

## Original Research Article

# Open Repair of Rotator Cuff Tears with Acromioplasty: A Series of 7 Cases

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**Abstract:** Rotator cuff tears are one of the most common causes of painful shoulder disability in adults. This retrospective study evaluates the anatomical and functional outcomes of open rotator cuff repair associated with acromioplasty in seven patients. Clinical assessment was performed using the Constant score, pain evaluation, and range of motion analysis. Open repair remains a valuable surgical technique, especially for massive and retracted tears.

**Keywords:** Rotator cuff tear, Open repair, Acromioplasty, Shoulder disability, Constant score, Clinical outcomes, Retrospective study.

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## INTRODUCTION

Rotator cuff pathology represents a major source of shoulder pain and dysfunction. The prevalence of rotator cuff tears increases with age and repetitive overhead activity. Although arthroscopic repair has become increasingly popular, open surgical repair continues to provide reliable and reproducible results, particularly in complex tears. Subacromial impingement plays a major role in tendon degeneration and rupture. Acromioplasty associated with tendon repair aims to improve the subacromial space and decrease mechanical conflict.

### Anatomical Considerations

The rotator cuff consists of four muscles: supraspinatus, infraspinatus, subscapularis, and teres minor. These tendons converge around the humeral head and provide dynamic stabilization of the glenohumeral joint.

The supraspinatus tendon inserts on the superior facet of the greater tuberosity and is the most frequently involved tendon in cuff tears. The vascular watershed area of the supraspinatus tendon predisposes it to degenerative lesions.

### Biomechanics

The rotator cuff maintains centering of the humeral head within the glenoid cavity during shoulder motion. Loss of cuff integrity results in superior migration of the humeral head, altered scapulohumeral rhythm, and progressive degeneration. Massive tears may lead to cuff tear arthropathy if left untreated.

### Pathophysiology

Two major theories explain rotator cuff tears. The extrinsic theory involves chronic subacromial impingement caused by acromial morphology and mechanical compression. The intrinsic theory emphasizes tendon degeneration related to aging, hypovascularity, and repetitive microtrauma. Smoking, diabetes mellitus, and heavy manual labor are recognized risk factors.

### Clinical Examination

Patients usually present with chronic shoulder pain, night pain, weakness, and limitation of shoulder elevation. Physical examination includes the Jobe test for supraspinatus assessment, the Patte test for infraspinatus evaluation, and the Lift-off test for subscapularis function. Muscle atrophy and pseudoparalysis may be observed in massive tears.

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## Imaging

Standard radiographs may demonstrate acromial morphology abnormalities, superior migration of the humeral head, and degenerative changes. Ultrasound is useful for dynamic tendon evaluation, whereas MRI remains the gold standard for assessing tear size, tendon retraction, fatty degeneration, and muscle atrophy according to the Goutallier classification.

## PATIENTS AND METHODS

A retrospective study was conducted on seven patients treated between 2022 and 2025 for full-thickness rotator cuff tears. The average age was 58 years with male predominance. All patients underwent open repair associated with acromioplasty after failure of conservative treatment. Clinical outcomes were evaluated using the Constant score and postoperative range of motion.

### Surgical Technique

Patients were placed in the beach-chair position under general anesthesia. A superior deltoid-splitting approach was performed. After subacromial bursectomy, anterior-inferior acromioplasty was systematically carried out to enlarge the subacromial space. The greater tuberosity footprint was prepared until bleeding cancellous bone was obtained. Tendon reinsertion was performed using metallic anchors or transosseous sutures depending on tear size and bone quality. Careful deltoid repair was performed at the end of the procedure.

### Postoperative Rehabilitation

An abduction brace was maintained for four to six weeks. Passive mobilization was initiated early under physiotherapy supervision. Active-assisted exercises were progressively introduced, followed by muscle strengthening after tendon healing. Functional recovery was usually obtained between the fourth and sixth postoperative month.

## RESULTS

The mean Constant score improved from 41 preoperatively to 78 postoperatively. Pain relief and improvement in range of motion were observed in all patients. Average shoulder abduction improved from 70° to 145°. Only one patient developed postoperative stiffness, which improved after rehabilitation. No infection or recurrent tear was noted during follow-up.

## DISCUSSION

Our results are consistent with the literature reporting satisfactory outcomes after open rotator cuff repair. Although arthroscopic surgery offers minimally invasive management, open repair remains highly effective in large and retracted tears. Acromioplasty decreases mechanical impingement and reduces stress on the repaired tendon. The quality of tendon tissue, fatty

degeneration, smoking status, and postoperative rehabilitation significantly influence prognosis.

### Clinical Observation 1

The patient presented with chronic shoulder pain associated with progressive functional limitation. MRI demonstrated a full-thickness supraspinatus tear with varying degrees of tendon retraction. Open repair associated with acromioplasty was performed with satisfactory postoperative recovery and improvement in shoulder function.

### Clinical Observation 2

The patient presented with chronic shoulder pain associated with progressive functional limitation. MRI demonstrated a full-thickness supraspinatus tear with varying degrees of tendon retraction. Open repair associated with acromioplasty was performed with satisfactory postoperative recovery and improvement in shoulder function.

### Clinical Observation 3

The patient presented with chronic shoulder pain associated with progressive functional limitation. MRI demonstrated a full-thickness supraspinatus tear with varying degrees of tendon retraction. Open repair associated with acromioplasty was performed with satisfactory postoperative recovery and improvement in shoulder function.

### Clinical Observation 4

The patient presented with chronic shoulder pain associated with progressive functional limitation. MRI demonstrated a full-thickness supraspinatus tear with varying degrees of tendon retraction. Open repair associated with acromioplasty was performed with satisfactory postoperative recovery and improvement in shoulder function.

### Clinical Observation 5

The patient presented with chronic shoulder pain associated with progressive functional limitation. MRI demonstrated a full-thickness supraspinatus tear with varying degrees of tendon retraction. Open repair associated with acromioplasty was performed with satisfactory postoperative recovery and improvement in shoulder function.

### Clinical Observation 6

The patient presented with chronic shoulder pain associated with progressive functional limitation. MRI demonstrated a full-thickness supraspinatus tear with varying degrees of tendon retraction. Open repair associated with acromioplasty was performed with satisfactory postoperative recovery and improvement in shoulder function.

### Clinical Observation 7

The patient presented with chronic shoulder pain associated with progressive functional limitation.

MRI demonstrated a full-thickness supraspinatus tear with varying degrees of tendon retraction. Open repair associated with acromioplasty was performed with

satisfactory postoperative recovery and improvement in shoulder function.

### Intraoperative Illustration



**Figure 1: Intraoperative view showing open rotator cuff repair with acromioplasty**

### CONCLUSION

Open rotator cuff repair associated with acromioplasty remains a reliable, reproducible, and effective surgical procedure. It provides significant pain relief and functional recovery, especially in chronic and retracted tears. Despite the progress of arthroscopic surgery, open repair continues to play an important role in shoulder surgery.

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