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Functional Outcomes of Arthroscopic Bankart Repair for Traumatic Anterior Shoulder Instability

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Introduction

- Shoulder is one of the most unstable and frequently dislocated joint in the body, accounting for more than 50% of all dislocations, with a 2% incidence in the general population.
- Main complication of shoulder dislocation is recurrent instability and it accounts for an average of 70-90% recurrence rate in patients between 20-40 years of age.
- During shoulder dislocations, humeral head is forced anteriorly out of glenoid cavity resulting in detaching fibrocartilaginous labrum from the anterior rim of glenoid cavity. This detachment of glenoid labrum is called Bankart lesion.
- Bankarts lesion is the most common and essential lesion in treatment of anterior shoulder instability
- In 1938 Bankart [1] reported excellent results of re-attachment of the capsulolabral complex in patients with anterior shoulder instability, a method first described by Perthes [2].
- Management is by reattachment of labro-ligamentous structure to the glenoid.
- Glenoid labrum plays important role in maintaining stability of glenohumeral joint.
- Glenoid labrum deepens the socket and act as anchor point for ligaments and capsule.
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- Problems reported to be associated with open Bankart repair include restriction in external rotation [3,4,5,6] and subscapularis muscle insufficiency .
- Therefore less invasive arthroscopic techniques have been developed and have improved from disappointingly high recurrence rates with staple capsulorrhaphy [7], transglenoid sutures [8,9] and bioabsorbable tacks [10] to promising results with suture anchors equal to open procedures .
- Arthroscopic stabilization is considered advantageous in terms of decreased morbidity with reduced pain and shorter hospitalization (if necessary at all), faster rehabilitation, no violation of the subscapularis tendon and no loss in range of motion [11].
- Nevertheless, higher recurrence rates compared to the open procedure have been reported [12,13,14)

AIM

To evaluate the functional outcomes of arthroscopic bankart repair in traumatic anterior shoulder instabilty using suture anchors, with respect to:-

a) Restoration of joint stability
b) Return to activity
c) Patient satisfaction
d) Complication including recurrence

Materials and Method

- A total of 21 patients with recurrent anterior shoulder instability underwent arthroscopic Bankart repair.
- A prospective study was conducted on patients with anterior shoulder instability aged between 15 to 50 years.

Inclusion criteria

- Patients with recurrent anterior shoulder dislocation or subluxation
- MRI showing Bankart lesion or diagnostic arthroscopy showing lesion.

Exclusion criteria

- Patients with posterior instability,
- Multidirectional instability,
- Habitual dislocators,
- Engaging Hill-Sach's lesion,
- Bony Bankart or Hill-Sachs lesion with more than 25% bone loss
- Concomitant pathologies such as rotator cuff tear, SLAP lesion**.**

Preoperative planning

- Patients with anterior shoulder instability were evaluated clinically.
- Most of the patient had apprehension test positive.
- Radiographs in anterior-posterior, lateral, axillary and scapular Y view were taken.
- Following clinical and radiological examination MRI was done.
- All patients underwent arthroscopic Bankarts repair and intro-operative surgical details were noted down. Intense post-operative rehabilitation were done at weekly interval for 2 months and later on follow-up evaluation were done at 3 months, 6 months and 1 year

Parameters

- UCLA (University of California Los Angles) Scoring system was used for the functional outcome at 1 year of follow-up.
- The UCLA scoring system consists of 5 parameters namely -
- Pain, Function, Active forward flexion, Strength and patient satisfaction.
- The maximum score is 35. a score between 32-35 is excellent, 29-31 is good, 21-28- is average and less than 20 as poor.

Operative Technique

- Patient is positioned in lateral decubitus position with arm in 40-45 degrees of abduction and 10-15 degrees of forward flexion and neutral rotation using adhesive traction.
- Standard Posterior portal is the primary viewing portal and is placed 2 cm inferior and in line with posterolateral aspect of the acromion.
- Anteriosuperior portal was established by outside in technique, with a 18G spinal needle inserted at 1cm anterior to the acromion and 2 cm lateral to coracoid process.
- Anterior midglenoid portal was established just over the superior border of subscapularis tendon.
- The first pilot hole for the inferior most anchor is created by inserting a 2 mm drill bit with a self stopper, on the face of articular cartilage of the glenoid around the 5-o'clock position.
- It is ensured that the suture anchor is placed below the subchondral bone (2-3mm below).
- A suture retriever is passed under the Bankart lesion. Through antero-superior portal the suture near the labrum is brought out through the labrum and then midglenoid portal in a retrograde fashion. This suture

limb is designated as "Post" and to ensure that the knot remains on the capsular side of glenoid outside the articular surface.

- Suture are tied using a Duncan loop sliding locking knot and secured with multiple reverse half hitches.
- Second hole is drilled at 3.30 to 4.30 O'clock positions and accessory anchors are used based upon extent and size of labral tissue.
- Postoperatively the shoulder is immobilized for 4 weeks.
- After 4 weeks main emphasis is given on regaining flexion range of motion, Scapular stabilization and isometric rotator cuff exercises are started.
- From 8th week onwards muscle strengthening exercises, mobilization exercises and proprioception are taught.

Fig 1: Bankart lesion

Fig 2: Anchor insertion

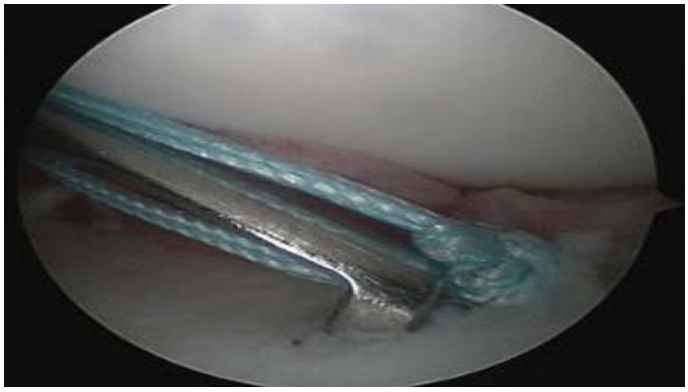

Fig 3: Knot tying

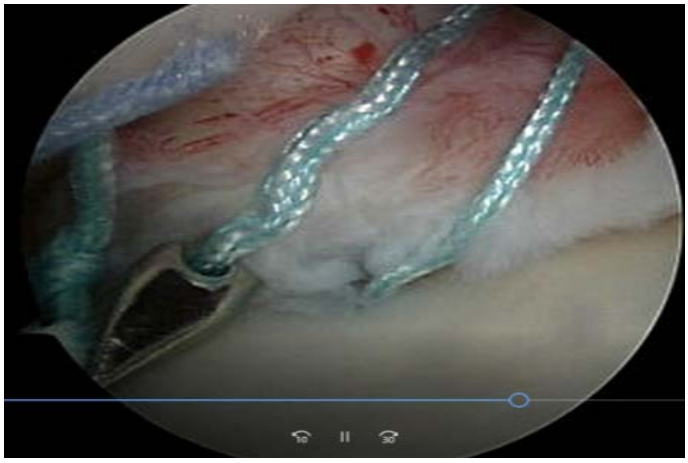

Fig 4- Final fixation with 2 suture anchor

Results

- The age ranged from 18-45 years with male preponderance and inclusion of dominant side more common.
- Most common cause was sports injury. All patients demonstrate good range of motion.
- 90 % returned to original work without any restriction.
- A total of 21 patients were followed up for 1 year. 19 patients were male and 2 female patients.
- The mean age at surgery was 27.19(range 17-44) years.
- The mean number of shoulder dislocations before surgery was 3.10±1. 4.

- Most of the patient 66.7% were in recreational sports, 14.3% were doing daily activities of life and only 19% were involved in competitive sports.
- UCLA score at 1 year of follow-up showed excellent to good results in 85.7% [17] patients and 9.5% (2) fair results. 1 (4.7%) patient had poor functional outcome. One patient (4.7%) had recurrence rate and persistent instability.

Conclusion

We concluded that arthroscopic bankart repair with suture anchor is an effective treatment method for traumatic recurrent anterior shoulder instability with merits like better cosmesis with small incisions, less surgical trauma and blood loss, improve ability to diagnose and treat concomitant intra articular pathology, less stiffness and pain. Faster recovery , sooner return to activities , lesser restriction of movement and lesser period of hospitalisation.

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