



Evaluation of Clinical Outcome of Arthroscopic Rotator Cuff Repair

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ABSTRACT:

Background: Rotator cuff pathology represents one of the most common causes of shoulder pain and dysfunction, significantly impacting patients' quality of life. Arthroscopic techniques have revolutionized rotator cuff repair, potentially offering advantages in surgical precision and post-operative recovery.

Objective: To examine the functional outcomes of arthroscopic rotator cuff repair in terms of pain relief, range of motion, time to return to daily activities, length of hospital stay, and patient satisfaction at sequential follow-up evaluations.

Methods: This prospective study included 22 patients who underwent arthroscopic rotator cuff repair between May 2023 and June 2024. Patients with full-thickness and partial-thickness tears confirmed by MRI were included. Functional outcomes were assessed using UCLA and Constant-Murley scores, along with VAS pain scores at 6 weeks, 3 months, and 6 months postoperatively.

Results: The study population had an equal gender distribution with most patients aged 41-50 years (36.4%). Supraspinatus was the most commonly affected tendon (77.3%), with complete tears predominating (86.4%). At 6 months, UCLA scores showed significant improvement with 63.6% achieving good outcomes compared to 86.4% poor outcomes preoperatively ($p < 0.001$). Similarly, Constant scores improved from predominantly poor preoperatively (86.4%) to good or excellent at 6 months (100%) ($p < 0.001$). VAS pain scores decreased from 6.09 ± 0.75 at 6 weeks to 1.5 ± 1.0 at 6 months ($p < 0.001$). The mean hospital stay was 5 days, with return to daily activities at 9.64 ± 2.01 days. Patients with traumatic tears demonstrated significantly better UCLA scores than those with degenerative tears ($p = 0.01$).

Conclusion: Arthroscopic rotator cuff repair provides excellent clinical outcomes with significant improvements in functional scores and minimal complications. While both single-row and double-row techniques yield satisfactory results, repair strategy should be tailored to tear characteristics and tissue quality. The significant association between traumatic etiology and superior functional outcomes highlights tissue quality as a critical determinant of healing potential and functional recovery.

Introduction

Rotator cuff pathology represents one of the most common causes of shoulder pain and dysfunction, significantly impacting patients' quality of life and functionality in both occupational and daily activities.

With the advancing age of the global population and increasing participation in overhead activities, the incidence of rotator cuff tears has shown a steady rise, making their effective management a crucial focus in orthopaedic surgery. [1] The evolution of arthroscopic techniques over the past decades has



revolutionised the approach to rotator cuff repair, offering potential advantages in terms of surgical precision and post-operative recovery.

The rotator cuff, comprising the supraspinatus, infraspinatus, teres minor, and subscapularis muscles, plays a fundamental role in shoulder biomechanics, providing both mobility and stability to the glenohumeral joint. Tears in these tendons can result from acute trauma, but more commonly develop through chronic degenerative processes, particularly affecting individuals over 40 years of age. [2] Understanding the complex interplay between anatomical factors, biomechanical stresses, and healing responses has been crucial in developing effective surgical techniques for repair.

Arthroscopic rotator cuff repair has emerged as the gold standard treatment for many patients with symptomatic tears, offering several theoretical advantages over traditional open approaches. These benefits include less surgical trauma, better visualisation of the glenohumeral joint, reduced postoperative pain, and potentially faster rehabilitation. [3] However, the technical demands of arthroscopic repair and the learning curve associated with these procedures have led to ongoing discussions about optimal surgical techniques and their influence on clinical outcomes.

The evolution of arthroscopic techniques has been accompanied by significant advances in anchor design, suture materials, and repair configurations. Single-row, double-row, and transosseous-equivalent techniques have been developed and refined, each with its proposed biomechanical advantages. [4] The choice of repair technique often depends on various factors, including tear size, tissue quality, and surgeon preference, with current literature showing varying results regarding the superiority of one technique over another in terms of clinical outcomes.

The assessment of clinical outcomes following arthroscopic rotator cuff repair encompasses multiple domains, including pain reduction, functional improvement, patient satisfaction, and return to activities. [5] Standardised outcome measures such as the Constant score, American Shoulder and Elbow Surgeons (ASES) score, and Visual Analogue Scale (VAS) for pain have become essential tools in evaluating surgical success. Additionally, advanced imaging techniques have enabled better assessment of structural healing and repair integrity.

One of the most challenging aspects of rotator cuff repair remains the relatively high rate of retear or failure of healing, reported to range from 20% to 94% depending on various factors. [6] Age, tear size, tissue quality, smoking status, and comorbidities such as diabetes have been identified as potential risk factors affecting healing outcomes. Understanding these factors is crucial for proper patient selection and optimisation of surgical timing and technique.

The role of biological augmentation in enhancing healing responses has gained increasing attention in recent years. Platelet-rich plasma (PRP), stem cell therapy, and various biological scaffolds have been investigated as potential adjuncts to improve healing rates and clinical outcomes. [7] While early results have shown promise in some studies, the optimal biological augmentation strategy remains a subject of ongoing research and debate.

Post-operative rehabilitation protocols represent another critical factor influencing clinical outcomes. The traditional approach of early immobilisation followed by graduated rehabilitation has been challenged by protocols advocating earlier passive motion. [8] The optimal balance between protecting the repair and preventing stiffness continues to evolve, with current evidence suggesting the need for individualised approaches based on patient and tear characteristics.

The long-term durability of arthroscopic rotator cuff repairs remains an important consideration, particularly in younger, active patients. Studies with extended follow-up have demonstrated that while many patients maintain good functional outcomes, there can be a gradual deterioration in both clinical and structural results over time. [9] This highlights the importance of considering factors that might influence long-term outcomes when planning surgical intervention.

Recent advances in surgical techniques, including superior capsular reconstruction for irreparable tears and the use of all-arthroscopic nerve releases, have expanded the therapeutic options available to surgeons. [10] These innovations continue to evolve, offering potential solutions for challenging cases and improving our ability to address various patterns of rotator cuff pathology.

Materials & Methods

This cross-sectional study was a single-institute study conducted at the Department of Orthopaedics, B.L.D.E.



(Deemed to be University) Shri B. M. Patil Medical College, Hospital & Research Centre, Vijayapura, between May 2023 and June 2024. The study included patients diagnosed with rotator cuff tears (partial and complete). All patients received detailed information about the study, and written informed consent was obtained prior to enrollment. The study evaluated the clinical outcomes of patients undergoing arthroscopic rotator cuff repair. This study requires a total sample size of 22 to achieve a power of 99% for detecting a difference in Means with a 1% level of significance. In this study, the Inclusion criteria included people of the Age group above 18 years old and under 70 years old and Full-thickness tears and partial-thickness tears may be seen, according to a Magnetic Resonance Imaging (MRI) report. The Exclusion criteria included Rotator cuff arthropathy, Concurrent shoulder pathology and Revision Rotator cuff repair.

Patient Selection and Recruitment

Patients diagnosed with rotator cuff tear through clinical examination and imaging studies were enrolled in the study after obtaining written informed consent. The diagnosis was established through a comprehensive clinical examination and confirmed by MRI of the affected shoulder.

PRE-OPERATIVE ASSESSMENT

A thorough pre-operative evaluation was conducted for all patients, including: Detailed clinical examination, Structured patient interview, Complete documentation of pain patterns and functional limitations, Range of motion measurements, Strength testing, laboratory and radiological investigations, Comprehensive pre-operative investigations included: Complete blood count, Bleeding and clotting time, Blood grouping and Rh typing, Liver and renal function tests, Random blood sugar, Viral markers, Routine urine analysis, MRI of the affected shoulder, Plain radiographs of the shoulder, Chest X-ray, Electrocardiography and 2-Dimensional Echogram for cardiac evaluation

Surgical Intervention

All patients underwent standardised arthroscopic rotator cuff repair performed by experienced shoulder surgeons. The surgical technique was documented in detail, including tear pattern, repair method, and any additional procedures performed. The arthroscopic portals were marked over the skin intraoperatively in relation to the landmarks as shown in Figure 1.

Intraoperatively, the rotator cuff tears were noted and bites were taken using a spectrum gun, followed by Anchor placement as visualised in Figure 2, and fixed with a sliding locking knot, followed by 3 alternative half-stitches as shown in Figure 3.



Figure 1: Arthroscopic portals marked with the associated landmarks



Figure 2: suture anchor placement

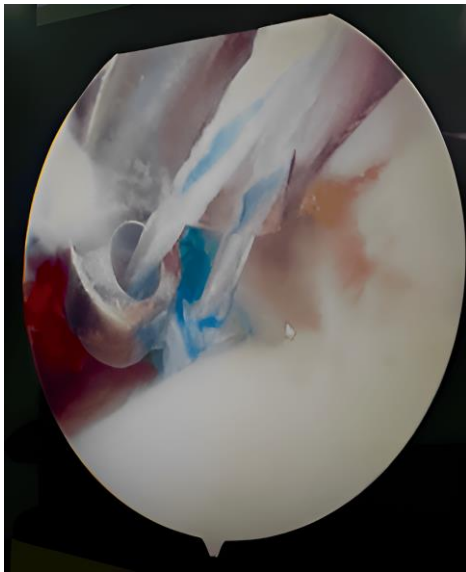


Figure 3: sliding locking knot followed by three alternating half-hitches

Follow-Up Protocol

Patients were followed up regularly at specific intervals: 6 weeks post-operation, 3 months post-operation and 6 months post-operation. At each follow-up visit, detailed assessment was performed using two standardized scoring systems: UCLA (University of Los Angeles and California) scoring system as described in Table 4, Visual Analogue Score (VAS) [11] and Constant-Murley Scoring System [12], which assessed: Pain, Activities of daily living, Range of motion, Forward flexion (scale 0-10), Combined active external rotation,

Combined active internal rotation and Strength measurements as described in Figure 4.

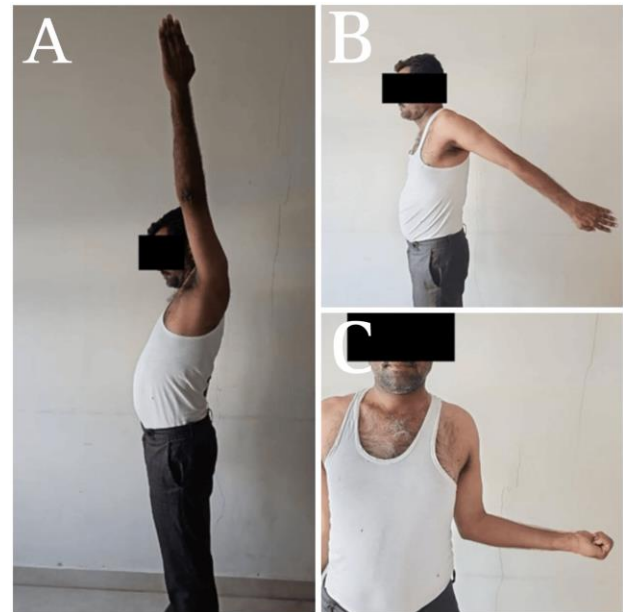


Figure 4: Post Operative range of movements- A- Forward flexion, B- Extension and C- External rotation

Outcome Assessment

Clinical outcomes were evaluated based on: Pain reduction, Functional improvement, Range of motion recovery, Patient satisfaction and Return to activities

Pain	
Present always and unbearable; strong medication frequently	+1
Present always but bearable; strong medication occasionally	+2
None or little at rest, present during light activities; salicylates used frequently	+4
Present during heavy or particular activities only; salicylates used occasionally	+6
Occasional and slight	+8
None	+10
Function	
Unable to use limb	+1



Only light activities possible	+2
Able to do light housework or most activities of daily living	+4
Most housework, shopping, and driving possible; able to do hair and to dress and undress, including fastening brassiere	+6
Slight restriction only; able to work above shoulder level	+8
Normal activities	+10
Active forward flexion	
>150°	+5
120-150°	+4
90-120°	+3
45-90°	+2
30-45°	+1
<30°	+0
Strength of forward flexion	
Grade 5 (normal)	+5
Grade 4 (good)	+4
Grade 3 (fair)	+3
Grade 2 (poor)	+2
Grade 1 (muscle contraction)	+1
Grade 0 (nothing)	+0
Satisfaction of the patient	
Satisfied and better	+5
Not satisfied and worse	+0

Table 1: University of California- Los Angeles Scoring Checklist [\[13\]](#)

Complications and revision rates

The UCLA and Constant-Murley scores were calculated at each follow-up visit to track progress systematically. Any complications or need for revision surgery were documented throughout the follow-up period. All patient data was recorded in standardized forms, including: Demographic information, Pre-operative clinical findings, Surgical details, Post-operative

progress, Complications, Follow-up scores, Quality Control Measures and To ensure standardization: All clinical assessments were performed by trained orthopedic surgeons, Standard protocols were followed for scoring system implementation, Regular calibration of measurement tools was maintained, Systematic documentation procedures were followed



Statistical analysis was performed using SPSS version 21. Quantitative data were presented as mean, median, standard deviation, and ranges, while qualitative data were expressed as frequencies and percentages. Student's t-test was used to test the significance of means, with $p < 0.05$ considered statistically significant.

Results

The table 2 shows the age distribution of the 22 patients who underwent arthroscopic rotator cuff repair. The largest group was patients aged 41-50 years, comprising 36.4% (8 patients) of the total. This was followed by the 30-40 years age group with 31.8% (7 patients), then the 51-60 years group with 27.3% (6 patients). Only one patient (4.5%) was in the 61-70 years age group. This distribution suggests that rotator cuff tears requiring surgical intervention occur predominantly in middle-

aged adults, with the majority (68.2%) of patients falling between 30-50 years of age. The gender distribution in this study was perfectly balanced, with 11 males (50%) and 11 females (50%). This equal distribution suggests that gender may not be a significant factor in the incidence of rotator cuff tears requiring surgical repair in this particular patient population. It also shows which shoulder was affected in the study population. Right shoulder involvement was slightly more common at 50% (11 patients), while left shoulder involvement occurred in 45.5% (10 patients). Only one patient (4.5%) had bilateral involvement affecting both shoulders. The slight predominance of right shoulder involvement may be related to hand dominance, as most people are right-handed and dominant shoulders may be more susceptible to rotator cuff injuries.

Tendon involved	Frequency	Percentage
Subscapularis	1	4.5%
Supraspinatus	17	77.3%
Supraspinatus+infraspinatus	3	13.6%
Supraspinatus+ Subscapularis	1	4.5%
Total	22	100%
Type of tear	Frequency	Percentage
Partial	3	13.6%
Complete	19	86.4%
Total	22	100%
Additional findings	Frequency	Percentage
Biceps tendon tear	1	4.5%
Pasta lesion	2	9.1%
Absent	19	86.4
Total	22	100%

Table 3: Distribution of patients according to tendon involved, type of tear and additional findings

The table 4 categorises the aetiology of the rotator cuff tears. Degenerative tears, resulting from age-related wear and tear, were slightly more common at 54.5% (12

patients). Traumatic tears, resulting from acute injury, accounted for 45.5% (10 patients). This distribution reflects the two main pathways for rotator cuff injury:



gradual degeneration over time and acute traumatic events. It also classifies the tears by size. Small tears were the most common, accounting for 36.4% (8 patients). Medium and massive tears each comprised 27.3% (6 patients) of cases. Large tears were the least common at 9.1% (2 patients). This distribution shows a range of tear sizes in the study population, with a slight

predominance of smaller tears. It also categorises the morphology of the tears. Crescent-shaped tears were the most common at 50% (11 patients), followed by L-shaped tears at 36.4% (8 patients). U-shaped tears were the least common at 13.6% (3 patients). The shape of the tear is an important consideration for surgical planning and technique selection.

Mechanism of injury	Frequency	Percentage
Degenerative	12	54.5%
Traumatic	10	45.5%
Total	22	100%
Size of tear	Frequency	Percentage
Large	2	9.1%
Massive	6	27.3%
Medium	6	27.3%
Small	8	36.4%
Total	22	100%
Shape of tear	Frequency	Percentage
Crescent	11	50%
L-shaped	8	36.4%
U-shaped	3	13.6%
Total	22	100%

Table 4: Distribution of patients according to mechanism of injury, size of tear, shape of tear

The table 5 shows how many anchors were used during the repair procedure. Three anchors were used most frequently (36.4%, 8 patients), followed by two anchors (31.8%, 7 patients). One anchor was used in 18.2% (4 patients), four anchors in 9.1% (2 patients), and five anchors in 4.5% (1 patient). The number of anchors typically correlates with the size and complexity of the tear being repaired. It also shows the surgical technique employed for repair. Double-row repair was used in 54.6% of cases (12 patients), while single-row repair was used in 45.4% (10 patients). The choice between these techniques typically depends on the size, shape,

and location of the tear, as well as the surgeon's preference.

Technique used	Frequency	Percentage
1	4	18.2%
2	7	31.8%
3	8	36.4%
4	2	9.1%



5	1	4.5%
Total	22	100%
Technique used	Frequency	Percentage
Double row	12	54.6%
Single row	10	45.4%
Total	22	100%

Table 5: Distribution of patients according to number of anchors used and technique used

The table 6 tracks functional outcomes using the UCLA (University of California- Los Angeles) shoulder rating

UCLA scores	Preoperative	At 6 weeks	At 3 months	At 6 months
Poor (<20)	19 (86.4%)	16 (72.7%)	4 (18.2%)	-
Fair (21-27)	3 (13.6%)	6 (27.3%)	14 (63.6%)	7 (31.8%)
Good (28-33)	-	-	4 (18.2%)	14 (63.6%)
Excellent (>33)	-	-	-	1 (4.5%)
p-value		0.26	<0.001	<0.001

Table 6: Distribution of patients according to UCLA scores at different intervals

chi-square test value is 3.841, where $p < 0.05$ considered statistically significant.

The table 7 tracks functional outcomes using the Constant-Murley shoulder score at different time points. Preoperatively, most patients (86.4%, 19 patients) had poor scores (0-55), with only 13.6% (3 patients) having fair scores (56-70). At 6 weeks, significant improvement was seen ($p < 0.001$) with 77.3% in the fair

scale at different time points. Preoperatively, most patients (86.4%, 19 patients) had poor scores (<20), with only 13.6% (3 patients) having fair scores (21-27). At 6 weeks post-surgery, improvement was minimal, with 72.7% still in the poor category. By 3 months, significant improvement was seen ($p < 0.001$) with 63.6% in the fair category and 18.2% achieving good scores. At 6 months, further improvement was evident with 63.6% having good scores and 4.5% achieving excellent scores. No patients remained in the poor category at 6 months. These results demonstrate progressive functional improvement over time following rotator cuff repair.

category and 9.1% achieving good scores. By 3 months, further improvement occurred, with 77.3% having good scores. At 6 months, 54.5% had good scores and 45.5% achieved excellent scores. These results show progressive and statistically significant improvement in shoulder function over time.

Constant scores	Preoperative	At 6 weeks	At 3 months	At 6 months
Poor (0-55)	19 (86.4%)	3 (13.6%)	-	-
Fair (56-70)	3 (13.6%)	17 (77.3%)	5 (22.7%)	-
Good (71-85)	-	2 (9.1%)	17 (77.3%)	12 (54.5%)
Excellent (86-100)	-	-	-	10 (45.5%)
Chi square		23.44	36.5	44



p-value		<0.001	<0.001	<0.001
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Table 7: Distribution of patients according to Constant scores at different intervals

p<0.05 considered statistically significant.

The table 8 tracks pain levels using the Visual Analogue Scale (VAS) at different time points. At 6 weeks post-surgery, the mean pain score was 6.09±0.75. By 3 months, this had decreased significantly to 3.36±1.04 (p<0.001). At 6 months, further improvement was seen with a mean score of 1.5±1.0 (p<0.001). These results demonstrate progressive and statistically significant reduction in pain over time following rotator cuff repair.

VAS scores	At 6 weeks	At 3 months	At 6 months
Mean±SD	6.09±0.75	3.36±1.04	1.5±1.0
p-value		<0.001	<0.001

Table 8: Distribution of patients according to VAS scores at different intervals

Friedman test value is 44, where p<0.05 considered statistically significant.

The table 9 documents surgical complications. Only one patient (4.5%) experienced anchor failure, while the remaining 95.5% (21 patients) had no complications. This suggests that arthroscopic rotator cuff repair is a relatively safe procedure with a low complication rate in this study population.

Complications	Frequency	Percentage
Anchor failure	1	4.5%
None	21	95.5%
Total	22	100%

Table 9: Distribution of patients according to complications

The table 10 examines the relationship between patient age and functional outcomes. Among patients with fair UCLA scores at 6 months, 42.9% each were from the 30-40 and 41-50 age groups, with 14.3% from the 51-60 age group. For those with good scores, 28.6% each were from the 30-40 and 41-50 age groups, 35.7% from the 51-60 group, and 7.1% from the 61-70 group. The single patient with an excellent score was in the 41-50 age group. The p-value of 0.71 indicates no statistically significant association between age and UCLA scores at 6 months.

Age (in years)	UCLA scores			p-value
	Fair	Good	Excellent	
30-40	3 (42.9%)	4 (28.6%)	0	0.71
41-50	3 (42.9%)	4 (28.6%)	1 (100%)	
51-60	1 (14.3%)	5 (35.7%)	0	
61-70	0	1 (7.1%)	0	
Total	7 (100%)	14 (100%)	1 (100%)	

**Table 10: Association of UCLA scores at 6 months with age**

Chi square test value is 3.65, where $p < 0.05$ considered statistically significant.

The table [11](#) examines the relationship between injury mechanism and functional outcomes. All patients (100%) with fair UCLA scores at 6 months had degenerative tears. Among those with good scores, 35.7% had degenerative tears and 64.3% had traumatic tears. The single patient with an excellent score had a traumatic tear. The p-value of 0.01 indicates a statistically significant association between injury mechanism and UCLA scores at 6 months, with traumatic tears generally having better outcomes.

mechanism of injury	UCLA scores			p-value
	Fair	Good	Excellent	
Degenerative	7 (100%)	5 (35.7%)	0	0.01
Traumatic	0	9 (64.3%)	1 (100%)	
Total	7 (100%)	14 (100%)	1 (100%)	

Table 11: Association of UCLA scores at 6 months with mechanism of injury

Chi square test value is 9.06, where $p < 0.05$ considered statistically significant.

The table [12](#) examines the relationship between patient age and functional outcomes measured by Constant-Murley scores. Among patients with good Constant-Murley scores at 6 months, 50% were from the 30-40 age group, 33.3% from the 41-50 age group, and 16.7% from the 51-60 age group. For those with excellent scores, 10% were from the 30-40 age group, 40% each from the 41-50 and 51-60 groups, and 10% from the 61-70 group. The p-value of 0.16 indicates no statistically significant association between age and Constant-Murley scores at 6 months.

Age (in years)	Constant scores		p-value
	Good	Excellent	
30-40	6 (50%)	1 (10%)	0.16
41-50	4 (33.3%)	4 (40%)	
51-60	2 (16.7%)	4 (40%)	
61-70	0	1 (10%)	
Total	12 (100%)	10 (100%)	

Table 12: Association of Constant scores at 6 months with age

Chi square test value is 5.08, where $p < 0.05$ considered statistically significant.

The table [13](#) examines the relationship between injury mechanism and functional outcomes measured by Constant-Murley scores. Among patients with good Constant-Murley scores at 6 months, 58.3% had degenerative tears and 41.5% had traumatic tears. For

those with excellent scores, there was an equal distribution (50% each) between degenerative and traumatic tears. The p-value of 0.69 indicates no statistically significant association between injury mechanism and Constant-Murley scores at 6 months.



Mechanism of injury	Constant scores		p-value
	Good	Excellent	
Degenerative	7 (58.3%)	5 (50%)	0.69
Traumatic	5 (41.5%)	5 (50%)	
Total	12 (100%)	10 (100%)	

Table 13: Association of Constant scores at 6 months with mechanism of injury

Chi square test value is 0.149, where $p < 0.05$ considered statistically significant.

Discussion

This prospective study evaluated the clinical outcomes of arthroscopic rotator cuff repair in 22 patients. The demographic analysis revealed a predominantly middle-aged population, with the majority of patients falling within the 41-50 years age group (36.4%), followed by 30-40 years (31.8%) and 51-60 years (27.3%), with equal gender distribution (50% male, 50% female). These findings align with the demographic profile reported by Pandey et al [13] in their study of 74 patients undergoing arthroscopic rotator cuff repair, where the mean age was 55.2 years (range 35-70 years) with slight male predominance (56.8%). However, our study demonstrated a somewhat younger patient population compared to several other published series. The supraspinatus tendon was most commonly involved (77.3%), followed by combined supraspinatus and infraspinatus tears (13.6%). Complete tears predominated (86.4%) over partial tears (13.6%). Regarding tear size, small tears were most prevalent (36.4%), followed by medium and massive tears (27.3% each). Crescent-shaped tears constituted 50% of cases, while the aetiology was degenerative in 54.5% of cases and traumatic in 45.5%. These findings share similarities with the work of Kim et al [14], who analyzed 312 consecutive arthroscopic rotator cuff repairs. They reported supraspinatus involvement in 84.3% of cases, with isolated supraspinatus tears accounting for 62.5%.

Surgically, the double-row repair technique was employed in 54.6% of cases and the single-row technique in 45.4%. The number of anchors used ranged from 1 to 5, with 3 anchors being most common (36.4%), followed by 2 anchors (31.8%). Additional findings included biceps tendon tear (4.5%) and PASTA lesions (9.1%). Functional outcomes showed significant improvement across all measurement parameters.

UCLA scores progressed from predominantly poor preoperatively (86.4%) to predominantly good (63.6%) at 6 months, with statistically significant improvements at 3 months ($p < 0.001$) and 6 months ($p < 0.001$). Similarly, Constant-Murley scores improved from predominantly poor preoperatively (86.4%) to predominantly good (54.5%) and excellent (45.5%) at 6 months, with significant improvements at all follow-up intervals ($p < 0.001$). Pain reduction was substantial, with VAS scores decreasing from 6.09 ± 0.75 at 6 weeks to 1.5 ± 1.0 at 6 months ($p < 0.001$). Our approach aligns with evolving evidence regarding repair constructs. DeHaan et al [15]. In their systematic review of 1252 repairs across 23 studies, they found that double-row repairs demonstrated significantly lower re-tear rates compared to single-row repairs (25.9% vs. 34.1%) on imaging studies, though clinical outcome differences were less pronounced.

The mean hospital stay was 5 days, and the mean time to return to daily activities was 9.64 ± 2.01 days. Complications were minimal, with anchor failure occurring in only one case (4.5%). Analysis of prognostic factors revealed a significant association between traumatic aetiology and superior UCLA scores at 6 months ($p = 0.01$), suggesting that tissue quality significantly influences functional recovery.

Overall, the study demonstrates that arthroscopic rotator cuff repair provides excellent clinical outcomes with significant improvement in functional scores and minimal complications, supporting its role as an effective treatment modality for rotator cuff tears.

Conclusions

Arthroscopic rotator cuff repair yields excellent clinical outcomes, with marked improvements in function and pain relief. In our cohort of 22 patients, both UCLA and Constant-Murley scores improved significantly,



transitioning from predominantly poor preoperative status to good and excellent outcomes by six months. The supraspinatus tendon was most commonly involved, with complete tears prevailing over partial tears. Both single-row and double-row repairs proved effective, with the technique tailored to tear characteristics. Notably, traumatic tears correlated with superior UCLA scores at six months, highlighting tissue quality as a key determinant of recovery and suggesting better outcomes for acute injuries compared to chronic degenerative tears.

Complication rates were minimal, with a single anchor failure (4.5%), affirming the safety of arthroscopic repair when combined with careful patient selection and technique. Patients returned to daily activities swiftly, averaging 9.6 days, underscoring the procedure's role in rapid recovery. While six-month follow-up data are promising, longer-term studies incorporating imaging are needed to clarify the link between structural healing and functional outcomes. Larger samples would enable more definitive subgroup analyses to refine indications and optimise repair strategies. In summary, arthroscopic rotator cuff repair is a safe, effective treatment for symptomatic tears, delivering significant functional gains and pain reduction. Advances in surgical methods, rehabilitation, and biological augmentation promise further improvements, especially in cases with compromised tissue quality.

References

1. Yamamoto A, Takagishi K, Osawa T, et al.: [Prevalence and risk factors of a rotator cuff tear in the general population](#). J Shoulder Elbow Surg. 2020, 19:116-20. [10.1016/j.jse.2009.04.006](#)
2. Denard PJ, Burkhart SS: [The evolution of suture anchors in arthroscopic rotator cuff repair](#). Arthroscopy. 2019, 29:1589-95. [10.1016/j.arthro.2013.05.011](#)
3. Park JY, Lhee SH, Choi JH, et al.: [Comparison of the clinical outcomes of single- and double-row repairs in rotator cuff tears](#). Am J Sports Med. 2018, 36:1310-6. [10.1177/0363546508315039](#)
4. Mall NA, Lee AS, Chahal J, et al.: [An evidenced-based examination of the epidemiology and outcomes of traumatic rotator cuff tears](#). Arthroscopy. 2019, 29:366-76. [10.1016/j.arthro.2012.06.024](#)
5. Galatz LM, Ball CM, Teefey SA, et al.: [The outcome and repair integrity of completely arthroscopically repaired large and massive rotator cuff tears](#). J Bone Joint Surg Am. 2018, 86:219-24. [10.2106/00004623-200402000-00002](#)
6. Neyton L, Godeneche A, Nove-Josserand L, et al.: [Arthroscopic suture-bridge repair for small to medium size supraspinatus tear: healing rate and retear pattern](#). Arthroscopy. 2019, 29:10-7. [10.1016/j.arthro.2012.06.020](#)
7. Jo CH, Shin JS, Lee YG, et al.: [Platelet-rich plasma for arthroscopic repair of large to massive rotator cuff tears: a randomized, single-blind, parallel-group trial](#). Am J Sports Med. 2020, 41:2240-8. [10.1177/0363546513497925](#)
8. Keener JD, Galatz LM, Stobbs-Cucchi G, et al.: [Rehabilitation following arthroscopic rotator cuff repair: a prospective randomized trial of immobilization compared with early motion](#). J Bone Joint Surg Am. 2014, 96:11-9. [10.2106/JBJS.M.00034](#)
9. Millett PJ, Warth RJ, Dornan GJ, et al.: [Clinical and structural outcomes after arthroscopic single-row versus double-row rotator cuff repair: a systematic review and meta-analysis of level I randomized clinical trials](#). J Shoulder Elbow Surg. 2014, 23:586-97. [10.1016/j.jse.2013.10.006](#)
10. Couper M, Tourangeau R, Conrad F, et al.: [Evaluating the effectiveness of visual analog scales: A web experiment](#). Soc Sci Comput Rev. 2006, 24:227-245. [10.1177/0894439305281503](#)
11. Al Pantaki M, Davies R, Spalding T, et al.: [The influence of surgical delay on rotator cuff repair: a systematic review](#). Cureus. 2018, 7:3098. [10.7759/cureus.3098](#)
12. Thamyongkit S, Wanitchanont T, Chulsomlee K, et al.: [The University of California-Los Angeles \(UCLA\) shoulder scale: translation, reliability and validation of a Thai version of UCLA shoulder scale in rotator cuff tear](#)



- [patients](#). BMC Musculoskelet Disord. 2022, 23:65. [10.1186/s12891-022-05018-0](https://doi.org/10.1186/s12891-022-05018-0)
13. Pandey V, Jaap Willems W: [Rotator cuff tear: A detailed update](#). Asia Pac J Sports Med Arthrosc Rehabil Technol. 2015, 2:1-14. [10.1016/j.asmart.2014.11.003](https://doi.org/10.1016/j.asmart.2014.11.003)
 14. Kim, H. M., Caldwell, et al.: [Factors affecting satisfaction and shoulder function in patients with a recurrent rotator cuff tear](#). Journal of Bone and Joint Surgery. 96:106-112. [10.2106/JBJS.L.01649](https://doi.org/10.2106/JBJS.L.01649)
 15. DeHaan AM, Axe MJ, Wilk K: [Does double-row rotator cuff repair improve functional outcome of patients compared with single-row technique? A systematic review](#). Am J Sports Med. 2012, 40:1176-1185. [10.1177/0363546511428866](https://doi.org/10.1177/0363546511428866)