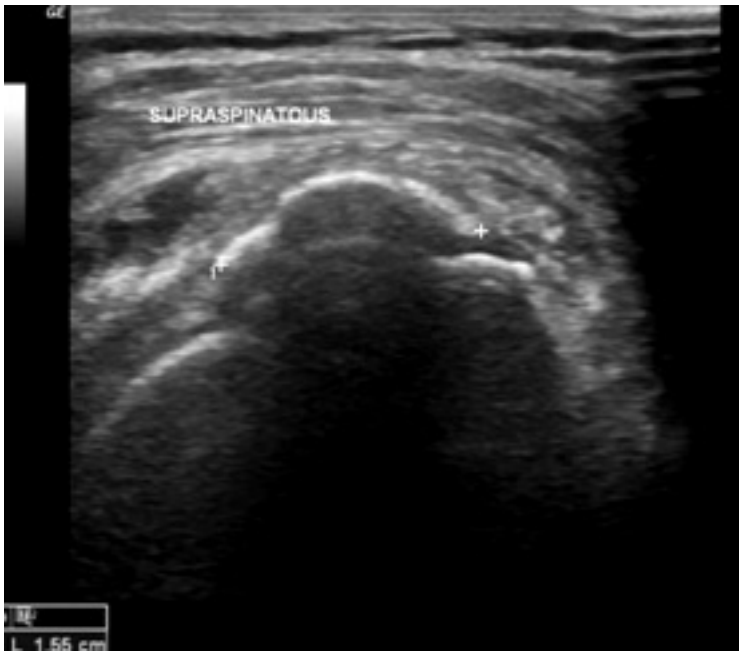


**Figure 2**

MRI is not routine examination for calcific tendinopathy. MRI may be useful if other shoulder pathologies, such as labral or rotator cuff tears, are suspected. MRI provides excellent soft tissue contrast and enables multiplanar imaging with high spatial resolution. However, calcific deposits appear hypointense across all MRI sequences, making it difficult to reliably distinguish them from artifacts caused by tissue interfaces or hemorrhage [9].

**Differential diagnosis**

Shoulder calcific tendinopathy can be distinguished from other causes of shoulder pain by demonstrating the calcific deposits on shoulder X-ray or ultrasound (US). Other causes of shoulder pain include [15]:

Rotator cuff tear
Cervical disc prolapse
Osteoarthritis (acromioclavicular and glenohumeral joints)
Frozen shoulder

## Management

Calcific tendinopathy of the shoulder is often self-limiting with a relatively benign clinical course. Therefore, the treatment is controversial, and its efficacy is difficult to assess.

First-line therapy is conservative such as analgesic and non-steroid anti-inflammatory medications [11]:

Other treatment options include:
• Subacromial glucocorticoid injection in acute inflammation.
• Physical therapy.
• Barbotage procedure: is a US-guided procedure that involves breaking up and then aspirating pieces of the calcific deposits.
• ESWT Extracorporeal shock wave therapy uses acoustic waves to fragment calcific deposits in the rotator cuff. Improvement can be expected in approximately 70 percent of patients [12].
• Arthroscopy: about 10% of patients don't respond to conservative treatment, ESWT, or barbotage, and may be candidates for arthroscopy [13].

## Complications and prognosis

The complications include migration of calcium deposits from tendons into the subacromial-subdeltoid bursa or into the humeral greater tuberosity. This complication may occur spontaneously or following arthroscopic removal of the deposit.

The prognosis of shoulder calcific tendinitis is generally good, as the deposits are resolved spontaneously and therapeutic measures leading to improved symptoms in most cases [14].

## References

1. Jerosch J, Strauss JM, Schmiel S. Arthroscopic treatment of calcific tendinitis of the shoulder. J Shoulder Elbow Surg 1998; 7:30.
2. Uhthoff HK, Loehr JW. Calcific Tendinopathy of the Rotator Cuff: Pathogenesis, Diagnosis, and Management. J Am Acad Orthop Surg 1997; 5:183.
3. Harvie P, Pollard TC, Carr AJ. Calcific tendinitis: natural history and association with endocrine disorders. J Shoulder Elbow Surg 2007; 16:169.
4. Mavrikakis ME, Drimis S, Kontoyannis DA, et al. Calcific shoulder periarthritis (tendinitis) in adult onset diabetes mellitus: a controlled study. Ann Rheum Dis 1989; 48:211.
5. Speed C & Hazleman B. Calcific Tendinitis of the Shoulder. N Engl J Med. 1999;340(20):1582-4. doi:10.1056/NEJM199905203402011 - Pubmed
6 Luime JJ, Koes BW, Hendriksen IJ, et al. Prevalence and incidence of shoulder pain in the general population; a systematic review. Scand J Rheumatol 2004; 33:73.
7. Bosworth BM. Calcium deposits in the shoulder and subacromial bursitis. A survey of 12122 shoulders. JAMA 1941; 116:2477.
8. Rupp S, Seil R, Kohn D. Preoperative Ultrasonographic Mapping of Calcium Deposits Facilitates Localization During Arthroscopic Surgery for Calcifying Tendinitis of the Rotator Cuff. Arthroscopy. 1998;14(5):540-2. doi:10.1016/s0749-8063(98)70088-x - Pubmed)
9..Chen W, Zhu W, Kovanlikaya I, et al. Intracranial calcifications and hemorrhages: characterization with quantitative susceptibility mapping. Radiology. 2014;270(2):496–505. doi: 10.1148/radiol.13122640.
11. Speed C & Hazleman B. Calcific Tendinitis of the Shoulder. N Engl J Med. 1999;340(20):1582-4. doi:10.1056/NEJM199905203402011 - Pubmed
12. Daecke W, Kusnierczak D, Loew M. Long-term effects of extracorporeal shockwave therapy in chronic calcific tendinitis of the shoulder. J Shoulder Elbow Surg 2002; 11:476.
13. Rochwerger A, Franceschi JP, Viton JM, et al. Surgical management of calcific tendinitis of the shoulder: an analysis of 26 cases. Clin Rheumatol 1999; 18:313.
14. Merolla G, Bhat MG, Paladini P, Porcellini G. Complications of calcific tendinitis of the shoulder: a concise review. J Orthop Traumatol 2015; 16:175.
15. Burgos, R. et al. (2016). "Calcific tendinopathy of the shoulder: Diagnosis and management." European Spine Journal, 25(1), 41-47.
16. Gosens T, Hofstee DJ. Calcifying tendinitis of the shoulder: advances in imaging and management. Curr Rheumatol Rep. 2009;11(2):129–134. doi: 10.1007/s11926-009-0018-0.