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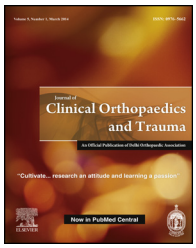

Original Article

Functional evaluation of patient after arthroscopic repair of rotator cuff tear

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ARTICLE INFO

Article history:
Received 24 February 2014
Accepted 20 May 2014
Available online 10 June 2014

Keywords:
Rotator cuff
Shoulder impingement syndrome
Arthroscopic surgery
Visual analog scale
Single row repair

ABSTRACT

Background: Rotator cuff tear is a common problem either after trauma or after degenerative tear in old age group. Arthroscopic repair is the current concept of rotator cuff repair. Here, we are trying to evaluate the functional outcome after arthroscopic repair of full thickness rotator cuff tear (single row) in Indian population.

Materials and methods: Twenty five patients (14 males and 11 females) who underwent arthroscopic repair of full thickness rotator cuff tear at a single institution were included in the study. Postoperatively patient's shoulder was rated according to UCLA score, pain was graded according to the visual analog score. The range of motion was analysed and documented.

Results: The mean age of the patients were 50.48 years. The preoperative VAS score mode was 7 and post operative VAS was 1 (p value <0.001). The UCLA grading was good in 80% ($n = 20$), fair in 12% ($n = 3$), excellent in 8% ($n = 2$) and poor results were seen in none of the patients.

The mean UCLA improved from a score of 15.84 to 30.28 with a p value <0.001. Mean postoperative forward flexion was 161.6°, mean abduction was 147.6° and mean external rotation was 45.4°.

Conclusion: Arthroscopic repair is a good procedure for full thickness rotator cuff tear with minimal complications. The newer double row repair claims to be biomechanically superior with faster healing rates without functional advantages, hence we used a single row repair considering the Indian population and the cost effectiveness of the surgery with good to excellent results.

1. Introduction

Rotator cuff tears are among the most common conditions affecting the shoulder. Tears of the rotator cuff tendon are described as partial thickness, full thickness, full thickness with complete detachment of the tendons from bone and massive tears. There is an age-dependent increase in rotator cuff tearing. The prevalence of full thickness rotator cuff tears range from 7 to 40%.

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http://dx.doi.org/10.1016/j.jcot.2014.05.008

Repair of rotator cuff aims to provide high initial fixation strength, minimal gap formation, stability without loss of mobility and strength with early pain relief. The repair is based on attachment of the torn tendon by suture anchor placement either in single row or double row. Surgery can be performed either open, mini open or all arthroscopic.

Although the current concept emphasises on arthroscopic double row repair but study by Iagulli et al[1] have shown that both methods are comparable in terms of functional outcome. The purpose of this study was to assess the "Functional evaluation of patient after arthroscopic repair of full thickness rotator cuff tear" after single row repair and evaluated on the basis of pain, range of motion, VAS score, UCLA score in the pre and post-operative period.

2. Materials and methods

In between March 2012 and Dec 2013 many patients with degenerative rotator cuff tear were treated by shoulder arthroscopy. Twenty five patients with full thickness rotator cuff tear confirmed by MRI or on diagnostic arthroscopy were enrolled in this study. Fifteen patients were studied retrospectively and 10 prospectively. Patients with partial tear, with ligamentous laxity syndrome or who did not turn for follow up were excluded from this study. All the patients after a diagnostic arthroscopy were treated with a single row repair using 5 mm TWINFIX suture anchor double loaded ultra braid. All patients were evaluated by university of California at Los Angeles (UCLA) and pain was graded using visual analog score (VAS).[2]

The concerned permission from the ethical committee was taken.

Operative method: After giving general anaesthesia patient was placed in lateral decubitus position with arm in 70° of abduction using single lever traction suspension system tied with 4 inch sling and 15° of forward flexion. The patient was rotated slightly towards the back to allow good use of instruments through the anterior portal. Parts were painted and draped. The bony anatomical landmarks were identified and outlined with a pen.

First a Diagnostic arthroscopy was done followed by the repair.

2.1. *Glenohumeral arthroscopy*

Posterior portal, the preferred approach for diagnostic glenohumeral arthroscopy, was used i.e. approximately 1.5 cm inferior and slightly medial to the posterolateral tip of the acromion. As the suspended arm was internally and externally rotated, the humeral head was palpated beneath the thumb and the exact location of the glenohumeral joint was confirmed. An 18 or 20 gauge spinal needle was inserted through this posterior soft spot and directed anteriorly toward the coracoid process. 40–50 ml of saline solution was then injected to distend the joint. The presence of free backflow confirmed the correct placement of the needle.

After the removal of spinal needle, a 5 mm skin incision was made at the point of the needle's insertion. The cannula and trocar were inserted anteriorly toward the coracoid process. Then trocar was replaced by an arthroscope.

A second, anterior portal was required for improved inflow or for additional instruments. This second portal was located one-half the distance between the coracoid process and the anterolateral edge of the acromion. The joint was entered in the same manner as through the posterior portal. The spinal needle entered the capsule just medial to the tendon of the long head of the biceps (here after referred to as biceps tendon). Correct placement was aided by direct intraarticular visualization provided by the arthroscope. A third portal was established directly adjacent to the initial anterior portal. Through this portal, the spinal needle entered the capsule just lateral to the biceps tendon. The instruments were exchanged between the posterior and anterior portals to improve access to the posterior quadrants of the shoulder joint.

2.2. *Subacromial arthroscopy*

A mid lateral portal 3–4 cm lateral to the acromion was established and then a posterolateral portal at the posterolateral edge of the acromion for complete inspection of sub acromial area i.e. type of acromion, sub-acromial bursitis etc. After identification of the tear with its location, depth, whether degenerated or not was recorded. The tendon was grasped with a surgical instrument, and the reparability of the tendon (the ability of the tissue to hold sutures) was determined [Fig. 1]. Occasionally there were adhesions which were removed with a motorized shaver or electrocautery until full excursion was possible

The purpose of the acromioplasty was to create adequate space for the rotator cuff tendons [Fig. 2]. As the thickness and shape of the acromion varied, the amount of bone removed during the acromioplasty also varied. The goal was to achieve a flat acromial under surface. All patients in the present study had a chronic tear of the rotator cuff. Impingement was considered to be part of the pathological process regardless of whether or not it was the cause of the tear. Osteophytes in the

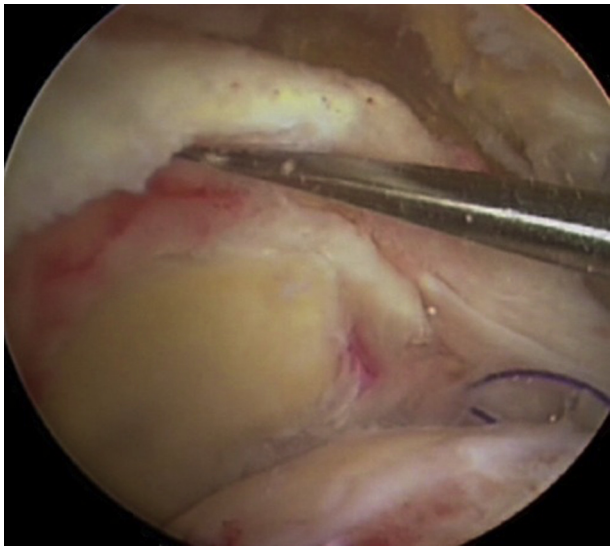

Fig. 1 – Intra-operative image showing torn rotator cuff.