International Journal of Research in Orthopaedics
Parikh KN et al. Int J Res Orthop. 2025 Sep;11(5):1080-1083
http://www.ijoro.org

Original Research Article

DOI: https://dx.doi.org/10.18203/issn.2455-4510.IntJResOrthop20252633

Functional outcome study for operatively managed cases of rotator cuff tear: managed by mini open repair

Kushal N. Parikh, Yogenkumar A. Adodariya*, Dhruv M. Patel

Department of Orthopaedics, SMIMER Hospital, Surat, Gujarat, India

Received: 02 May 2025
Revised: 20 June 2025
Accepted: 09 July 2025

***Correspondence:**
Dr. Yogenkumar A. Adodariya,
E-mail: yogenadodariya4596@gmail.com

ABSTRACT

Background: Rotator cuff tears (RCTs) are common musculoskeletal injuries impacting quality of life due to pain and functional limitation. The mini-open repair technique offers an alternative to arthroscopic repair with high success and accessibility. Objective of this study was to evaluate anatomical and functional outcomes of mini-open repair for rotator cuff tears.
Methods: A prospective observational study was conducted on 30 patients operated by mini-open rotator cuff repair at a tertiary care hospital between 2022–2024. Preoperative and postoperative evaluations included ROM, UCLA score, and VAS at six months follow-up.
Results: Mean age was 54.1 years, with male predominance. Dominant limb was involved in 67%. Significant improvements were observed in abduction (mean 76.7° to 147.1°), forward flexion (82.2° to 157.2°), external rotation (28.7° to 56.3°), and internal rotation. Mean UCLA score improved from 13.4 to 31.2 ($p<0.001$).
Conclusions: Mini-open rotator cuff repair offers excellent pain relief, improved range of motion, and patient satisfaction in the short term. It remains a viable and effective option, especially in resource-limited settings.

Keywords: Supraspinatus tear, Mini open method, Supraspinatus repair, Ucla score

INTRODUCTION

Shoulder pain, frequently caused by subacromial impingement and rotator cuff pathology, is a common complaint among orthopedic patients. Untreated, this spectrum may lead to cuff tear arthropathy.[1] While minor tears respond to conservative treatment, extensive or unresponsive cases require surgical repair.[2] Mini-open repair combining arthroscopic diagnostic evaluation with open tendon repair has demonstrated high success (≈90%) 1, with added benefits such as better suture strength, preserved deltoid integrity, and a less steep learning curve compared to arthroscopy.[3]

Restoring the anatomical footprint of the rotator cuff remains the surgical goal.[4,5] Functional outcomes are often assessed using scores like ASES and UCLA.[6,7] This study evaluates the efficacy of the mini-open approach in restoring shoulder function.

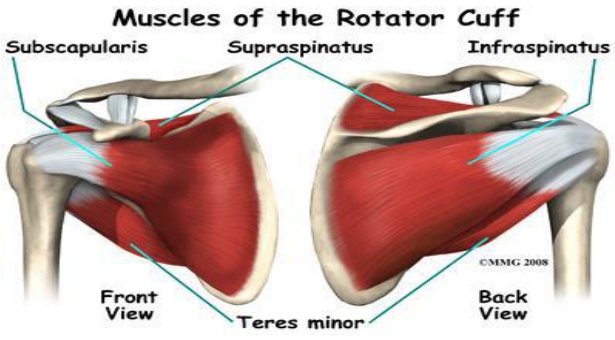

Figure 1: Rotator cuff muscles anatomy.

METHODS

This was a prospective study where patients with rotator cuff tear were followed till six months to assess outcome of the surgical procedure i.e mini-open rotator cuff repair.

Study design and setting

This was a prospective observational study conducted from 2022 to 2024 in the department of orthopaedics, SMIMER, Surat.

Study population

Patients aged >18 years with MRI-confirmed rotator cuff tears undergoing mini-open repair were included. Exclusion criteria: irreparable tears, prior shoulder surgery, neurological deficits, or glenohumeral arthritis.

Surgical technique

Patients were operated in the beach chair position under general anesthesia. A 3-4 cm incision was made from the anterolateral acromion (Figure 2). The deltoid was split, not detached (Figure 3). Torn tendons were repaired with suture anchors (single or double-row). Postoperative immobilization was done using an abduction brace for six weeks.

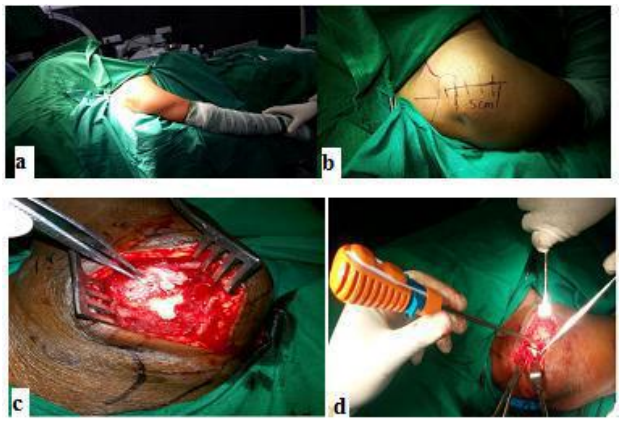

Figure 2: Beach chair position.

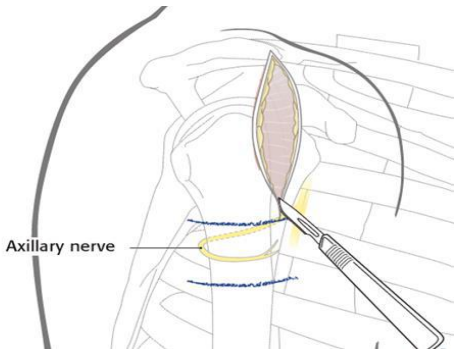

Figure 3: Incision from the anterolateral edge of the acromion.

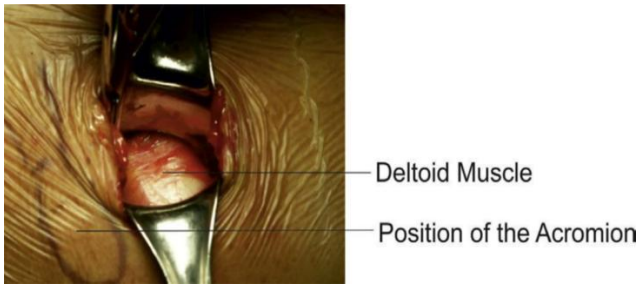

Figure 4: Deltoid muscle is split.

Outcome measures

ROM (abduction, forward flexion, external and internal rotation), VAS, and UCLA score were assessed preoperatively and at 6-month follow-up.

Ethical approval

This research work was unanimously approved by the Institutional ethical committee meeting held at SMIMER hospital on 11th July 2024. This was certified through order SMIMER/IEC/OUT/NO.97 ref no 147.

Informed written consent was taken from the participants after explaining the possible benefits as well as implications of the study.

Statistical analysis

Data entry was done in Microsoft Excel. Chi square test was applied to see the significance and statistically significant difference was found between pre and post treatment interval patients. ($p<0.05$).

RESULTS

Demographics

Mean age: 54.1 years (range 41–65), Male:Female = 2:1, Dominant arm involvement: 67%, Most common cause: Degenerative (63%).

Table 1: Age wise distribution of cases.

Age (in years)	No. of cases	Percentage (%)
31-40	3	11.5
41-50	6	23.1
51-60	13	50.0
>60	4	15.4
Total	26	100.0

Tear characteristics

Partial-thickness tears: 13%, Full-thickness: 87%, Most common muscle involved: Supraspinatus, most used implant: Suture anchors (single-row preferred).

Complications

Minor wound infections: 2 cases, no re-tears or deltoid avulsions reported.

Table 2: Functional outcomes.

Parameter	Preoperative	Postoperative (6 months)
Abduction (°)	76.7	147.1
Forward flexion (°)	82.2	157.2
External rotation (°)	28.7	56.3
UCLA score	13.4	31.2
VAS	7.6	1.1

DISCUSSION

This study affirms that mini-open repair significantly improves pain, ROM, and functional scores. Improvements in abduction and flexion (≈2x increase), as well as UCLA score (>2x improvement), corroborate earlier findings.[8,11]

Mini-open techniques, while older, remain relevant due to their cost-effectiveness and accessibility in resource-limited settings.[11,14] Long-term studies show sustained functional gains despite structural re-tears in some cases.[9,10] Additionally, structured rehabilitation is key to outcome success.[13]

Comparisons with literature

Sherif et al. showed 80-86% patients achieving excellent ASES at 6 months with mini-open and arthroscopy.[15] Arora et al reported comparable improvements in mini-open and arthroscopic cohorts across all validated scores.[12]

Our findings are consistent with these studies, supporting mini-open repair as a competent modality.

Limitations

Small sample size**,** short follow-up period**,** ***n***o direct comparison with arthroscopic repair.

Future directions

Long-term follow-up to assess durability, larger randomized trials comparing techniques, cost-effectiveness and patient-reported outcome measures (PROMs) over time.

CONCLUSION

Mini-open rotator cuff repair is a safe, effective, and accessible technique yielding substantial improvements in pain, mobility, and patient satisfaction. It remains particularly valuable in low-resource settings or where arthroscopy is not feasible.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Solarino G, Bortone I, Vicenti G, Bizzoca D, Coviello M, Maccagnano G, et al. Role of biomechanical assessment in rotator cuff tearrepair: Arthroscopic vs mini-open approach. World J Orthop. 2021;12(12):991.
2. Chaudhari NH, Gulia AK, Bansal S. Functional outcomes after arthroscopicassisted mini-open rotator cuff repair. Int J Orthop Sci. 2019;5(4):35-8.
3. Vaidyar JM, Kassim S, Shibli S, Safwan UH. Functional outcome of shoulderfollowing mini open repair for rotator cuff injuries. Int J Current Res Rev. 2015;7(7):40.
4. Bashir A, Seth S, Wani IH, Farooq M, Ul Gani N, Naqshi BF. Mini-open rotatorcuff tear repair: an institutional experience with a midterm follow-up. Ortop Traumatol Rehabil. 2018;20(5):383-7.
5. Ramadan LB, Rebolledo DC, Santos AL, Dinato MC, Schor B, Zoppi Filho A, et al. Comparison of the tensile strength of threaded metal anchorsinserted on cortical and spongy bones. Acta Ortope dica Brasileira. 2006;14:83-6.
6. Wright RW, Baumgarten KM. Shoulder outcomes measures. JAAOS-J Am Acad Orthop Surg. 2010;18(7):436-44.
7. Roddey TS, Olson SL, Cook KF, Gartsman GM, Hanten W. Comparison of theUniversity of California-Los Angeles Shoulder Scale and the Simple Shoulder Test with the Soulder Pain and Disability Index: Single–Administration Reliability and Validity. J Am Physical Therap Assoc. 2000;80(8):759-68.
8. Shah MI, Rahman SAU, Baloch SR, Khan Z, Rafi MS, Hashmi IA, et al. Functional Outcomes of Mini-Open Rotator Cuff Repair Surgery: Retrospective, Observational Study. SVOA Orthop. 2023;3(6):197-205.
9. Green A, Loyd K, Molino J, Evangelista P, Gallacher S, Adkins J. Long-termfunctional and structural outcome of rotator cuff repair in patients 60 years oldor less. JSES Int. 2022;7(1):58-66.
10. Van Deurzen D, Scholtes V, Willems W. Long-term results of arthroscopicand mini-open repair of small-to medium-size full-thickness rotator cuff tears. Shoulder Elbow. 2019;11(1_suppl):68-76.
11. Nageswararao Y, Shinde GM, Chemboli JM. A Study on Outcomes of MiniOpen Procedures on Rotator Cuff Injuries. J Med Res Surg. 2023;4(3):43-5.
12. Arora M, Sohan S, Sinha AK. Functional outcomes are improved after rotator cuff repair in the Indian

population: A systematic review. J Arthroscop Joint Surg. 2021;8(1):57-63.
13. Sciarretta FV, Moya D, List K. Current trends in rehabilitation of rotator cuffinjuries. SICOT J. 2023;9:14.
14. Tosyali HK, Kaya H, Hancioglu S, Tamsel I, Orguc S, Tekustun F, et al. Comparison of clinical outcomes and repair integrity after arthroscopic versus mini-open rotator cuff repair: An observational study. Medicine. 2024;103(22):e38181.
15. Sherif Ak, Kholeif A, Ebeed Yasin Md, Ahmed R, Yousef Ma, Hafez AF, et al.Comparative Study between Arthroscopic and Mini Open Rotator Cuff Repair. Med J Cairo Univ. 2018;86:2833-6.

Cite this article as: Parikh KN, Adodariya YA, Patel DM. Functional outcome study for operatively managed cases of rotator cuff tear: managed by mini open repair. Int J Res Orthop 2025;11:1080-3.