



Case report

Bilateral calcifying tendinitis of the long tendon of the biceps associated with a SLAP lesion

Esteban Mayayo Sinués,^{a,*} Antonia Pilar Soriano Guillén,^b Ana Carmen Vela Marín,^a and Belén Martínez Pérez^a

^aServicio de Radiodiagnóstico, Hospital Universitario Miguel Servet, Zaragoza, Spain

^bServicio de Rehabilitación y Medicina Física, Hospital Universitario Miguel Servet, Zaragoza, Spain

ARTICLE INFO

Article history:

Received January 20, 2009

Accepted March 12, 2009

Keywords:

Calcifying tendinitis

Long head of biceps tendon

SLAP

Shoulder

Magnetic resonance imaging

ABSTRACT

Calcifying tendinitis is a common disorder related to deposition of hidroxyapatite crystals, which is most common around the shoulder joint, involving the supraspinosus tendon. It can however, affect almost any tendon at its insertion. Clinical features are variable and include pain and inflammation that often resolves spontaneously. We present a case of bilateral calcifying tendinitis of the long head of the biceps tendon at its insertion on the superior glenoid rim associated with superior labrum antero-posterior tears (SLAP) confirmed by arthroscopy. Calcium deposits were surgically removed and the SLAP lesions were repaired.

© 2009 Elsevier España, S.L. All rights reserved.

Tendinitis calcificante bilateral del tendón largo del bíceps asociado a lesión SLAP

RESUMEN

La tendinitis calcificante es una alteración común relacionada con el depósito de cristales de hidroxiapatita cálcica que suele localizarse alrededor del hombro, especialmente en el tendón supraespinoso. La presentación clínica es variable e incluye dolor e inflamación que a menudo se resuelve espontáneamente. Presentamos un caso de un varón de 48 años con tendinitis calcificante bilateral del tendón largo del bíceps en su inserción en el tubérculo glenoideo superior que se asociaba a lesión del labrum superior y que se confirmó en la artroscopia. Los depósitos cálcicos se resecaron y se reparó la lesión del labrum superior de ambos hombros mediante sutura artroscópica.

© 2009 Elsevier España, S.L. Todos los derechos reservados.

Palabras clave:

Tendinitis calcificante

Tendón largo del bíceps

Lesión del labrum superior

Hombro

Resonancia magnética

Calcifying tendinitis (CT) is a frequent alteration associated with the deposition of calcium hydroxyapatite crystals in the periarticular region of the shoulder. Calcium deposits have been described in 7.5% to 20% of asymptomatic adults.¹ However, up to half the cases are symptomatic, causing an acute or chronic inflammatory reaction, with pain exacerbated by movement and local swelling, which may be associated with restricted mobility.² CT has been estimated as responsible for 7% of painful shoulder cases.³

It commonly affects the supraspinatus tendon, followed by the other structures of the rotator cuff and other anatomical areas. Although initially the disease is monoarticular, there may be bilateral involvement in half of the patients and may also affect several tendons in the same shoulder.³

The origin of the TC is not clear, although there is speculation that it could be due to a genetic predisposition leading to calcium deposits over degenerated areas of soft tissue, tissue necrosis, trauma or hypoxia induced fibrocartilaginous metaplasia of hypoperfused areas in the tendon attachments.⁴

A case of bilateral TC of the glenoid insertion of the long biceps tendon (LBT), an infrequent location, with a superior labral tear (SLAP, *superior labrum tear from anterior to posterior*) was treated with resection of the calcifications and repair by arthroscopic labral re-embedding.

Case report

We present the case of a 48 years old male with chronic bilateral shoulder pain of one year since onset and periodic exacerbations causing a limited range of mobility. The pain radiated to the

* Corresponding author.

E-mail address: estmays@yahoo.es (E. Mayayo Sinués).

anterolateral arm and produced focal tenderness in the bicipital notch. Radiographs showed dense calcification of the adjacent paths outside the superior glenoid labrum in both shoulders, corresponding to the insertion of the LBT (7 mm right and 13 mm left). We performed magnetic resonance imaging (MRI) (*General Electric*, 1.5 T), following the usual protocol at our center, with DP and T2 coronal sequences with fat suppression, sagittal DP and axial DP with fat suppression. MRI confirmed the diagnosis of bilateral TC of the LBT insertion, showing hypointense calcium deposits on all pulse sequences, characteristic calcifications, with a slight halo of superficial edema on them, and effusion of the extraarticular portion of the tendon sheaths (Figures 1 and 2). On the other hand, there was a possible SLAP lesion on the right side, without actual tearing identified preoperatively on the contralateral side.

Given the lack of a full response to conservative treatment with anti-inflammatory and the possible associated tear of the labrum, surgical treatment was decided upon, with debridement and arthroscopic resection of calcific deposits of both shoulders, and repair by re-embedding the labral injuries (a type 2 bilateral rupture was confirmed). The trend over the first 6 months after surgery was favorable without the persistence or recurrence of pain, with a subsequent loss of the patient during follow up.

Discussion

CT of the LTB is poorly understood when compared with rotator cuff tendon lesions. Two locations have been reported as vulnerable: the tendinous origin on the superior glenoid tubercle and the distal glenohumeral joint at the proximal muscle-tendon junction, near the humeral diaphyseal cortex.⁵ Goldman et al found 20 cases of TC of the LBT of a total of 119 patients with a radiographically evident calcification, with a similar distribution in both vulnerable areas.⁵ This contrasts with other previous studies that showed a higher frequency of an insertional location.^{6,7}

The term SLAP was coined by Snyder⁸ and comprises a group of lesions ranging from superior labrum degenerative cracking up to the avulsion of the glenoid itself, which may affect the attachment of the LBT. These injuries are common and may be due to falling on an outstretched arm or sudden or repetitive traction of the LBT. They represent a major cause of pain and disability of the shoulder, can be associated to a feeling of instability, limited range of motion and audible clicks. It usually requires surgery.⁸ There are different types of SLAP lesion of which the most frequent is type 2. MRI has a high diagnostic accuracy for detecting SLAP lesions, which increases with arthro-MRI, due to capsular distention. The identification of a linear

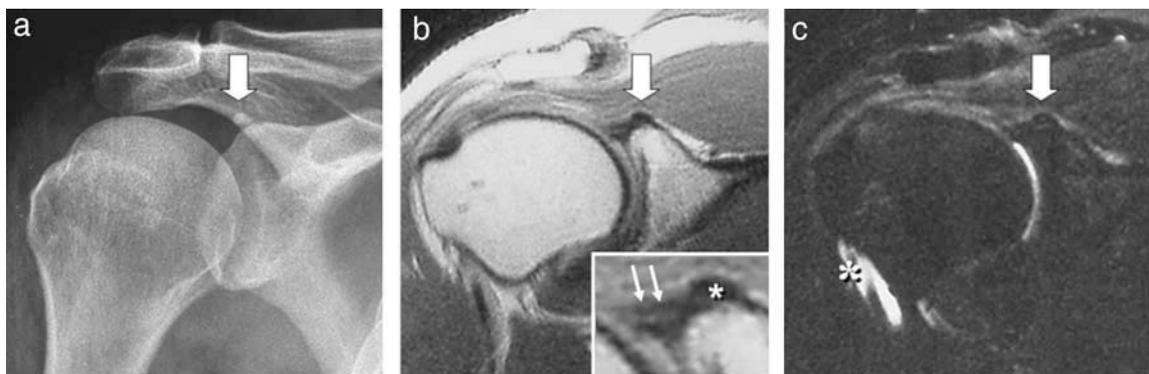


Figure 1. Right Shoulder. a) AP radiograph of the shoulder. b) coronal MRI DP sequences. c) T2 with fat suppression. Small calcific deposit adjacent to the superior glenoid (arrow). On MRI the location of the deposit affecting the insertion of long biceps tendon was confirmed on the glenoid with a thin hyperintense edematous ring surrounding soft tissues, reactive in nature, visible in the T2 sequence with fat suppression (Figure c) and which is common in the mechanical phase of the disease. Additionally, an effusion can be seen in the sheath, as well as extraarticular reactive tenosynovitis of the LBT (asterisk). In the coronal DP image (Figure b), a superior linear hyperintense component of the suspected labrum SLAP lesion can be seen and was later confirmed by arthroscopy. The SLAP lesion can be better seen in the central enlarged image of Figure b, as a linear image of lateral orientation within the fibrocartilaginous labrum (white arrows), adjacent to the calcification (asterisk).

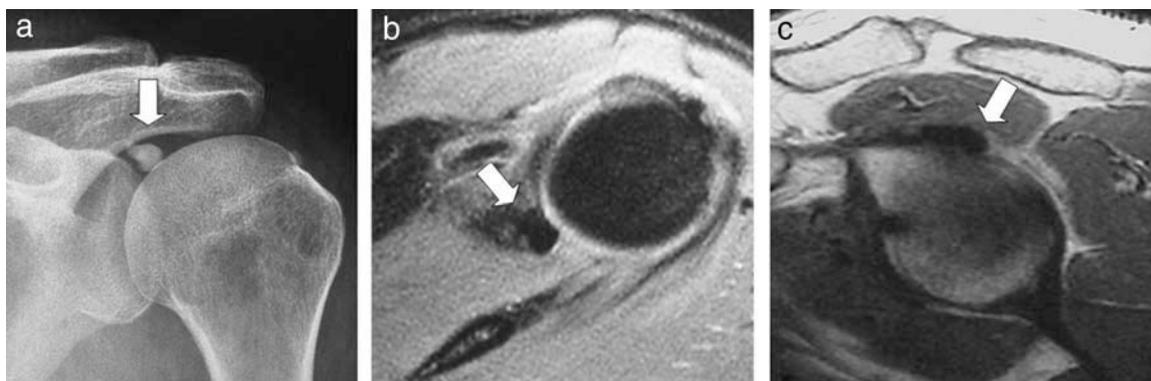


Figure 2. Left Shoulder. AP radiograph of the shoulder. a) DP coronal MRI sequences. b) T2 with fat saturation. c) Removal of sagittal DP. Ovoid calcification, more extensive, in the same location compared to that observed in the right shoulder, affecting the bone insertion site over the biceps tendon (arrows). MRI did not identify a superior labral tear.

signal in the labrum with a lateral orientation is highly specific and allows for differentiation of the sublabral recess, an anatomical variant which could be mistaken for a lesion.⁹ Recently, Kim et al, reported a case of TC at the origin of the LBT, associated with a type 2 SLAP lesion.¹⁰ However, we found other bilateral cases in the literature. The pathophysiological relationship is unknown as is the exact triggering event in the relationship between calcification and rupture of the labrum, although the case presented could represent this potential partnership, which alone and in isolation could justify the pain. The association between the calcification of the cuff and tendon rupture is also controversial.¹¹

The differential diagnosis of insertional CT of the LBT must be made with other calcium deposits that are projected onto the superior joint space, such as loose bodies and accessory ossification of the glenoid tubercle. Loose bodies are usually multiple, with cortex at the margins often visible on the radiograph (osteoarthritis or bony Bankart lesion).³ MRI due to its excellent contrast resolution is useful in the diagnosis of CT, demonstrating a low signal intensity of the deposits in all sequences, with a margin of inflammation and edema often seen in the mechanical phase. Sometimes there are reactive changes, bone cysts, erosions and intraosseous loculation of the deposits,¹² though that was not the case in this specific location.

The initial treatment of this condition is conservative. Thus, during the acute episode it is typical to use anti-inflammatory and subacromial injections of corticosteroids, but they only provide temporary relief. Ultrasound can be effective in the short term. Shock wave therapy is recommended in refractory cases outside the acute phase, although its effectiveness is unknown at this location and is often painful. Good results have been observed in the short and long term using ultrasound guided percutaneous aspiration of calcific deposits, although there are no publications at this location.¹³ Arthroscopic surgery is reserved for chronic cases and those resistant

to conservative treatment.¹⁰ Although further studies are required to assess the relationship between CT biceps and SLAP lesions, if confirmed, could indicate the need for surgical repair of SLAP if TC is found at the origin of the LBT.

References

1. Speed CA, Hazleman BL. Calcific tendinitis of the shoulder. *N Engl J Med.* 1999;340:1582-4.
2. Ebenbichler GR, Erdogmus CB, Resch KL, Funovics MA, Kainberger F, Barisani G, et al. Ultrasound therapy for calcific tendinitis of the shoulder. *N Engl J Med.* 1999;340:1533-8.
3. Faure G, Daculsi G. Calcified tendinitis: a review. *Ann Rheum Dis.* 1993;42(Suppl 1):49-53.
4. Uthoff HK, Loehr JW. Calcific tendinopathy of the rotator cuff: pathogenesis, diagnosis, and management. *J Am Acad Orthop Surg.* 1997;5:183-91.
5. Goldman AB. Calcific tendinitis of the long head of biceps brachii distal to the glenohumeral joint: plain film radiographic findings. *Am J Roentgenol.* 1989;153:1011-6.
6. Resnick D. Calcium hydroxiapatite crystal deposition disease. In: Resnick D, editors. *Diagnosis of bone and joint disorders.* Philadelphia: WB Saunders; 1995. p. 1615-49.
7. Vigarío GD, Keats TE. Localization of calcific deposits in the shoulders. *Am J Roentgenol Radium Ther Nucl Med.* 1970;108:806-11.
8. Snyder SJ, Karzel RP, Pizzo WD, Ferrel RD, Friedman MJ. SLAP lesions of the shoulder. *Arthroscopy.* 1990;6:274-9.
9. Rafii M. Non-contrast MR imaging of the glenohumeral joint. Part II. Glenohumeral instability and labrum tears. *Skeletal Radiol.* 2004;33:617-26.
10. Kim KC, Rhee KJ, Shin HD, Kim YM. A SLAP lesion associated with calcific tendinitis of the long head of the biceps brachii at its origin. *Knee Surg Sports Traumatol Arthrosc.* 2007;15:1478-81.
11. Hsu H, Wu J, Jim Y, Chang C, Lo W, Yang D. Calcific tendinitis and rotator cuff tearing: a clinical and radiographic study. *J Shoulder Elbow Surg.* 1994;3:159-64.
12. Chan R, Kim DH, Millett PJ, Weissman BN. Calcifying tendinitis of the rotator cuff with cortical bone erosion. *Skeletal Radiol.* 2004;33:596-9.
13. Del Cura JL, Torre I, Zabala R, Legórburu A. Sonographically guided percutaneous needle lavage in calcific tendinitis of the shoulder: short- and long-term results. *Am J Roentgenol.* 2007;189:W128-34.