CASE REPORT

Functional Outcome Following Mini-Open Rotator Cuff Repair: A Case Report

Dr Sukesh M Kaveeshwar[1*], Dr Dharun Kumar[2], Dr Pugazhendhi G[3], Dr Vasanth Kumar C[4], Dr Ashin Khan[5]

[1*]Junior Resident, Department of Orthopaedics, Bharath University, Sree Balaji Medical College and Hospital, Chennai 600044, Tamil Nadu, India, Email: sukeshkaveeshwar.10@gmail.com
[2]Senior Resident, Department of Orthopaedics, Bharath University, Sree Balaji Medical College and Hospital, Chennai 600044, Tamil Nadu, India, Email: dharun7000@gmail.com
[3]Professor, Department of Orthopaedics, Bharath University, Sree Balaji Medical College and Hospital, Chennai 600044, Tamil Nadu, India, Email: pugal28@yahoo.co.in
[4]Associate Professor, Department of Orthopaedics, Bharath University, Sree Balaji Medical College and Hospital, Chennai 600044, Tamil Nadu, India, Email: write2vkay@gmail.com
[5]Junior Resident Department of Orthopaedics, Bharath University, Sree Balaji Medical College and Hospital, Chennai 600044, Tamil Nadu, India, Email: aashinkhan.31@gmail.com, ORCID id: 0009-0006-2906-9564

Abstract
Rotator cuff tears are a common cause of shoulder pain and functional disability in adults. Although arthroscopic repair has become widely adopted, the mini-open technique continues to provide reliable tendon fixation, excellent visualization, and cost-effectiveness, particularly in resource-limited settings. We report a case of a 55-year-old female with a full-thickness supraspinatus tear treated with a mini-open rotator cuff repair. Clinical and functional outcomes were assessed at 1, 3, and 6 months postoperatively using validated scoring systems. The patient demonstrated significant pain relief, near-complete restoration of shoulder range of motion, and marked improvement in functional scores by six months. This case highlights the continued relevance of mini-open rotator cuff repair in appropriately selected patients.

Keywords: Rotator cuff tear; Mini-open repair; Supraspinatus tendon; Functional outcome; Case report
How to cite this article: Kaveeshwar SM, Kumar D, G P, Kumar CV, Khan A. Functional Outcome Following Mini-Open Rotator Cuff Repair: A Case Report. Int J Drug Deliv Technol. 2026;16(33s):447-451. DOI: 10.25258/ijddt.16.33s.54

Introduction

Rotator cuff pathology is a frequent cause of shoulder pain, weakness, and limitation of overhead activities in middle-aged and elderly individuals. Surgical management options include open, mini-open, and all-arthroscopic repair techniques. While arthroscopic repair has gained predominance, the mini-open approach remains a valuable alternative due to preservation of deltoid integrity, direct visualization of the tear, and dependable tendon fixation [1].
Several systematic reviews and meta-analyses have demonstrated that mini-open rotator cuff repair yields outcomes comparable to all-arthroscopic repair in terms of pain relief, functional scores, range of motion, and re-tear rates, with no clinically significant differences at short- and mid-term follow-up [1–5]. Long-term follow-up studies have also confirmed the durability of outcomes following mini-open repair [6].
This report presents the clinical and functional outcome of a mini-open rotator cuff repair in a patient with a full-thickness supraspinatus tear.

Case Presentation

A 55-year-old right-hand-dominant female presented with a one-month history of left shoulder pain following a slip and fall at home. The pain was aggravated by overhead activities and was associated with weakness and difficulty performing activities of daily living. There was no prior history of shoulder pathology.

➢ Clinical Examination

On clinical examination, tenderness was noted over the anterolateral aspect of the shoulder. Active shoulder movements were restricted, with forward flexion limited to 110° and external rotation to 30°. A painful arc was present between 70° and 120° of abduction. Special tests revealed positive Jobe's (Empty Can) test and Full Can test, while the drop arm test, extensor lag sign, external rotation lag sign, horn blower's sign, and lift-off test were negative. There was no evidence of pseudo paralysis, and the neurovascular examination was normal.

➢ Imaging Findings

Magnetic Resonance Imaging (MRI) of the left shoulder demonstrated a complete full-thickness tear of the supraspinatus tendon at the critical zone near its insertion, with approximately 7–8 mm of tendon retraction. Associated findings included subacromial–subdeltoid bursitis and a partial-thickness tear of the superior fibers of the infraspinatus tendon without retraction. The subscapularis and teres minor tendons were intact. The long head of the biceps tendon was located within the bicipital groove and showed features of tenosynovitis. Acromial morphology was Type II–

*Author for Correspondence: sukeshkaveeshwar.10@gmail.com

III with acromioclavicular arthropathy and a subacromial spur suggestive of impingement. These imaging findings correlated well with the clinical examination.

➢ Surgical Technique

The procedure was performed in the beach-chair position under general anaesthesia with an interscalene block. A mini-open rotator cuff repair was undertaken. A 5-cm lateral deltoid- splitting incision was made from the tip of the acromion, and the deltoid was split between the anterior and middle raphe, preserving deltoid integrity. sub acromial bursectomy was performed, following which a full-thickness supraspinatus tear was identified. Repair was carried out using a triple-loaded titanium suture anchor in a single-row configuration. Sub acromial decompression was performed using a rasp. Satisfactory repair tension and an adequate range of motion were confirmed intraoperative. The total duration of surgery was approximately 2 hours, with an intraoperative blood loss of around 120 ml. The wound was closed in layers, and a shoulder immobilizer was applied. No intraoperative complications were noted.

➢ Postoperative Rehabilitation

Postoperatively, the patient was managed with a structured rehabilitation protocol. From 0 to 4 weeks, a shoulder immobilizer was used, and pendulum exercises along with passive forward elevation up to 90° were initiated. Between 4 and 8 weeks, active-assisted range of motion exercises and isometric strengthening were commenced. From 8 to 12 weeks, active range of motion exercises and progressive strengthening were introduced. After 12 weeks, functional strengthening exercises were continued with a gradual return to routine daily activities.

Discussion

Mini-open rotator cuff repair remains a reliable surgical option, offering excellent visualization and secure fixation while avoiding the costs and technical demands associated with arthroscopy [7]. Multiple meta-analyses have reported no significant differences between mini-open and all- arthroscopic repair techniques with respect to pain relief, functional outcomes, range of motion, or re-tear rates [1–5].

In the present case, significant functional improvement was observed by six months, with an ASES score of 90, Constant-Murley score of 84, and DASH score of 10. These results are comparable to those reported by Huang et al. and Nazari et al., who documented postoperative ASES scores ranging from 85 to 92 following mini-open repair [1,2]. Cho et al. similarly demonstrated significant improvement in Constant-Murley scores at mid-term follow-up [5]. Long-term follow-up studies have further confirmed sustained functional benefits following mini-open repair [6]. Indian studies have also reported favourable outcomes using mini-open techniques with suture anchors [8,9].

Appropriate patient selection, a small retracted full-thickness tear without muscle atrophy, meticulous surgical technique, and structured rehabilitation likely contributed to the favourable outcome in this case.

Conclusion

Mini-open rotator cuff repair provides excellent pain relief, restoration of shoulder function, and reliable healing in patients with small to medium full-thickness supraspinatus tears. The technique remains a cost-effective, reproducible option with outcomes comparable to all- arthroscopic repair.

References

1. Huang R, Wang S, Wang L, et al. All-arthroscopic versus mini-open repair of rotator cuff tears: A systematic review. Sci Rep. 2016;6:22857.
2. Nazari G, MacDermid JC, Bryant D, Dewan N, Athwal GS. Effects of arthroscopic versus mini-open rotator cuff repair on function, pain, and range of motion: A systematic review and meta-analysis. PLoS One. 2019;14(10):e0222953.
3. Migliorini F, et al. Arthroscopic versus mini-open rotator cuff repair: Updated meta- analysis. Surgeon. 2023.
4. Shan L, Fu D, Chen K, Cai Z, Li G. All-arthroscopic versus mini-open repair for rotator cuff tears: A meta-analysis. PLoS One. 2014;9(4):e94421.
5. Cho CH, Song KS, Jung GH, et al. Early postoperative outcomes between arthroscopic and mini-open repair of rotator cuff tears. Orthopedics. 2012;35(9):e1347-52.
6. Saleh MRA, et al. Arthroscopic-assisted mini-open rotator cuff repair: Average 15-year follow-up. Eur J Orthop Surg Traumatol. 2022.
7. Osti L, et al. Arthroscopic versus mini-open rotator cuff repair: A quality-of-life study. J Shoulder Elbow Surg. 2010;19(7):899-904.
8. Lingayat MB, et al. Mini-open anterolateral rotator cuff repair using suture anchors. Int J Res Orthop. 2023;9(2):364-369.
9. Nageswararao Y, et al. Functional outcomes of mini-open procedures for rotator cuff injuries. Med Res Surg. 2023.

Table 1: Functional Outcome Scores

Outcome Measure	Preoperative	6 Months
ASES Score	38	90
Constant-Murley Score	52	84
DASH Score	42	10

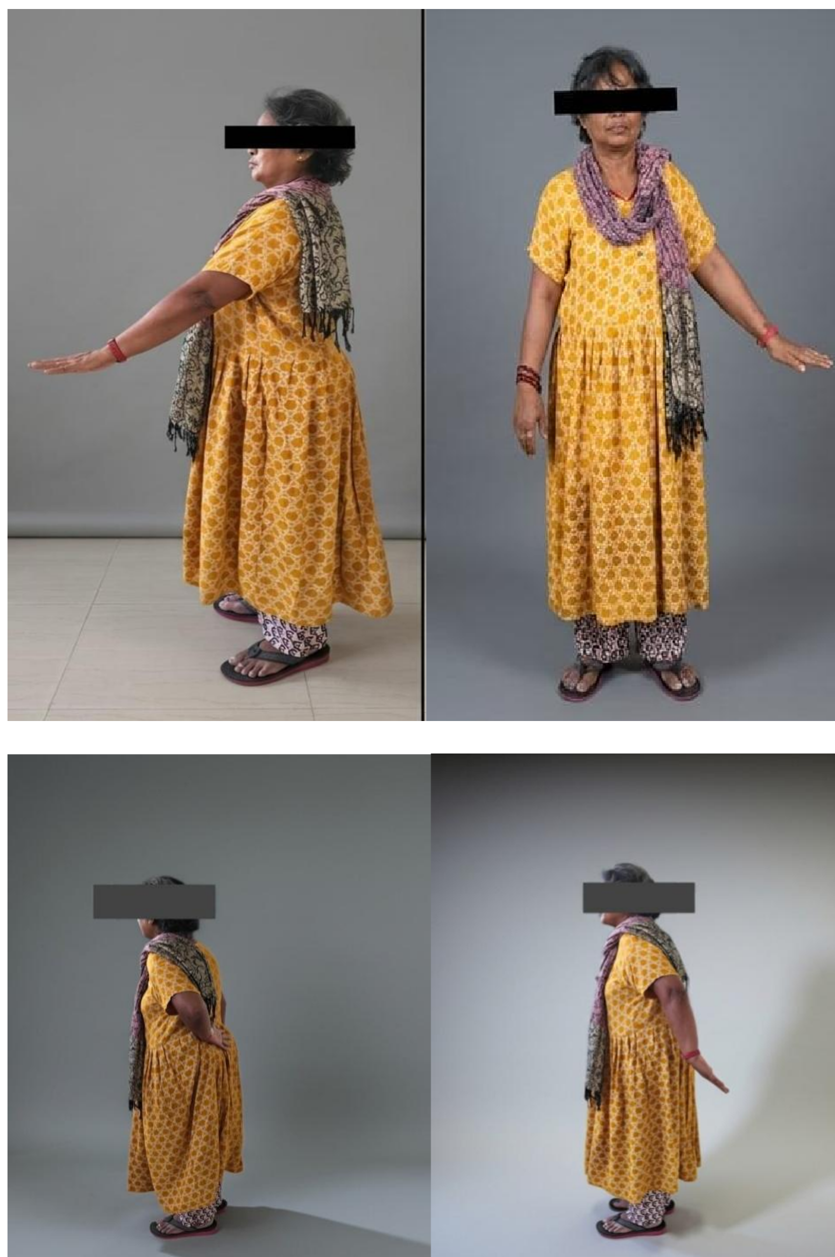

Fig 1: Preoperative clinical photographs demonstrating restricted shoulder movements including flexion, abduction, internal rotation, extension

Fig 2: Postoperative clinical photographs at 6 months showing significant improvement in shoulder range of motion.

Fig 3: Intraoperative image showing mini-open rotator cuff repair with suture anchor placement and tendon fixation.

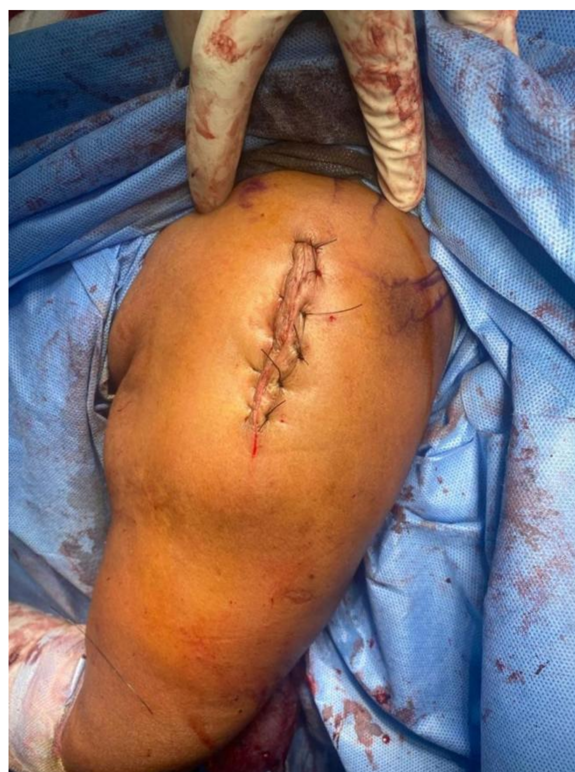

Fig 4: Immediate postoperative image showing mini-open incision after wound closure.