ARTHROSCOPIC TREATMENT OF CALCIFYING TENDINITIS OF THE ROTATOR CUFF

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ABSTRACT

Objective: To evaluate the clinical and radiographic results from arthroscopic surgical treatment of the rotator cuff in patients with calcifying tendinitis. Method: A retrospective study was conducted on twenty patients who underwent arthroscopic treatment for calcifying tendinitis of the shoulder between March 1999 and November 2005. Six patients were excluded due to loss of follow-up. The average follow-up period was 41.4 months. Eight patients (57%) were female and six (43%) were male. The right side was affected in 10 cases (71%) and the left in four cases (29%). Nine cases (64%) had calcification in the supraspinatus tendon, two (14%) in the infraspinatus tendon, and three (21%) in both tendons. Results: In all cases, resection of the calcium deposits was performed by means of a needle (Jelco® No. 14) in combination with curettage (mini-curette). Two shoulders (14%) underwent subacromial decompression, and one (7%) underwent excision of the distal clavicle. A tendon-tendon suture was performed in three shoulders (21%). None of the patients underwent tendon-bone reinsertion. The mean score obtained on the UCLA scale was 33 points (26-35), thus indicating that a majority of patients had good results. In the final radiographic evaluation, none of the patients showed signs of calcification. Conclusion: Arthroscopic treatment of calcifying tendinitis of the shoulder safely allows excision of the calcification, leading to good results in relation to shoulder pain and function.

Keywords – Arthroscopy; Rotator Cuff; Tendinopathy; Shoulder; Debridement; Calcinosis

INTRODUCTION

Calcifying tendinitis of the rotator cuff is a pathological condition that may cause shoulder pain of uncertain etiology. It is characterized by calcium deposition (hydroxyapatite) in an undamaged tendon. It should be differentiated from exostosis at the tubercles, consequent to degenerative processes in the rotator cuff[1]. It is considered to be a self-limiting disease that, in some situations, presents spontaneous cure through natural drainage of the calcification into the subacromial space, with tendon regeneration. However, there is a clinical form in which the painful condition is prolonged, with periods of improvement and worsening, without reabsorption of the calcification, because of blockage of the natural cycle[2].

Its etiology is still controversial. The most commonly cited causal factors are delimited tissue hypoxia and local mechanical pressure. Some authors have mentioned that genetic predisposition may lead to the primary deposition of hydroxyapatite crystals[3].

The pathogenesis is divided into three stages: precalcification, calcification and post-calcification. In the

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Declaramos inexistência de conflito de interesses neste artigo

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first stage, the phenomena of hypoxia and tissue metaplasia occur. From a clinical point of view, this phase is painless. The calcification phase is subdivided into formation, resting and reabsorption phases[4]. During the formation phase, calcium crystals are deposited in the tendon, with fibrocartilaginous transformation. During the resting phase, a fibrocartilaginous edge is formed around the focus of the calcification, which indicates the end of the deposition stage. During the reabsorption phase, after a period of inactivity of variable length, spontaneous reabsorption of the focus of the calcification starts, with the appearance of small vascular canals on the periphery of the deposit. Macrophages and giant multinucleated cells are responsible for phagocytosis of the calcium[4]. The formation and resting phases are related to lower intensity of pain. In the reabsorption phase, there is intense pain with functional limitation[5]. The post-calcification stage presents few or no symptoms, and the affected shoulder presents normal functioning. Radiographs do not show any signs of deposits.

To plan the treatment, knowledge of these different stages is essential[1]. Non-surgical treatment is preferable, and this produces good results in most patients[1,2,6-11]. Each stage of the condition may require different therapeutic measures, such as the use of oral analgesia, infiltration of anesthetics and corticosteroids, physiotherapy, barbotage (drilling of the calcification) and shockwave therapy[12].

Surgical treatment is indicated if conservative treatment fails, which most commonly may occur in the formation and resting phases. In the reabsorption phase, surgical treatment is rarely indicated, since the natural mechanisms enable removal of the deposit. According to Gschwend *et al*[13], the main indications for surgical treatment are progression of the symptoms, constant pain that interferes with activities of daily living and absence of improvement after non-operative treatment. Surgery can be undertaken either arthroscopically or as an open procedure[3]. A variety of advantages of arthroscopy over open surgery are cited in the literature, such as: less aggression to the deltoid and, consequently, lower duration of rehabilitation; the possibility of treating associated intra-articular lesions; and better esthetic appearance[2,7-9,11].

SAMPLE AND METHOD

A retrospective study was conducted on 20 patients who had undergone arthroscopic treatment for calcifying tendinitis of the shoulder between March 1999 and October 2006. Six patients were excluded because of loss of follow-up. Thus, in March 2006, 14 patients of mean age 55 years (range: 37 to 72 years) were reevaluated. Eight of them (57%) were male and six (43%) were female. The right side was affected in nine patients (64%) and the left side in five (36%). All of them presented calcifications in the tendon of the supraspinatus (Table 1). Radiographs were produced in anteroposterior view with neutral, external and internal rotations of the shoulder, in true lateral view of the shoulder, and in axillary lateral view of the shoulder and supraspinal tunnel (Figure 1). The size of the calcifications was measured in millimeters along their major axis using a standard ruler graduated in millimeters. All the calcifications (100%) were greater than or equal to 5 mm in length and were classified as large (greater than 1.5 mm), according to the Bosworth classification[14] (Figure 2).

All the patients underwent the operation in a deckchair position, and standard ports for shoulder arthroscopy were used (posterior, anterior and lateral). We started the arthroscopy procedure with inspection of the joint and made an attempt to locate the calcification by means of tendon puncture using a Jelco® no. 14 until calcification was observed in the joint space, in the form of calcareous particles. After confirming the location, we kept the Jelco® in this position, removed the optical device from the joint space and started to position it in the subacromial space. Using the Jelco® itself, or a mini-curette, were carried out drainage of the calcium deposits without tendon transfixation. Using a shaver blade for soft tissue, we performed aspiration of the calcareous material that was released into the subacromial space and also performed local bursectomy with local superficial debridement of the tendon. Two patients (14%) who presented signs of impact seen through arthroscopy underwent subacromial decompression. In one patient (7%), distal excision of the clavicle was performed because clinical and radiographic signs of acromioclavicular arthrosis were presented. In three patients, there was a need for tendon-tendon suturing because of a longitudinal lesion consequent to excessive curettage of the calcium deposit. None of the patients required tendon-bone reinsertion. The patients were immobilized using a Velpeau sling with an abdominal belt for the first five postoperative days. This was then removed and physiotherapy was started. The standardized return visits to the clinic were after one week, two weeks and