

Case Report

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Atraumatic acromioclavicular joint dislocation: A case report and review of the literature

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Abstract

Dislocation of acromioclavicular joint (ACJ) is a common injury after trauma affecting the shoulder. Contrary, atraumatic dislocation is a very rare condition with only 5 previous cases reported on literature. This paper reports a 15-year-old female presenting painful dislocation with spontaneous reduction of the right ACJ that forced her to temporarily dropped her previous sports career. Ultimately, surgery was offered, conducting arthroscopic assisted button slide with augmented hamstring allograft reconstruction. The case is discussed, comparing results with previous reported cases of the condition.

Keywords: Acromioclavicular; Atraumatic; Dislocation; Shoulder; Instability.

Introduction

Although voluntary glenohumeral dislocation is a well-known and reported condition, acromioclavicular joint (ACJ) dislocation usually follows a trauma event. Atraumatic ACJ dislocation with spontaneous reduction is rare condition with scarce precedents in literature

This paper report the case of a 15-year old patient with atraumatic dislocation of the right ACJ, solved with good results using slide button system for coracoclavicular repair and allograft augmented acromioclavicular ligament repair aided by arthroscopy. Outcomes allowed return to previous sport activity. The results are compare with previously reported similar cases.

Case report

A 15-year-old (yo) patient presents to outpatient clinic with a history of pain on right shoulder with clicks with overhead

movements, that worsens when practising sports. She didn't report any traumatic event or relate to any particular moment. Previously a competitive rhythmic gymnastics athlete, she had to drop due to recurrent symptoms. She suffered 3 months before, a patellar dislocation with spontaneous reduction. Attending upper limb symptoms, she was referred to shoulder orthopaedic surgeon specialist.

During shoulder examination no limitation on shoulder range of motion (ROM) was present with sulcus, jerk and drawer tests negative. Scapulothoracic dyskinesia (SD) was noticeable during flexion and abduction movements. Yocum, Hawkins and Empty can manoeuvres resulted positive. Beighton score was positive. Slight prominence on ACJ was palpated in rest position, with tenderness around it. Slight posterior translation increase was found but with clear end point. Anterior flexion caused painful posterior dislocation with spontaneous reduction in rest position. X-ray of the shoulder showed no incongruence of ACJ,

but ultrasound study demonstrated dynamic instability of ACJ. Computerized tomography images exposed a superior subluxation of 5 mm (Figure 1). On magnetic resonance there was integrity of conoid and trapezoid ligaments

After 9 months of conservative treatment consisting on neuromuscular conditioning and deltoid, serratus and pectoral strengthening program fail, surgery was recommended.

In beach chair position, we performed first an arthroscopy time that showed no articular or labral injury and allowed to expose coracoid process. 5 cm long incision following clavicle from ACJ was made. Careful haemostasis with dissection of deltoid and soft tissue was carry out. Plasty for both acromioclavicular and acromioclavicular was planned and performed as follows. Distal clavicle margin was excised and then drill hole was made with specific guidance tool, and arthroscopic and x-ray aid, from distal clavicle to coracoid process after appropriate alignment. Though this hole, a suture-button device was passed (Ziptight, Zimmer-Biomet, Warsaw, IN, USA), and by alternating wire pulling reduction of ACJ and correct placement of the buttons were achieved. Straightaway, semitendinous allograft was prepared to fit a 4,5 mm hole and then both ends were sutured Krakow-fashioned. Both distal clavicle and acromion were drilled and then plasty was passed, tighten and secured anteriorly.

Deltoid fascia was correctly repaired after generously wound saline irrigation. Wound skin closure was made with 3/0 reabsorbable suture. The limb was placed in Gilchrist sling for 4 weeks, but from the beginning assisted arm flexion was encouraged.

Six weeks later she reported no pain with range of motion of 150° for both abduction and flexion and no limitation for rotation or extension, so patient was referred for physical therapy. Roetnography showed reduction with overcorrection of 5 mm. Two month later full ROM was achieved with no pain, stable ACJ and 0 mm displacement on image control (Figure 2). After 3 years, patient has returned to previous activity as amateur dancer with American Shoulder and Elbow Surgeon Score of 87 and Constant of 86. It was remarkable that SD disappeared during follow-up.



Figure 1: Preoperative CT showing cephalic subluxation of AC joint.

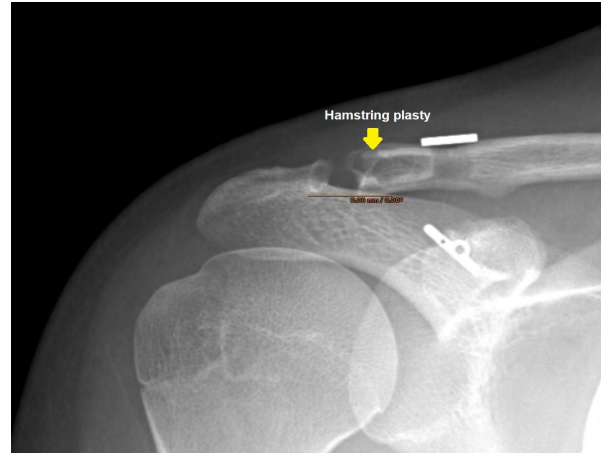


Figure 2: 1 year postoperative X-ray showing reduction of AC joint, button position, and distal clavicle hole where hamstring plasty is located.

Discussion

During the past decades, few cases of atraumatic ACJ dislocation have been reported on literature. First two cases, were managed conservatively. Janecki [1] was the first to describe voluntary control on ACJ dislocation in a patient that, although not confirmed, presented compatible characteristics with connective tissue disorder. He decided conservative management asking patients to rein in her impulses, with pain relieve after 1 month. A few years after Richards et al [2], describe another case showing asymptomatic subluxation, but the patient had been previously diagnosed with cerebral palsy causing spastic hemiparesis and associated hiperlaxity.

More recently, Sahara et al [3]. Treated a 19 yo woman with atraumatic posterior dislocation, treated with excision of distal clavicle combined with coracoid tip and conjoined tendon transfer to clavicle, resolving pain but not subluxation. Sadeghi et al [4]. Reported another young woman with ACJ dislocation with abduction and external rotation of the shoulder and also choose non-operative treatment. Lastly, on 2019, Barchick [5]. reported another patient with bilateral dislocation treated with augmented coracoclavicular ligament repair by arthroscopy for her right shoulder and conservatively for her left, obtaining similar results in both limbs. Although no rest pain was noted after 6-months, severe pain with overhead activities and subluxation of right ACJ remained positive.

In our case, aetiology was unclear but although conoid and trapezoid ligaments kept their integrity, some authors have point hiperlaxity as a main cause [2]. We decided to perform arthroscopic assisted surgery [6], since not key differences have been described on literature, and to our consideration small access to clavicle facilitates reduction and button placement preventing loss of reduction [7]. Besides, we decided to add distal clavicle excision to facilitate reduction knowing it should not affect our construct [8,9], and firmly believing it will contribute in pain relief. Furthermore, we decided double repair of acromioclavicular, with allograft plasty, and coracoclavicular with button slide system, trying to provide extra support to counteract inner ligamentous hiperlaxity.

Satisfactory outcomes during follow-up went along with complete SD vanish. Possibly it was associated with correct compliance of rehabilitation protocol once surgery was performed and painful inevitable dislocation disappeared

Atraumatic dislocation of ACJ remains a very rare condition. This patient is, to our knowledge the sixth case describe on literature and the first treated combining distal clavicle margin excision with augmented repair. Furthermore, this treatment is the first that has allowed a semi-professional sportswoman return to her career. Whilst this work does not intent to be a step by step guide of treatment, the promising results obtained might aid future cases treatment planning.

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References

1. Janecki CJ. Voluntary subluxation of the acromioclavicular joint. A case report. *Clin Orthop Relat Res.* 1977; (125): 29-31.
2. Richards RR, Herzenberg JE, Goldner JL. Bilateral nontraumatic anterior acromioclavicular joint dislocation. A case report. *Clin Orthop Relat Res.* 1986; (209): 255-258.
3. Sahara W, Sugamoto K, Miwa T, Tanaka H, Yoshikawa H. Atraumatic posterior dislocation of the acromioclavicular joint with voluntary reduction. *Clin J Sport Med.* 2005; 15: 104-106.
4. Sadeghi N, Haen PS, Onstenk R. Atraumatic Acromioclavicular Dislocation: A Case Report and Review of the Literature. *Case Rep Orthop.* 2017; 2017: 8450538.
5. Barchick SR, Otte RS, Garrigues GE. Voluntary acromioclavicular joint dislocation: A case report and literature review. *J Shoulder Elbow Surg.* 2019; 28: e238-e244.
6. Wylie JD, Johnson JD, DiVenere J, Mazzocca AD. Shoulder Acromioclavicular and Coracoclavicular Ligament Injuries: Common Problems and Solutions. *Clin Sports Med.* 2018; 37: 197-207.
7. Sun LJ, Lu D, Tao ZY, et al. Analysis of risk factors for loss of reduction after acromioclavicular joint dislocation treated with the suture-button. *J Orthop Sci.* 2019; 24: 817-821.
8. Beaver AB, Parks BG, Hinton RY. Biomechanical analysis of distal clavicle excision with acromioclavicular joint reconstruction. *Am J Sports Med.* 2013; 41: 1684-1688.
9. Kowalsky MS, Kremenic IJ, Orishimo KF, McHugh MP, Nicholas SJ, et al. The effect of distal clavicle excision on in situ graft forces in coracoclavicular ligament reconstruction. *Am J Sports Med.* 2010; 38: 2313-2319.