



## FUNCTIONAL OUTCOME OF ARTHROSCOPIC ROTATOR CUFF REPAIR

## Orthopaedics

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## ABSTRACT

Rotator cuff disease encompasses a wide range of pathology from minimal bursal or articular side irritation and tendonitis to severe degenerative rotator cuff arthropathy. Rotator cuff pathology affects adults of all ages and other shoulder afflictions must be ruled out by careful history and physical examination. Arthroscopic surgery allows for a shorter recovery time and predictably less pain in first few days following procedure than does any open surgery. Our current study is prospective type where we try to see the functional outcome of arthroscopic rotator cuff repair in 14 patients by UCLA shoulder scoring system.

Arthroscopic rotator cuff repair provides early pain relief and improves mobility, strength as well as patient satisfaction post operatively

## KEYWORDS

Arthroscopic rotator cuff repair, UCLA shoulder score index.

## INTRODUCTION-

Rotator cuff disease encompasses a wide range of pathology from minimal bursal or articular side irritation and tendonitis to severe degenerative rotator cuff arthropathy. Rotator cuff pathology affects adults of all ages and other shoulder afflictions must be ruled out by careful history and physical examination. Epidemiological studies strongly support a relationship between age and cuff tears prevalence. In a recent study the frequency of such tears increased from 13% in youngest group (aged 50-59yrs) to 20% (aged 60-69yrs) 31% (aged 70-79yrs) and 51% in oldest group (aged 80-89yrs). In recent past small tears were treated arthroscopically while larger tears would require an open procedure. Advances in procedure now allow arthroscopic repair of even largest tears and arthroscopic techniques are required to mobilize many of retracted tears arthroscopic results now match open surgical techniques and allow for more thorough evaluation of shoulder at time of surgery increasing diagnostic value of procedure as several other conditions may cause shoulder pain. Arthroscopic surgery allows for a shorter recovery time and predictably less pain in first few days following procedure than does any open surgery<sup>2,3,4,5,6</sup>

## AIMS &amp; OBJECTIVES-

The main objective of our study was to compare the functional outcome in patients who were treated arthroscopically for rotator cuff tears

## MATERIAL AND METHOD-

The study was a prospective analysis of patients treated arthroscopically for rotator cuff tears in our centre from Feb 2015 to March 2017.

## Inclusion criteria-

We have included in study patients who have at least 6 weeks of conservative management from onset of symptoms and at least 6 months follow up after operation. Also patients who were diagnosed to have cuff tears on MRI and suspected to have cuff tears on clinical evaluation are included in the study.

## Exclusion criteria-

Patients who had less than 6 months follow up and those who had

associated fractures with rotator cuff tears were excluded.

The functional outcome was assessed by two scoring systems. For this study purpose we have employed UCLA (University of California Los Angeles) shoulder scoring for evaluating the functional outcome. Pre operative and post operative UCLA score were taken and statistically analysed if there was significant compared with other studies

**Follow up** -Patients treated post operatively was immobilized for 6 weeks in shoulder immobilizer with 30 degree abduction and pendulum exercises started from first post operative day and patient continues in shoulder immobilizer for rest of day for 6 weeks were followed up at 3 weeks, 6 weeks, 12 weeks and at 6 months and 1 year. The Statistical software namely SPSS 15.0, used.

## RESULTS-

**Study Design:** A Prospective study functional outcome with 14 patients is undertaken. To study the functional outcome and evaluation of UCLA score average age of patient was Mean  $\pm$  SD: 54.61 $\pm$ 12.05 (table 1). In our study maximum number of patients were male. Male 64.3% and Female were 35%. Major part of our study contained partial thickness tears rather than full thickness tears.

Majority of patients were between age 51-60 years who had difficulty in carrying out their activities of daily living. Majority of them were men forming 64.3% where as the rest of them were women forming 35.7%. Majority of patients the etiology was due to history of fall on affected shoulder 85.7%. Majority of patients complained of inability to lift the shoulder following trauma. The incidence of partial thickness tears was 8 out of 14 evaluated and full thickness tears noted in rest 6. Acromioplasty and sub acromial decompression provided better pain relief in patients who had positive impingement sign pre operatively. Bilateral rotator cuff tears was noted in one patient. The technique and number of suture anchors used did not alter the clinical outcome results. We in our institute usually use double row technique forming major part of our study. Most common cause noted in our study for rotator cuff tears is trauma to affected limb.

## Evaluation of UCLA SCORE

	UCLA					
	at presentation	at 3 wks.	at 6 wks.	at 12 wks.	at 6 months	at 1 year
Min-Max	6.00-19.00	8.00-17.00	8.00-18.00	14.00-29.00	17.00-32.00	30.00-35.00
Mean $\pm$ SD	9.93 $\pm$ 3.50	12.07 $\pm$ 2.41	15.19 $\pm$ 2.48	19.54 $\pm$ 3.74	27.35 $\pm$ 3.65	32.65 $\pm$ 1.41
95 % CI	8.54-11.31	11.12-13.03	14.19-16.19	18.03-21.05	25.87-28.82	32.08-33.22

## Difference of ULCA and pair wise significance

Difference	ucla at presentation -At 3 wks.	ucla at presentation - at 6 wks.	ucla at presentation - at 12 wks.	ucla at presentation - at 6 months	ucla at presentation - at 1 year
Mean $\pm$ SD	-2.14 $\pm$ 2.34	-5.38 $\pm$ 0.96	-9.73 $\pm$ 4.88	-17.53 $\pm$ 4.95	-22.84 $\pm$ 3.82
P value	<0.001**	<0.001**	<0.001**	<0.001**	<0.001**

**DISCUSSION-**

The study showed that there was significant improvement in pain, strength, patient satisfaction, range of motion and ability to carry activities of daily living irrespective of type of tear and technique used when strict post operative physiotherapy is followed. Further there is minimal hospital stay and early return to their activities. A study with larger sample size, with more number of cases in each group to make definite recommendations. When our study was compared to study conducted by Shon MS, Koh KH Kyung Cheon Kim et al<sup>7</sup>, Chunganam National University, south korea. In comparison to above study we have follow up for 12 months of 14 patients where as in above study 79 patients were followed up for 30.6 months on average and both studies have statistically significant outcome (p<0.001). We have compared our study results with Cochrane review article which was conducted by Paul Saridikas,BS,and Grant Jones at Ohio State University<sup>8</sup>. In this systematic review ten articles were reviewed. In this review they have analyzed the rotator cuff tears depending on technique and post operative UCLA and ASES were analyzed. they found no significance in outcome of patients treated by both techniques which was similar to our study results. The patients in the analysis were mostly in age group 51-60 which was also seen in our study group. We were not able to compare between the techniques in our study as the most of the cases were double row and comparison cannot be done due to inadequate cases in group operated by single row technique. Aleem<sup>9</sup> et al. Patients who undergo staged bilateral rotator cuff repair can expect to have similarly good clinical outcomes regardless of hand dominance or chronologic incidence with excellent healing rates in both shoulders. In one other study conducted by Christopher K Jones and Felix H. <sup>10</sup>Savoie At The Southern Center for Orthopedics and Sports medicine, Georgia a retrospective study was conducted on patients who were operated for massive and large tears by arthroscopy and assessed by UCLA shoulder scoring system. They found at end of study that 88% of patients had good to excellent results with 6 patients having failed but in our study 98% had good to excellent results according to UCLA scoring system. Comparing our study to one more similar study where both partial and full thickness tears were treated arthroscopically by single row technique. The study was conducted by Karin S Peters at St. George <sup>11</sup>Hospital where they have assessed the patients by ASES shoulder scoring system pre operatively and at 6 months .They hypothesized that partial thickness tear has higher incidence of re tears and shoulder stiffness compared to full thickness group. At 6 months follow up they found there was no statistical significance (<0.05). in our study where we compared outcome we found we had statistically significant improvement in pre op and post operatively at 6 months. <sup>Rimmke12et</sup> al.study as our study Arthroscopic suture bridge repair provides good clinical results with a low retear rate. The duration of preoperative symptoms was associated with postoperative outcome, indicating that delaying surgery may result in inferior outcomes. Oh JH1, Kim et al reported the <sup>13</sup>The current data suggested favorable outcome of rotator cuff repair in patients with comorbid disability.

**CONCLUSION-**

In comparison to other studies our study shows the mean age of incidence of rotator cuff tears is between the age group 51-60 years, there is no difference in functional outcome between partial and full thickness tear treated arthroscopically, the outcome following a single row or a double row technique is cannot be determined due to inadequate comparison group. The first symptom to recover following arthroscopic repair is pain and significant improvement is seen at 6 weeks follow up. Full range of shoulder function is observed at end of 1 year which in comparison to pre operative values were statistically significant. It has been observed from our study patient 's ability to carry his daily activities like sweeping and washing face by 6 weeks and activities reaching out for shelf and washing the back himself would require 1 year. It has been observed adherence to strict post operative physiotherapy is key for achieving full range of movement and pain free activities of daily living. The study requires longer follow up for coming to specific guide lines and a similar comparison groups.

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