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A Prospective Study Outcome of Failed Arthroscopic Repair with Sub Acromial Decompression, Debridement of Chronic Retracted Rotator Cuff Tears

Gurav R*, Shivanand RN, Singh B and Muktevi B

Orthopedic Surgeon,Life care hospital Musaffah, Abudhabi UAE

***Corresponding author:** Gurav R, Orthopedic Surgeon,Life care hospital Musaffah, Abudhabi UAE

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Abstract

Purpose: The study aimed at functional outcome of failed arthroscopic repair with sub acromial decompression, debridement of chronic retracted rotator cuff tears. The focus of pain, satisfaction was assessed from patient survey & strength, power from surgeon's view.

Material & methods: A total of 25 patients with failed arthroscopic repair of chronic retracted rotator cuff tear treated with arthroscopic double row repair & subacromial decompression, debridement were studied. Postoperatively 6 months after physiotherapy & rehabilitation, patients with failed repair were followed up for 3 years for pain, satisfaction, functional outcomes & were assessed with University of California at Los Angeles Shoulder Score (UCLASS).

Results: A total of 25 patients with failed repair were followed up for 3 years after arthroscopic standard double row repair, sub acromial decompression & debridement. 22 patients (88 %) had pain scores 0-2 (VAS Scale), 3 patients (12%) had pain scores 2-4 (VAS scale) & their pain reduced more compared to preoperative level. The UCLASS score varied from score 25 for 2 patients (8%), score 28 for 5 patients (20%), score 30 for 10 patients (40%) & score 32 for 8 patients (32%). All patients had UCLASS of more than 25.

Conclusion: Sub acromial decompression with debridement of tear in arthroscopic repair of chronic retracted rotator cuff tears reduced the pain considerably with increase in the efficiency of work & satisfaction.

Keywords: Rotator cuff; Double row repair; Sub acromial decompression; Debridement; University of california at los angeles shoulder score

Introduction

Management of retracted rotator cuff tear in labour patients often poses a challenge to a treating orthopedician as the chances of failure rate are high, patient compliance, away from work & compensation of work. A 20 Patients are repeatedly in search of treatment for pain which bothers them the most during their work, drawing their attention away from work. They always feel the need of medical attention to carry on their work for family. Many times, they are less comfortable with open tendon transfer procedures owing to their morbidity, time in rehabilitation & other complications. Though many treatment options for retracted cuff tears have been advocated from conservative rehabilitation physiotherapy treatment, medial repair, use of spacers, debridement of tears, tendon transfer, superior capsule reconstruction, autograft allograft interposition, reverse total shoulder arthroplasty, each have their own advantages & disadvantages [1].

Material & Methods

Surgical treatment was done for chronic retracted full thickness rotator cuff tears with arthroscopic double row repair with sub acromial decompression & debridement for a period of 3 years. These tears were full thickness, retracted up to level of midway

between greater tuberosity & glenoid & included irrespective of their chronicity.

Irreparable tears like retraction to level of superior margin of glenoid, muscle atrophy, fatty infiltration of rotator muscles on MRI, superior migration of humeral head, adhesive capsulitis were not operated & excluded in the study.

They had complaints of pain, difficulty in doing daily activities, overhead work during labour. Most had rest pain & discomfort in their shoulder all time drawing their attention all time from work which made them seek medical care & treatment (Figures 1-4) (Table 1).

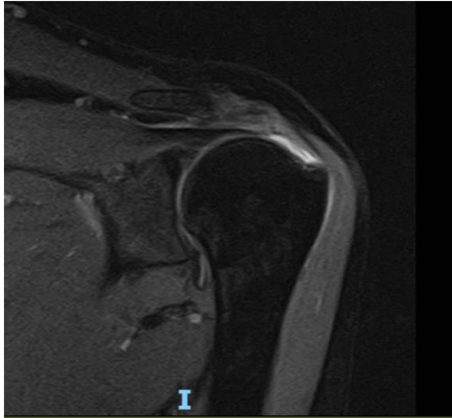

Figure 1: *Preoperative MRI with Retracted rotator cuff tear.*

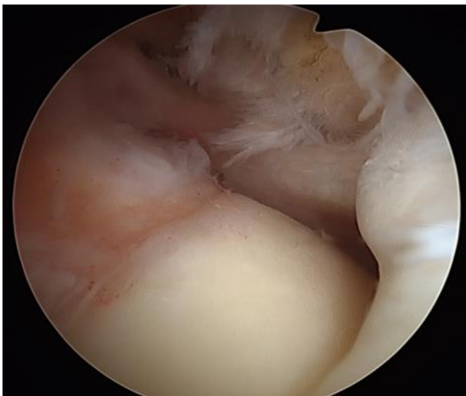

Figure 2: *Intraoperative retracted rotator cuff tear.*

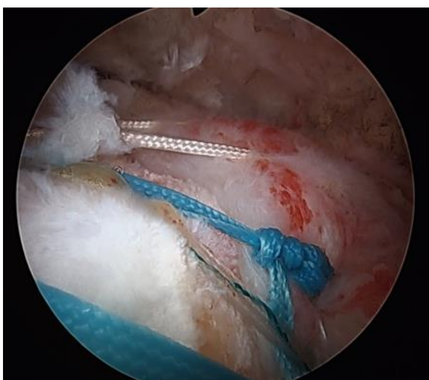

Figure 3: *Standard double row arthroscopic repair with decompression & debridement.*

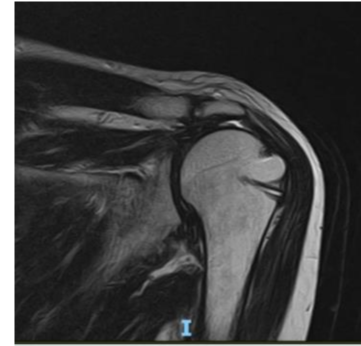

Figure 4: *Postoperative MRI at 6 months with failure of repair.*

Table 1: *UCLASS.*

Patients	UCLASS
2 (8%)	25
5 (20%)	28
10 (40%)	30
8 (32%)	32

Arthroscopic standard double row repair with 2 medial & 2 lateral anchors with sub acromial decompression, debridement was done to these patients. Biceps tenotomy was done in patients with deceased tendon. Subacromial decompression routinely included bursectomy, debridement of tear, greater tuberosity & removal of degenerated scarred hypertrophic tissues & acromioplasty. Routine standard physiotherapy protocols were followed postoperatively with sling for 4 weeks & active shoulder range of movements at 4 weeks, strengthening exercises at 8 weeks. At 6 months follow up, MRI was done to assess the integrity of repair. Patients with failed repair with detached rotator cuff from greater tuberosity in MRI were placed in study group & followed up postoperatively for a period of 3 years at intervals of 6 months, 1 year, 2 year & 3 years. Patient in constant follow up were only included in the study. Patient assessment questionnaire was done at each follow up for VAS pain score & UCLASS. The UCLA shoulder score comprising of combined subjective (pain, satisfaction, function) & objective (active forward flexion & strength) were done from a score of 0 to 35. The higher score indicating better function & normal range of 15.3+/-4.9.

The VAS Pain score rated pain in shoulder on a Likert scale 0 to 10 points with 0 no pain to 10 being the worst pain.

Results

- Out 123 patients operated for chronic retracted rotator cuff tear in period of 2 years ,107 patients were followed up for 6 months & got MRI done postoperatively.
- A 29 patients had failed repair on MRI at 6 months of which 25 patients had regular follow up for 3 years & were included in the study group.

- The group of 25 patients with failed repair were followed up for a period of 3 years at intervals of 6 months, 1 year, 2 year & 3 years.
- Their age varied from 33 years to 55 years, all being male patients with hard working labour job. The preoperative pain varied from scale of 4 to 8 VAS pain score from rest to at work. In more than 90% of patients pain brought them to the clinic rather than functional capacity, no doubt functional limitation also accounted in history.
- A 22 patients (88 %) had pain scores 0-2 (VAS Scale), 3 patients (12%) had pain scores 2-4 (VAS scale) & their pain reduced more compared to preoperative level.
- The UCLASS score varied from score 25 for 2 patients (8%), score 28 for 5 patients (20%), score 30 for 10 patients (40%) & score 32 for 8 patients (32%).
- A 2 patients (8%) had pain during heavy or particular activities only & used salicylates occasionally.3 patients (12%) had occasional and slight pain.20 patients (80%) had no pain.
- A 3 patients (12%) had slight restriction only, but were able to work above shoulder level.
- A 22 (88%) patients were normal at work.
- A 2 (8%) patients had forward flexion of 45-90°, 15 patients (60%) had 90-120°, 8 patients (32%) had 120-150° forward flexion.
- A 2 patients (8%) had grade 3 (fair) strength of forward flexion, 15 patients (60%) had grade 4 (good) strength, 8 patients (32%) had grade 5 (normal) strength.
- A 24 patients (96%) were satisfied & 1 (4%) patient unsatisfied.

Discussion

Debridement of rotator cuff tears & subacromial decompression being one of treatment of retracted rotator cuff tear- improved the subjective symptoms in patients with failed repair. In present study, pain scores reduced gradually during follow up but strength did not improve after a certain time & did not attain the full strength at end of follow up.

The rest pain & pain at work reduced considerably. More patients had satisfaction with reduction of pain & subjective improvement at work although the power of flexion & abduction was not fully regained. Had repair not failed, the intact integrity of rotator cuff could have definitely regained the power of abduction & flexion.

The strength was reduced, but outcomes improved in terms of pain reduction, improved activity, range of movements, painless movements & need of medical care interrupting their routine work. Arthroscopic debridement with a combination of subacromial decompression, tuberoplasty, subacromial bursectomy, and biceps tenotomy, for treatment of massive irreparable rotator cuff tears, produces good functional outcomes and improvement in pain at mid to long term follow up for the low demand population greater than 65 years of age looking for pain relief over substantial increase in function [1-5]. Studies have shown debridement in irreparable massive rotator cuff tear have improved good success & improved outcomes [5-19]

The effective improvement in function & power of movement after the debridement owes to force coupling through which balance between the deltoid and the inferior rotator cuff created a fulcrum at the gleno humeral joint that can maintain equilibrium at all angles of humeral rotation in the coronal plane as described by Burkhart et al [3].

Studies with acromioplasty, tuberoplasty demonstrated similar results in the population older than 65 years with improved results in strength, pain, and ROM with mean follow-up of 18-98 months [8,11,16,17]. Studies with arthroscopic debridement versus partial repair have demonstrated improvement in Constant & DASH scores even though ultrasonography displayed failure of repair in 52% of patients [4].

Heuberer et al demonstrated significant improvement in Constant, VAS, and qDASH scores for arthroscopic decompression (AD), partial repair (PR), and complete repair (CR) at median follow-up of 42 months with similar satisfaction scores (AD 87%; PR 86%; CR 91%). Rerupture rates of PR and CR in the setting of massive irrepairable rotator cuff tear have been shown to range from 42% to 94% [3,4,6,7,12,15,18,19]. Interestingly, patients with intact repairs and repair reruptures still demonstrated significant improvement in functional outcomes and pain scores at short- to midterm follow-up vists [6,7].

Arthroscopic subacromial decompression & debridement being a part of treatment procedure for retracted rotator cuff tear doesn’t address the issue of integrity, functional & objective outcome to a great extent. However, the improvement in pain, functional outcome, satisfaction, subjective outcome at follow up in this study shows that arthroscopic subacromial decompression & debridement plays an important & pivotal role in outcome of rotator cuff repair surgery seeking pain relief & satisfaction, back to work without seeking medical attention.

Limitations

The study did not focus on age of patient, chronicity of tear affecting the outcome, causes of failure & less on objective outcome.

Conclusion

Arthroscopic subacromial decompression & debridement of rotator cuff tear shows good subjective success with improvements in patient outcome scores, pain, satisfaction at work & improving the daily life. No doubt, a successful repair &

integrity of cuff supplements the function of shoulder by increasing the strength & efficiency of work, arthroscopic subacromial decompression & debridement of rotator cuff tear alone in a failed repair contributes more to pain relief, satisfaction & outcome of surgery.

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