CASE REPORT

CiSE
Clinics in Shoulder and Elbow

Clinics in Shoulder and Elbow Vol. 19, No. 4, December, 2016
https://doi.org/10.5397/cise.2016.19.4.241

Atypically Large Calcific Tendinitis of the Shoulder: A Case Report

Jin Wan Kim, Kyu Pill Moon✉, Kyung Taek Kim, Youn Soo Hwang, Won Seok Park

Department of Orthopaedic Surgery, Dong-Eui Medical Center, Busan, Korea

Calcific tendinitis of the shoulder joint is common disease causing acute pain, mainly involving the supraspinatus or infraspinatus muscle, and less frequently the teres minor or subscapularis muscle. This study reports on the satisfactory arthroscopic removal of calcium deposits as well as infraspinatus and supraspinatus muscle repair without relapse via minimal incision using suture anchors. This was a case of atypically extensive calcific tendinitis involving the infraspinatus muscle, with a bursal side partial rupture of the supraspinatus muscle in a 61-year-old female whose chief complaint was chronic pain of the right shoulder exacerbated by limited movement.
(Clin Shoulder Elbow 2016;19(4):241-244)

Key Words: Calcific tendinitis; Shoulder; Large

Calcific tendinitis is a common disease occurring mainly in the shoulder joint, accounting for up to approximately 10% of shoulder pain syndromes.[1,2] Most cases involve the supraspinatus or infraspinatus muscles of the rotator cuff, and rarely the teres minor or subscapularis muscle. Although its pathogenesis has not been clearly determined, the cause is thought to be hypoxia of the tendinous tissue.[2,3]

Calcific tendinitis of the rotator cuff responds well and shows spontaneous recovery in most cases, therefore conservative treatment is preferred; however, surgery should be considered if conservative treatment fails.[4] The authors of this study experienced a satisfactory surgical result in a patient with atypically extensive calcific tendinitis involving the infraspinatus muscle, as well as a bursal side partial rupture of the supraspinatus muscle. The patient had shown no response to conservative treatment, and surgery was successful with no relapse after one year of follow-up. We now report on the case with a review of the literature.

Case Report

A 61-year-old female presented with severe pain in the right shoulder. She had experienced occasional shoulder pain for 7 years prior to the visit, but did not seek treatment; conservative management was started at a private hospital when the symptoms worsened one year prior to the visit, but the symptoms became even more severe, and she now complained of acute nocturnal pain.

On physical examination acute pressure pain with slight edema was detected over a large nodule on the right shoulder. There was no limitation of joint movement; however, decreased rotator cuff muscular strength was observed, and painful arc test and empty can test showed a positive result. Results of the Neer and Hawkins tests were both positive. The impression was an impingement syndrome (Constant score, 44 points). Blood tests showed no abnormal finding. A 38×13 mm, oval-shaped calcific deposit was superimposed on a calcific deposit behind the large right shoulder nodule, as observed on anteroposterior and axillary view plain radiographs (Fig. 1). Magnetic resonance imaging (MRI) confirmed the location of the lesion; a large, low-signal-intensity, oval-shaped calcific mass was observed in the infraspinatus muscle, as well as a bursal side partial rupture of the supraspinatus muscle (Fig. 1). Due to the atypically extensive calcific tendinitis and lack of response to conservative treatment,

Received January 28, 2016. **Revised** March 28, 2016. **Accepted** April 23, 2016.

✉**Correspondence to:** Kyu Pill Moon
Department of Orthopaedic Surgery, Dong-Eui Medical Center, 62 Yangjeong-ro, Busanjin-gu, Busan 47227, Korea
Tel: +82-51-850-8937, **Fax:** +82-51-850-8943, **E-mail:** moonkp@hanmail.net
IRB approval (No. DEMC-2016-13).

Financial support: None. **Conflict of interests:** None.

pISSN 2383-8337
eISSN 2288-8721

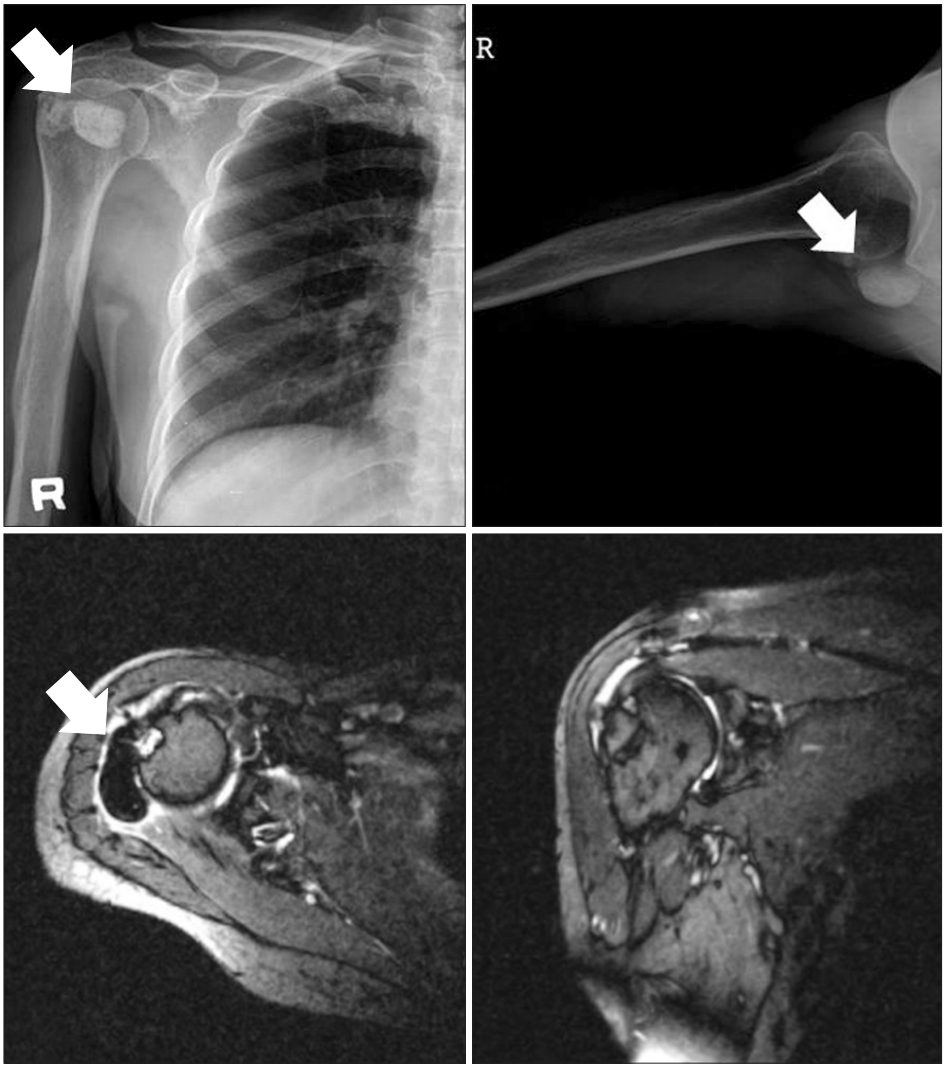

Fig. 1. Preoperative plain radiographs (true anteroposterior, axillary view), magnetic resonance imaging showing the calcium deposits (white arrows) in the posterior part of the greater tuberosity and a bursal side tear of the supraspinatus tendon.

arthroscopic removal of the calcific deposit was performed under general anesthesia. Standard anterior and posterior supports were used during the surgery with the patient in lateral recumbency. Synovial congestion and hypertrophy were observed in the bursa surrounding the infraspinatus muscle in the subacromial space, accompanied by edema of the infraspinatus muscle parenchyma. The calcific deposit was located using a spinal needle and removed by shaving (Fig. 2), followed by thorough washing of the subacromial space. Following removal of the calcific deposit and the bursal side partial rupture of the supraspinatus muscle, the partial rupture of the infraspinous muscle was repaired using a suture anchor via a minimal incision.

The patient's right shoulder pain resolved immediately after surgery, and passive or active joint movement aided by an abduction brace was started according to the 6-week general rehabilitation program for rotator cuff repair; muscle strength training was started 3 months after surgery. The patient had no right shoulder pain at a one-year follow-up, the range of motion was relatively well-maintained despite some restricted lateral movement, and the results of the Neer and Hawkins tests were both negative with no finding of impingement syndrome (Constant score, 65 points). Radiography showed no relapse of calcific deposits, and a well-healed rupture of the infraspinous muscle after the removal of the calcific deposit was observed on MRI (Fig. 3).

Discussion

Calcific tendinitis is a common, painful disease occurring at the muscle-attachment sites of tendons. According to Bosworth,[1] it most commonly occurs in the shoulder joint; 51% of calcific deposits are reported to occur in the supraspinatus muscle, 44.5% in the infraspinatus muscle,23.3% in the teres minor, and 3% in the subscapularis muscle. The age group between the thirties and fifties is most often affected; in general, more cases of calcific tendinitis occur on the right side than the left, and more cases in females than in males,[1] and it is not related to trauma.

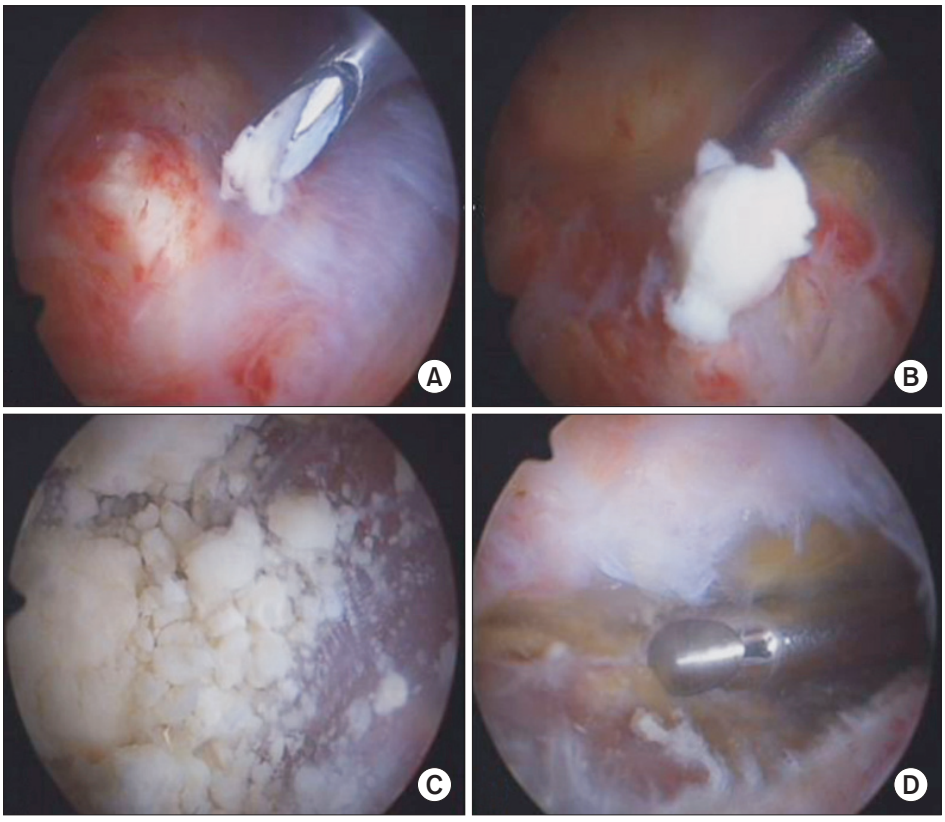

Fig. 2. Arthroscopic removal of the calcium deposits of the infraspinatus tendon. (A) Localization of the calcium deposit using a spinal needle. (B) The toothpaste appearance of the calcium deposits. (C) Multiple fragmented calcium deposits. (D) All calcium deposits were removed from the infraspinatus tendon.

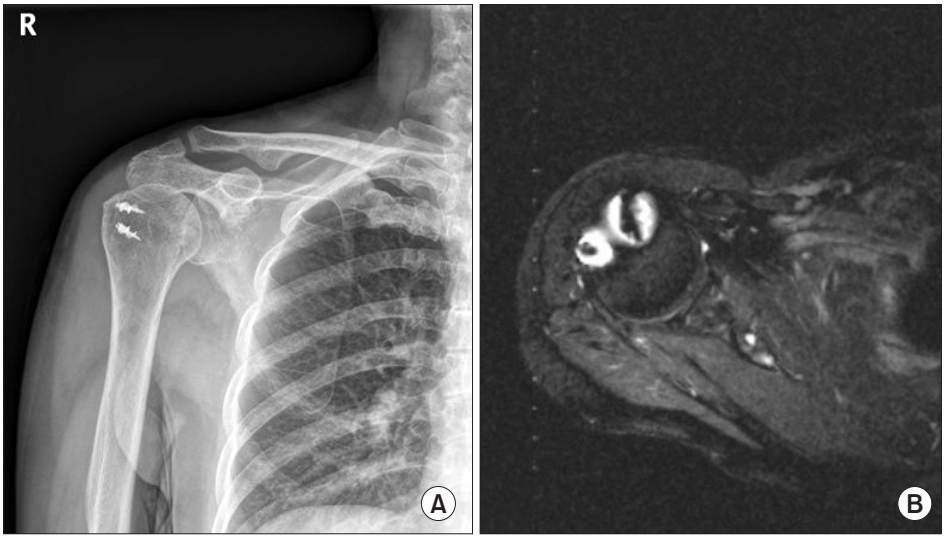

Fig. 3. (A) Postoperative plain radiograph (true anteroposterior view) showing the complete removal of the calcium deposits with no recurrence of calcific tendinitis of the shoulder. (B) Magnetic resonance imaging showing the complete removal of the calcium deposits with no recurrence of calcific tendinitis of the shoulder and well-healing state of the infraspinatus tendon.

Although some cases of symptomatic calcific tendinitis of the shoulder show spontaneous improvement, most require treatment. Conservative treatment options include nonsteroidal drug administration, steroid injection into the subacromial space, physical therapy, extracorporeal shock wave therapy, and needle aspiration. Surgical treatment is indicated for symptom progression, continuous pain that disrupts daily life, or symptoms that do not improve after conservative treatment;[4] however, surgical treatment is not considered when the calcific deposit is resolved by natural resorption.[2] Surgical treatment is either open or arthroscopic; open surgery can provide satisfactory results and reduce pain after the removal of calcific deposits; however, the recovery time is long and long-term rehabilitation is required; arthroscopic surgery can reduce joint stiffness by enabling rehabilitation immediately after surgery, and also reduces rehabilitation time and often provides more functional and esthetically

satisfactory results.[5]

In a study of prognostic factors after treatment of calcific tendinitis by Jacobs and Debeer,[6] the effect of the size of the calcific deposit on the patient's prognosis was evaluated using the Disabilities of the Arm, Shoulder and Hand score and modified Constant score; the prognosis with calcific deposit sizes less than 10 mm, 10–20 mm, and over 20 mm was assessed in 61 patients. According to the results, the size of the calcific deposit does not influence the clinical outcome of surgical treatment. Porcellini et al.[7] classified 63 calcific tendinitis patients into groups according todeposit size less than 10 mm, 10–20 mm, and over 20 mm; the group with deposit size over 20 mm showed the lowest Constant score before surgery, but the results after two years of follow-up showed an increase in the Constant score, indicating that the size of the calcific deposit does not affect the clinical outcome of surgical treatment. Cho et al.[8] asserted that the site of the calcific deposit, severity of pain, and radiologic size of the deposit do not affect the clinical outcome of conservative treatment. Rhee et al.[9] reported better treatment results with arthroscopic removal of calcific deposits, as there were fewer operative complications; they also reported worse results for deposits located in the subscapularis muscle, and that the treatment results were not affected by size of the deposit and its complete removal, or whether or not subacromial decompression was performed or the rotator cuff was repaired. Ogon et al.[10] reported that poor prognosis with conservative treatment is likely for bilateral calcific deposits, if they were large or located anterior to the acromion. They also reported association of large calcific deposits with progression to chronic pain, and the size of the deposit was a risk factor for prolonged pain.

The patient in this report had atypically extensive calcific tendinitis involving the right infraspinatus muscle with bursal side partial rupture of the supraspinatus muscle, a complaint of nocturnal right shoulder pain, and failure to improve with conservative treatment; this prompted the authors to perform arthroscopic removal of the calcific deposit and to repair partial ruptures of the right supraspinatus muscle as well as the infraspinatus muscle at the calcific deposit removal site. Satisfactory results were achieved with surgery, the pain was reduced, and the joint range of motion was maintained.

As reflected in the literature review, the patient had an atypically extensive calcific deposit that did not respond to conservative treatment and progressed to chronic pain; the treatment result was satisfactory after arthroscopic removal, despite the large deposit size, suggesting that the size of the deposit does not affect the treatment prognosis. Further studies regarding the effect of the size of the calcific deposit on the treatment results are needed.

References

1. Bosworth BM. Calcium deposits in the shoulder and subacromial bursitis: a survey of 12,122 shoulders. JAMA. 1941;116(22):2477-82.
2. Uhthoff HK, Loehr JW. Calcific tendinopathy of the rotator cuff: pathogenesis, diagnosis, and management. J Am Acad Orthop Surg. 1997;5(4):183-91.
3. Seil R, Litzenburger H, Kohn D, Rupp S. Arthroscopic treatment of chronically painful calcifying tendinitis of the supraspinatus tendon. Arthroscopy. 2006;22(5):521-7.
4. Gschwend N, Scherer M, Löhr J. Tendinitis calcarea of shoulder joint (T.c.) (author's transl). Orthopade. 1981;10(3):196-205.
5. Ark JW, Flock TJ, Flatow EL, Bigliani LU. Arthroscopic treatment of calcific tendinitis of the shoulder. Arthroscopy. 1992;8(2):183-8.
6. Jacobs R1, Debeer P. Calcifying tendinitis of the rotator cuff: functional outcome after arthroscopic treatment. Acta Orthop Belg. 2006;72(3):276-81.
7. Porcellini G, Paladini P, Campi F, Paganelli M. Arthroscopic treatment of calcifying tendinitis of the shoulder: clinical and ultrasonographic follow-up findings at two to five years. J Shoulder Elbow Surg. 2004;13(5):503-8.
8. Cho NS, Lee BG, Rhee YG. Radiologic course of the calcific deposits in calcific tendinitis of the shoulder: does the initial radiologic aspect affect the final results? J Shoulder Elbow Surg. 2010;19(2):267-72.
9. Rhee YG, Kim YH, Park MS. Arthroscopic treatment in calcific tendinitis of the shoulder. J Korean Shoulder Elbow Soc. 2000;3(2):68-74.
10. Ogon P, Suedkamp NP, Jaeger M, Izadpanah K, Koestler W, Maier D. Prognostic factors in nonoperative therapy for chronic symptomatic calcific tendinitis of the shoulder. Arthritis Rheum. 2009;60(10):2978-84.