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The outcome of coracoid transfer for bony Bankart in treatment of recurrent dislocation of shoulder

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Abstract

Introduction: There are various methods been described for treatment of the recurrent dislocation of shoulder. This includes arthroscopic Bankart repair, Bristow-Latarjet procedure (transfer of coracoid process to the glenoid defect) or a bone graft to the Hill-Sach's lesion, osteotomy as well as conservative (non-surgical) treatment particularly in older patients with shoulder instability.

Materials and Method: In the Latarjet procedure, fixation of the coracoid process to the glenoid defect is done by using two screws which is not only technically difficult but very much morbid, therefore in transfer of the coracoid process to the anterior inferior glenoid defect the fixation was done by single titanium screw.

Results & Conclusion: We have noticed excellent to good outcome using Constant score in treatment of the recurrent dislocation of shoulder using a single titanium screw.

Keywords: recurrent shoulder dislocation; bony bankart; coracoid process; Latarjet; single screw; Constant score

Introduction

Shoulder is one of the most mobile and the least stable joints in the body. Therefore it is most vulnerable for dislocations or subluxation. If the shoulder joint is dislocated or subluxated repeatedly, then it should be considered unstable shoulder with instability. This is usually noticed when a patient falls on an outstretched hand or due to a direct blow to the shoulder or it may occur if laxity of capsule present but forced abduction with external rotation of the arm is commonest cause in all types of dislocation of shoulder joint which occur mostly in patients having history of throwing ball. The causes for the recurrent anterior dislocation of the shoulder joint are: 1. anterior detachment of the glenoid labrum from the glenoid, with stripping of the anterior part of the capsule 2. Defect or flattening of the posterolateral aspect of the articular surface of the head of the humerus. These pathologies predispose to recurrence of the dislocation. The goal of the Operative treatment should be repairing, or nullifying, the effects of both types of lesion. In case of the anterior detachment of the labrum the suturing the labrum back to the glenoid margin, or constructing some form of anterior buttress by bony block & for flattening of the posterolateral aspect of the articular surface of the head of the humerus it necessitates some procedure designed to limit external rotation which prevent the defect from coming into engagement with the glenoid cavity.

Materials & Method

Study of 33 cases were conducted. Cases included in our study were having recurrent shoulder dislocation with inferior glenoid defect which can be detected on MRI or xrays. Mostly these patients are of young age (25-30) and initial history of trauma after which they have recurrent shoulder dislocation. Such patients undergo the surgery in which we go through the deltopectoral approach to the shoulder joint. Then we remove a bone block from the coracoid process with conjoint tendon of coracobrachialis, after splitting the subscapularis muscle, we fixed the bone block to the inferior glenoid defect with a single titanium screw. Capsule is sutured back and then the wound is closed in layers with drain. Chest arm strapping is given to patients till suture removal. After 6 weeks range of motion is started.

Outcomes are measured from the range of motion, pain and feeling of instability using Constant Murley shoulder score.



Fig 1: A case of 27 years male with recurrent shoulder dislocation on left side with X ray findings suggestive of bony bankart lesion



Fig 2: Post-operative X ray image of same patient with coracoid transfer using single screw fixation



Fig 3: A case of 45 years male with recurrent shoulder dislocation showing bony bankart lesion of left glenoid on X ray



Fig 4: Post-operative X ray image of the same patient with coracoid transfer using single screw fixation

Investigations in recurrent anterior dislocation of the shoulder are X-rays: plain AP views. Axillary lateral views, scapular y views, CT scan: CT scan will show us the amount of glenoid bone loss, MRI: also helps in assessing the amount of glenoid bone loss and associated soft tissue lesions around shoulder joint. Different method of treatment include: 1. Open repair e.g Bankart and modified bankart repair procedure. 2. Latarjet procedure (open repair procedure) 3. Neer and Foster technique of open repair in which capsular shift is done 4. Arthroscopic repair.

Results

We have noticed excellent to good outcome using Constant score in treatment of the recurrent dislocation of shoulder using a single titanium screw. The patients were followed up in out-patient clinic at 2 weeks, 4 weeks, 6 weeks and thereafter every month for minimum six months. The average follow up period was for 2 years (18 ± 6 months). We achieved 84.6 score (0-100) for 24 patients and 66.7 score for 9 patients. 1 patient had developed superficial surgical site infection which got cured with 3 weeks of intravenous antibiotics. 1 patient developed paraesthesia along the upper lateral aspect of arm which recovered in 3 months by itself. None of the patients reported any recurrence of dislocation after the operation.

Discussion

A systematic review of the literature on management of anterior dislocation of the shoulder with glenoid bony procedures was performed. Recurrent shoulder dislocation due to anterior instability is most commonly seen younger patients. These age group patients have high demand of shoulder requirement. Most of the patients belong to the athlete or some high demand worker. Most of the times initial history of trauma is the preceding factor which leads to recurrent shoulder dislocation. A careful history and clinical examination followed by investigation like x rays, MRI and CT Scan is done. A successful outcome can be given to patients by proper surgical technique via adequate exposure. Main objective of the surgery is to provide anatomical joint with optimal functioning through repair of anterior instability. Various studies have been done which mode of treatment gives better outcomes over others. Open and arthroscopic repair are the two modalities of treatment of recurrent shoulder dislocation patients. In a prospective randomized study, Fabbriani *et al.* [1] reported equal results between arthroscopic and open surgical repair of Bankart lesion in the aspect of recurrence. Rhee *et al.* [2] compared the results of arthroscopic and open stabilization in young contact athletes and reported recurrent instability as 25% in the arthroscopic group and 13% in the open stabilization group.

Bone loss in the glenoid leads to anterior instability which lead to recurrent shoulder dislocation. A glenoid bone loss more than 25 % require surgical management. Latarjet and Bristow procedures are the procedures in which bont block is applied in anterior glenoid which prevent anterior recurrent shoulder dislocation. In a study which evaluates the morphology of the glenoid cavity in patients with recurrent anterior instability of the shoulder, Sugaya *et al.* [3] concluded that 10% of subjects did not have osseous pathology, 40% had bony erosion, and 50% had an osseous Bankart lesion. Park *et al.* [4] reported that following successful fixation of the glenoid fracture in its anatomic position, fragments unite and survive without resorption at one year. When the bone loss is greater than 25% of the glenoid surface, transfer of the

coracoid process to the anterior glenoid rim as a structural block is the best approach. Burkhart *et al.* [5] reported that no recurrent instability was detected at a mean follow-up of 4.9 years following coracoid transfer performed in forty-seven patients. A quantitative synthesis of all comparative studies was performed to measure the outcome of bone block procedures and Bankart repair in terms of postoperative recurrence of instability, range of motion and osteoarthritis.

Conclusion

Anterior instability due to inferior glenoid bone loss is a common cause of recurrent shoulder dislocation. Most of the patients are of young age and athlete by profession or require a high demand shoulder joint. Bony block procedures are the most common procedures done for anterior instability due to glenoid bone loss. The open Bristow-Latarjet procedure continues to be a valid surgical option to treat patients with anterior shoulder instability. Bone block procedures were associated with a lower rate of recurrence when compared with the Bankart repair. Our study concludes that single screw fixation of coracoids process on the antero-inferior glenoid provides good stability to shoulder joint anteriorly with optimum shoulder range of motion.

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