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Functional and Clinical Outcomes of Supraspinatus Tendon Tears treated with Open repair using Suture Anchor: A Prospective Study

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Abstract

Background: Supraspinatus tendon tears are the most common form of rotator cuff injuries, leading to pain, reduced shoulder function, and disability. Although arthroscopic repair is widely practiced, open supraspinatus repair using suture anchors remains a reliable and cost-effective method, especially in resource-limited settings.
Aim: To evaluate the functional outcome of open supraspinatus repair using anchor sutures.
Materials and Methods: This study included 10 patients diagnosed with supraspinatus tendon tears who underwent open repair using suture anchors. Patients with full-thickness tears and symptomatic partial tears not responding to conservative treatment were included. Preoperative assessment was done clinically and with MRI. Functional outcomes were evaluated using standard scoring systems (Constant/UCLA score) during follow-up.
Results: Out of 10 patients, 8 had full-thickness tears and 2 had partial tears. The mean preoperative functional score improved significantly from 35–45 to 75–90 postoperatively. Excellent results were seen in 5 patients, good in 4, fair in 1, and poor in 0, with an overall success rate of 80%. Significant pain relief and improved range of motion were observed in 8 patients. Complications included superficial infection and shoulder stiffness in one case each, with no cases of anchor failure or re-tear.
Conclusion: Open supraspinatus repair using anchor sutures is a safe, effective, and economical technique that provides good to excellent functional outcomes, making it a valuable option in the management of rotator cuff tears.

Keywords: *Functional, Supraspinatus, Suture Anchor, rotator cuff.*

INTRODUCTION

The rotator cuff plays a crucial role in maintaining shoulder stability and enabling a wide range of upper limb movements.

The supraspinatus tendon is the most commonly affected in rotator cuff injuries due to its anatomical position and susceptibility to degenerative changes and impingement.

Supraspinatus tears are a frequent cause of shoulder pain, weakness, and functional limitation, particularly in middle-aged and elderly populations.

While partial tears may be managed conservatively, full-thickness tears and symptomatic cases often require surgical

intervention to restore function and prevent progression.

Open supraspinatus repair using anchor sutures remains a reliable and widely practiced technique, especially in settings where arthroscopic facilities may be limited.

This method provides strong tendon-to-bone fixation, promotes biological healing at the footprint, and allows direct visualization of the tear for accurate repair.

Despite the increasing popularity of arthroscopic techniques, open repair continues to have significant clinical relevance due to its cost-effectiveness, technical simplicity, and satisfactory functional outcomes.

AIMS and objective

- To evaluate the effectiveness of open supraspinatus repair using anchor sutures
- To assess functional outcomes and pain relief following surgery
- To analyze the reliability of anchor-based tendon fixation
- To evaluate postoperative functional outcomes

Indications

- Full-thickness supraspinatus tear
- Symptomatic partial tears not responding to conservative treatment
- Acute traumatic tears in active individuals
- Chronic tears with significant functional limitation

METHODOLOGY

Study Design

- Prospective observational study
- Conducted at – Dept. of orthopaedics, KIMS Banglore
- Sample size – 10 cases
- Detailed history and demographic details were collected from patients. Thorough clinical examination was done and all patients underwent routine blood investigations and X ray and MRI of shoulder. Surgery was performed under GA. Patients were called for regular follow ups at 6 weeks, 3 months, 6 months.

Inclusion Criteria

- Patients with full-thickness supraspinatus tears
- Symptomatic patients not responding to conservative treatment

Exclusion Criteria

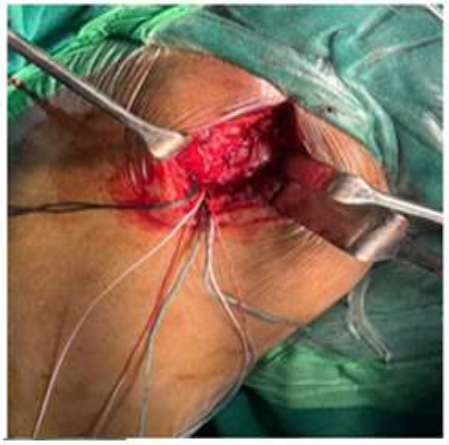
- Associated shoulder fractures or dislocations
- Previous shoulder surgery
- Severe comorbid conditions affecting healing

Surgical technique-

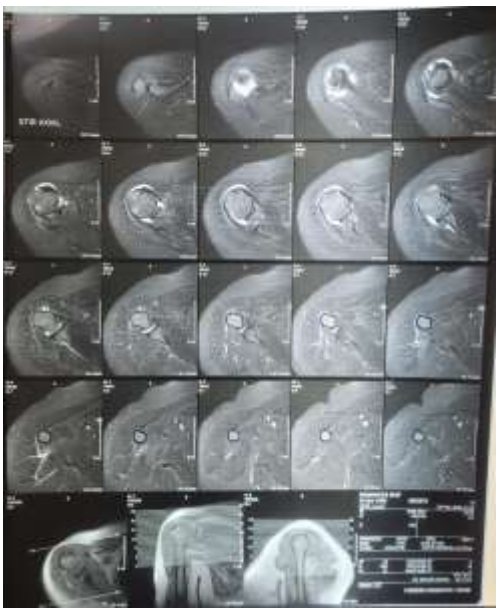
- Patient positioned in beach-chair
- Deltoid-splitting approach used
- Identification of supraspinatus tear
- Preparation of greater tuberosity footprint
- Placement of suture anchors into bone

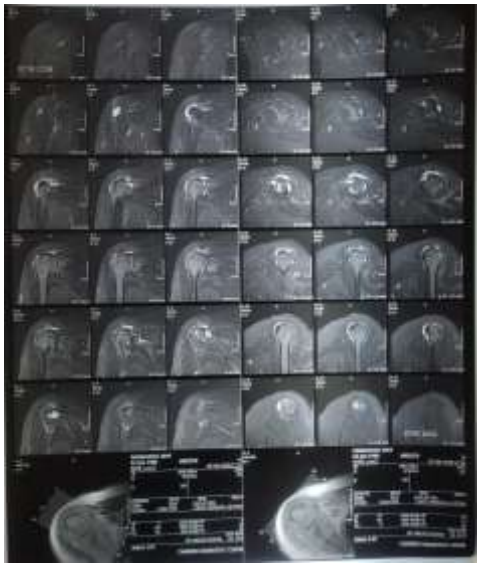
- Tendon secured using anchor sutures
- wound closure



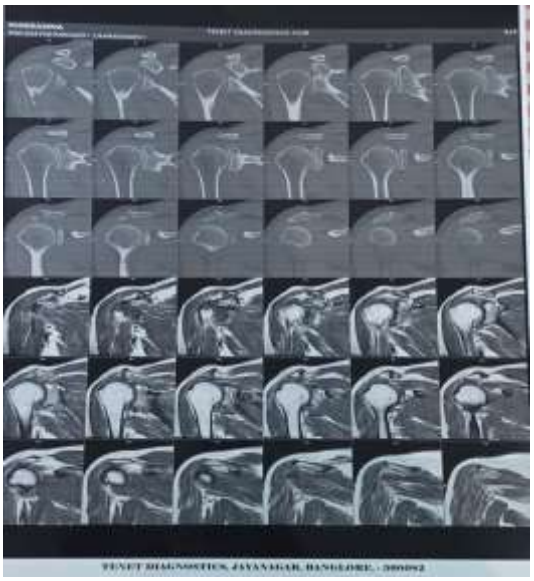

Case 1-





Post op xray Case 1-

Case 2-



Post op xray Case 1-

RESULT

- Out of 10 patients, 8 had full-thickness tears and 2 had partial tears.
- Using UCLA scoring system, The mean preoperative functional score improved significantly from < 20 to 30-35 postoperatively.
- Excellent results were seen in 50% patients, good in 40%, fair in 10%, and poor in 0 cases
- Significant pain relief and improved range of motion were observed in 8 patients.
- Complications included superficial infection and shoulder stiffness in one case each, with no cases of anchor failure or re-tear.

Master Chart-

Parameter	Observation
Total Cases	10
Mean Age	48–62 years
Male : Female	6 : 4
Dominant Side	7 cases
Full-thickness Tear	8 cases
Partial Tear	2 cases
Pre-op Score	35–45
Post-op Score	75–90
Excellent	5 cases
Good	4 cases
Fair	1 case
Poor	0 case
Pain Relief (Significant)	8 cases
ROM Improvement	8 cases
Complications	Infection (1), Stiffness (1)
Success Rate	80%

DISCUSSION

Open supraspinatus repair using anchor sutures remains an effective surgical option for managing rotator cuff tears. In the present study of 10 cases, most patients demonstrated satisfactory functional recovery, with 80% achieving good to excellent outcomes. Significant improvement was observed in postoperative pain relief, shoulder mobility, and functional scores.

The use of suture anchors provided secure tendon-to-bone fixation and promoted effective healing of the repaired tendon. The majority of patients showed marked improvement in range of motion and daily functional activities. These findings are consistent with previous studies reporting favorable outcomes following open rotator cuff repair.

Although arthroscopic repair has gained popularity because of its minimally invasive nature, open repair continues to offer advantages such as direct visualization of the tear, strong fixation, technical simplicity, and lower cost. This makes it particularly useful in centers with limited arthroscopic resources.

Complications in this study were minimal, with one case each of superficial infection and shoulder stiffness, both managed successfully. No anchor failure or tendon re-tear was observed during follow-up.
Overall, open supraspinatus repair using anchor sutures remains a dependable, safe, and cost-effective technique with satisfactory clinical and functional outcomes.

CONCLUSION

Open Supraspinatus tendon repair using suture anchors showed significant improvement in pain, functional scores, and range of motion. Majority of patients achieved good to excellent outcomes with low complication rates. Early intervention and adherence to rehabilitation protocol were associated with better functional recovery.

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