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RETROSPECTIVE STUDY OF OUTCOME OF ROTATOR CUFF REPAIR DONE BY MINI OPEN METHOD

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ABSTRACT

Rotator cuff tear is a common pathology. The most common tendon to be rupture is supraspinatus causing impairment of the shoulder function. This study evaluated the effectiveness of mini open technique to repair torn rotator cuff. **Materials And Methods:** In between May '18 and feb '20, we performed 25 rotator cuff tears that were repaired by mini-open technique using an anterolateral approach by approx. 5 cm skin incision. **Results:** About 92 percent of patients had good to excellent results in terms of daily routine activities like hair combing, shaving etc. 3 to 4 months postoperative. **Conclusion:** anterolateral approach for mini-open rotator cuff repair gives better visualization intraoperatively and better clinical outcome and effectiveness. We found its gold standard technique. In our study, the most common age group in which rotator cuff rupture was found is between 40 to 60 age. Least postoperatively morbidity, stiffness (8%), infection (0%) and re-rupture incidence (0%).

INTRODUCTION

Rotator cuff tear is a common pathology, especially in smokers and/or patients having comorbidities, secondary to a (repetitive) trauma or during lifting some heavy object. The most common tendon to be rupture is supraspinatus. There are various methods to repair a ruptured rotator cuff like single or double row technique by open repair, mini-open repair and complete arthroscopic repair.

Technical demands of the mini-open technique, made it the gold standard for rotator cuff repair [1,2,3].

MATERIALS AND METHODS

We conducted an observational and retrospective study over 25 patients out of them 17 patients were male and 8 patients were female at GCS Medical College, Hospital and Research Centre, Ahmedabad, over a time period between May 2018 and feb 2020.

We include the patient's age group of 25-65 years having various degrees of rotator cuff tear, evidently decreased range of motion, especially initiation of the abduction clinically and documented on MRI.

We excluded the Un co-operative patients or patients who are not willing for surgery or patients of rotator cuff tear associated with fracture like proximal humerus comminuted fracture or patients having severely retracted and contracted ruptured cuff tendons. All patients were treated by single or double-row technique by using the Mini-open approach. Postoperative shoulder immobilizer was given and a specific physiotherapy regimen was followed. Patients were counseled to stop smoking. The patients were scored based on their functional outcome using Carter-Rowe Score at 3 Months and 6 months post operatively.

Operative Procedures

Supine position with pint behind a scapula on the operating table. The operation was performed under general anesthesia. Painting and draping were done.

The tear was repaired by mini-open technique using an anterolateral approach. Approx. 5 cm skin incision was made from the anterolateral edge of the acromion to distally. Dissection was done between the anterior and middle raphe of the deltoid [4]. A stay suture was placed distally which helps in prevention of axillary nerve injury by preventing propagation of the deltoid splint. Retract a deltoid to expose the rotator cuff and humeral head.

Ruptured tendon(s) confirmed by rotating the arm. Prepare the footprint with help of ring curette or rasp, the torn rotator cuff tendon was repaired by single- or double-row technique using suture anchors.

Romeo et al. [5] reported that tears ≥5 cm2 were associated with a poorer outcome.

Attempted to anatomical reduction on the footprint of the greater tuberosity if possible. If rotator cuff tear is massive or retraction of cuff tissue is more like in chronic case, don't try to fix a cuff at anatomical foot print rather than fix it close to footprint to avoid stretching and re rupture of repaired rotator cuff.

Primary aim of rotator cuff repair surgery was not to cover the defect, but to balance the transverse and coronal force couples and achieve a movement at the shoulder joint as much as possible.

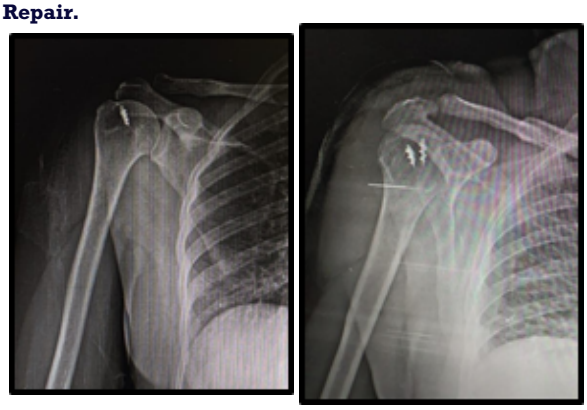
If any pathology involved the long head of the biceps tendon, simultaneously tenodesis was performed.

After saline wash, subcutaneous closure with absorbable suture and skin closure with non-absorbable suture was done and shoulder immobilizer was applied.

Figure 1. Preoperative Clinical Picture Showing Difficulty In Initiation Of The Active Abduction Of The Right Shoulder Suggesting Possibility Of The Rotator Cuff Tear

[Figure 2]. 20 Week Follow Up Clinical Pictures Of The Patient Who Had Right Side Complete Rotator Cuff Tear Managed By Mini Open Method By Using Double Row Technique.

[Figure 3]. Intra Operative Picture Showing Rotator Cuff Repair.



[Figure 4]. Post-operative X Rays Of Two Different Patients

[Figure 5]. Post-operative Clinical Picture Showing An Antero-lateral Incision Mark Over Right Shoulder.

Postoperative Strategy

Postoperative shoulder immobilizer was given to all patients for 4 to 6 week.

One disadvantage of the mini-open repair is that it can produce shoulder stiffness after surgery. Incidence ranges between 11% and 20% have been reported [6, 2, 7]. To avoid stiffness we start physiotherapy as per protocol.

Immediately post-operative active finger and wrist movement was started. Regular dressing was done and stitches were removed on 12th to 15th post-operative day.

Physiotherapy was started in such a protocol that integrity of repaired rotator cuff was maintained. Pendulum Exercises were started 3 week after surgery with arm sling. 10 to 12 week after the surgery, initially start passive and then active full range of shoulder movement. Gradually return to daily routine activities was at 20 to 26 week.

About 92 percent of patients had good to excellent results in terms of daily routine activities like hair combing, shaving etc. 3 to 4 months postoperative, regardless the nature of used suture anchors.

We found an excellent result in twenty patients(80%), a good result was found in three patients(12%) and two patients(8%) had fair result in terms of pain and stiffness which was managed by oral analgesic, ice-application and physiotherapy.

CONCLUSIONS

Primary aim of rotator cuff repair surgery was not to cover the defect, but to balance the transverse and coronal force couples and achieve a movement at the shoulder joint as much as possible.

We fix ruptured rotator cuff tendon(s) close to anatomical foot print rather than anatomical foot print to avoid stretching and re rupture of repaired rotator cuff.

Anterolateral approach for mini-open rotator cuff repair gives better visualization intraoperatively and better clinical outcome and effectiveness. We found its gold standard technique.

In our study, the most common age group in which rotator cuff rupture was found is between 40 to 60 age.

We found that 18 patients (72%) had dominant sides (3 patients were left side dominant) and 21 patients (84%) had chronic rotator cuff tear.

20 patients (80%) had full thickness rotator cuff tears in terms of supraspinatus tendon. The most common tendon to be ruptured was supraspinatus tendon in almost all cases.

Tobacco smoking and/or diabetes mellitus were found in 17 patients (68%) as a risk factor for rotator cuff tear.

Patients operated by a minimally invasive process have better cosmetic.

Patients get early recovery, better rehabilitation compliance and excellent outcomes.

Least postoperatively morbidity, stiffness (8%), infection (0%) and re-rupture incidence (0%).

Declaration Of Patient Consent

Consent was given by all patients for his/her images and other clinical information to be reported in the journal for the education purpose. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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