

CLINICAL CASE REPORT

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Arthroscopic Coracoid Transposition for Recurrent Shoulder Anterior Instability. An Operative Technique

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Key words: anterior shoulder instability; shoulder arthroscopy; coracoid transfer.

Summary. We report a technique of an arthroscopic concomitant Bankart repair with a transfer of the coracoid bone block and conjoint tendons for revision anterior shoulder instability.

The operative procedure consists of an arthroscopic transfer of the conjoint tendon with a coracoid and arthroscopic Bankart repair. First, a typical Bankart suture anchor procedure with two suture anchors was performed into the antero-inferior part of the glenoid rim. After, tenodesis of the coraco-biceps tendon was performed in the middle of the subscapularis tendon fixing the coracoid bony fragment into a glenoid socket with a bioabsorbable interference screw.

This operative technique is an alternative in the treatment of revision anterior shoulder instability in patients with deficient anterior capsule.

Introduction

Numerous techniques of arthroscopic stabilization of the shoulder continue to be introduced and evolve (1–27). However, the results of arthroscopic treatment of instability have not yet achieved those obtained with open techniques (1–27). In several reports, the rate of recurrent instability after the arthroscopic Bankart repair ranges from 10% to 20% (1–13).

Case Report

A 55-year-old man presented with a 7-year history of shoulder instability and 20 episodes of shoulder dislocations. The first shoulder dislocation occurred after he felt down on the right shoulder. Repositions were performed in hospital and were followed by the immobilization for 3 weeks. In March 2006, the patient woke up from sleep with pain in the right shoulder. The recurrent dislocation of the humerus was diagnosed, and the reduction with the immobilization was made. After 20 dislocation episodes, the patient showed up to the orthopedic surgeon and was operated on. An arthroscopic Bankart repair by suture anchor technique was performed. The patient was satisfied with the results after the arthroscopic operation, but one year after initial surgery, the same shoulder dislocated during swimming. The same reduction and immobilization was made. The shoulder dislocated two times more (in 2008 and 2009) in the accident when the patient felt down. The reduction was made the same way, and immobilization followed for 3

weeks with the bandage. In 2010 winter, the patient pulled the car, and that shoulder dislocated again. After that incident, the patient came to our hospital. He was consulted in the Clinic of Orthopedics and Traumatology, Hospital of Lithuanian University of Health Sciences. The patient complained of pain in the right shoulder, instability of shoulder, and limited shoulder range of motion. X-ray and computed tomography revealed large Hill-Sachs and bony Bankart defects. The results of apprehension, sulcus, and abduction instability tests were positive. The patient was operated on April 20, 2010, at the Clinic of Orthopedics and Traumatology, Hospital of Lithuanian University of Health Sciences.

Surgical Technique

The patient was positioned in the beach-chair position. Shoulder arthroscopy was performed. Soft tissue problems, labral tear, Hill-Sachs and bony Bankart defects were evaluated during diagnostic arthroscopy (Figs. 1 and 2). Then, an arthroscopic coracoid transposition procedure was initiated. The coracoid process and the conjoint tendon insertion were identified, and fibrous tissues from the neck of the scapula were removed. Then, the coracoacromial ligament insertion and the pectoralis minor insertion were divided with electrocoagulation. A bony coracoid fragment measuring 12 mm in length was removed. The bony coracoid fragment was brought outside the skin incision and was prepared to the diameter of 9 mm. An arthroscopic Bankart repair was then performed with two suture anchors. Then, the

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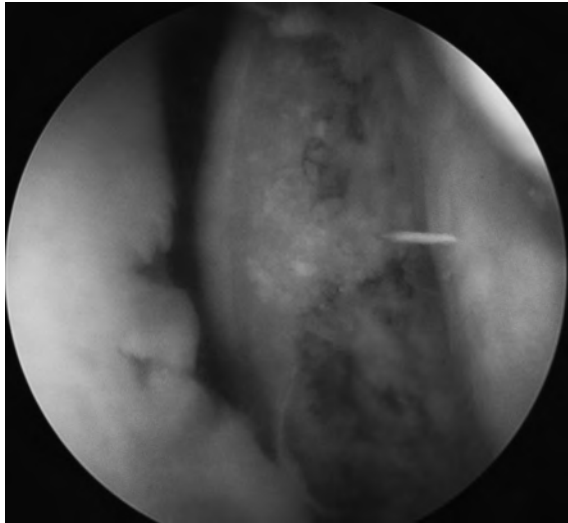


Fig. 1. Posterolateral humeral head Hill-Sachs lesion

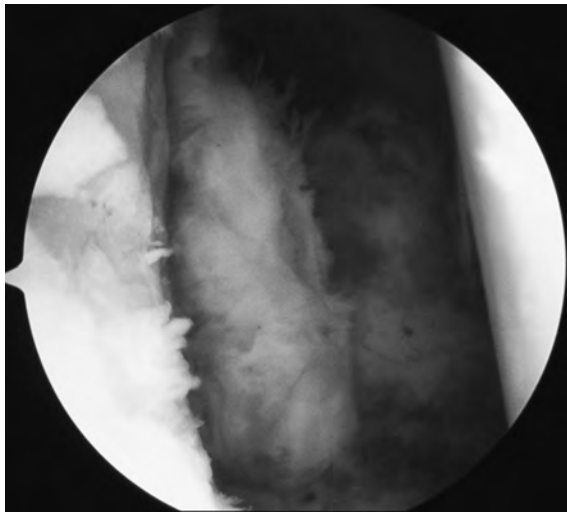


Fig. 2. Bone defect in the lower anterior part of the glenoid rim

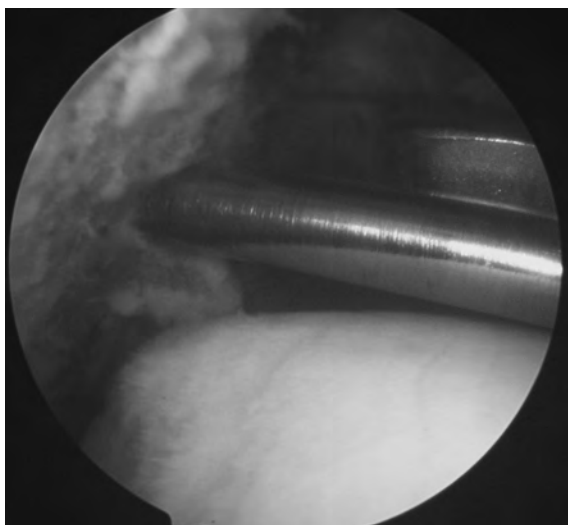


Fig. 3. Positioning of the K-wire in the anterior glenoid rim

subscapularis tendon was divided in the middle. A guidewire was oriented parallel to the glenoid articular surface and drilled until penetrated the posterior cortex of the glenoid. The guidewire was then overdrilled with a 10-mm cannulated reamer to a depth of 15–20 mm (Fig. 3). The coraco-biceps tendon was passed through the eyelet of the Beath pin and then recovered behind the shoulder. The coracoid graft was pulled inside the glenoid socket. The graft was fixed in the hole with a bioabsorbable interference screw measuring 7×23 mm (Figs. 4 and 5).

The patient's arm was placed in a sling postoperatively for 2 weeks. After 4 weeks, progressive active range of motion was allowed. External rotation deficit with the arm at the side was 12°, and the deficit in external rotation in abduction was 18°. The overall mean Constant score was 87 points out of 100.

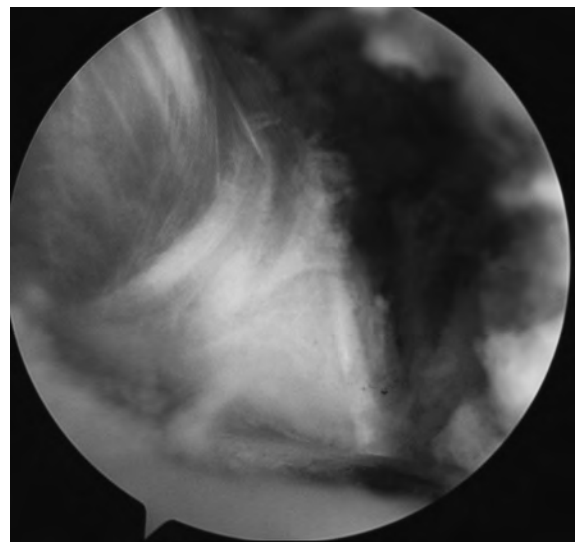


Fig. 4. Tenodesis of the coracobrachialis muscle



Fig. 5. Fixation of the coracoid process with the coracobrachialis muscle with a bioabsorbable screw

Discussion

Our clinical case on the early results of a new technique for revision shoulder instability combined an arthroscopic Bankart repair together with an arthroscopic transfer of the bony coracoid fragment with conjoint tendon. This technique was described by Boileau et al. (22). The only technical modification we introduced was that the coraco-biceps fragment was inserted into the glenoid in the middle of the subscapularis tendon, but not above it. Reinforcement of coraco-biceps complex may occur directly, as the coraco-biceps tendon reinforces the anteroinferior capsule, and indirectly, as the location of the tenodesis in the middle of the subscapularis tendon lowers the subscapularis tendon (22). The study by Boileau et al. supports the hypothesis that the transferred coraco-biceps tendon can act as a substitute for anteroinferior capsular deficiency when transferred to the scapular neck. A combined arthroscopic Bankart and Bristow repair allows stabilizing the shoulder in patients with a deficient

anteroinferior capsule. According to the study by Boileau et al., it seems that an isolated transfer of the coraco-biceps tendon (without an arthroscopic Bankart repair) is not sufficient to stabilize the shoulder. They concluded that the results of coraco-biceps transposition together with the Bankart repair were better than those of single arthroscopic Bankart repair as reported in the literature (1–13) and comparable to those of open bone-block procedures. Furthermore, the two failures in their series were associated with an inadequate Bankart repair (22). This hypothesis has to be checked in clinical trials.

Conclusion

The technique of arthroscopic Bankart repair associated with the transfer of the coraco-biceps tendon constitutes an alternative in the treatment of recurrent anterior shoulder instability.

Statement of Conflict of Interest

The authors state no conflict of interest.

Artroskopinės petinės mentės ataugos transpozicija gydant peties nestabilumą. Operacinė metodika

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Raktažodžiai: priekinis peties nestabilumas, peties artroskopija, petinės mentės ataugos transpozicija.

Santrauka. Pristatome vienmomentinės artroskopinės Bankart tipo operacijos ir petinės mentės ataugos transpozicijos operacinę metodiką gydant priekinį peties sąnario nestabilumą. Pirmiausia atliekama standartinė priekinės–apatinės sąnario lūpos rekonstrukcija su inkaruojančiais sraigtais, vėliau petinės mentės ataugos tenodezė prastumiant ją per podyglinio raumens sausgyslės vidurinę dalį ir fiksuojant tirpiu interferentiniu sraigtu.

Ši operacinė metodika yra efektyvi alternatyva gydant lėtinius peties nestabilumus esant sąnario lūpos nepakankamumui.

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