

# Surgical Repairs of the Rotator Cuff Tears

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Evaluation of 15 cases who under went surgical rotator cuff repair is presented. This study extends from 1995 to 2001. Cases operated by senior author have been included in this study. The follow up ranges from 9 months to 4 years. Evaluation includes study as regard to pain relief, range of motion and strength achieved after surgery. In all cases acromion-plasty was done. Rotator cuff problem is a well-known cause of pain and disability in shoulder especially in old age. Good results after surgical repair of rupture rotator cuff have been well documented. To our best knowledge this is the first study in this country about results of surgical rotator cuff repair.

**Key words:** Rotator cuff, acromion plasty

Painful shoulder is a common problem of the elderly population. The cause may be due to soft tissue or osseous problems. Mostly painful restriction to movements of shoulder in old age are collectively diagnosed as frozen shoulder such patients undergo long conservative therapies to regain function. However, one of the cause of restricted shoulder motion is rotator cuff rupture if proper diagnosis is made early and these patients are subjected to surgical repair of rotator cuff rupture then good results are obtained.

## Material and methods

Fifteen cases underwent open surgical repair of complete rotator cuff rupture from 1995 to 2000. These patients included in this series remained under conservative management for not less than 3 months. Before reporting to us these patients had passed through different conservative treatment modalities including analgesic (NSAIDS), physiotherapy, local steroid injections etc. Before surgery all patients got plain x-ray shoulder (both AP view and subacromial outlet view) and shoulder arthrogram. One case underwent MRI, this was not done in other cases due to high cost. In subacromial outlet view, six patients had type III Acromion, four patients revealed Acromion Type II, two patients had subacromial osteophytes and one patient was showing oosthritis of acromio-clavicular joint. Shoulder arthrogram in all cases, presented leakage of dye. In this study there was thirteen males (age 50 to 80 years) and two were females (age 60-70 years). Among fifteen patients 4 were diabetics while six were hypertensive. Three patients were labourers involved in construction and farming strenuous worker. Two patients were involved in less strenuous works (drivers & shopkeeper). Ten patients were involved in non-strenuous works like office workers, teaching jobs & business management.

**Operative Technique:** The technique included antero-superior approach. Subperiosteal dissection of deltoid was carried from anterior aspect of acromion. In all cases antero-inferior acromion-plasty was done for subacromial decompression. This decompression also included

resection of coracoacromial ligament. Excision of subacromial bursa with osteotomies was done. In case of osteoarthritis of acromioclavicular joint, resection of distal clavicle was done. Repair of cuff was done with number 2.0 nonabsorbable suture. In eleven cases rupture were in the rotator cuff while in three cases rupture involve the area of junction of cuff and greater tuberosity. In three later cases a trough was made in the superior surface of greater tuberosity and cuff was fixed to this trough by transosseous sutures. Ten ruptures were involving only supra-spinous tendon component of rotator cuff, three rupture were involving supra-spinous and subscapularis areas while two were extending from supra-spinous to infraspinous portion of rotator cuff. Postoperatively passive range of motion was started on the first postoperative day. Active assisted exercises started after six weeks while free active exercises without resistance started after 3 months. Progressive strengthening exercises began after 5 months.

## Results

**Pain:** The criterion used for pain assessment was more physiological nature. It was classified into rest pain and pain on routine activities with abduction involving 90° or more than 90°. Preoperatively dull rest pain (pain without activity) especially at night was present in four patients, while pain was present in abduction (between 30° 90°) in all cases. Post operatively no patient had rest pain, while only two patients complained of pain above 90° of abduction. Only one patient was not satisfied as far as pain relief is concerned. This patient was also suffering from osteoarthritis of shoulder.

**Range of motion:** Postoperatively improvement was noticed in active abduction (average 90° to 170°). External rotation also improved, range was 40° to 90°. Active flexion improved from 30° to 180°. Medial rotation also improved as noticed by level of approach of thoracic vertebrae from 12<sup>th</sup> to 9<sup>th</sup>.

**Strength:** Muscle strength was measured by manual method from grade-0 to grade-5. It was normal in several cases. Grade IV was seen in six cases while grade III was

attained in two cases.



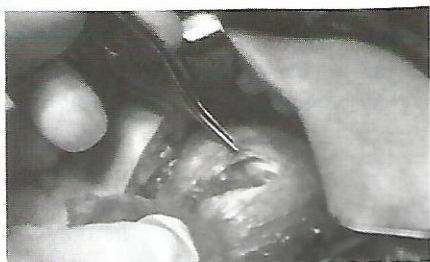
Preoperative painful limited abduction



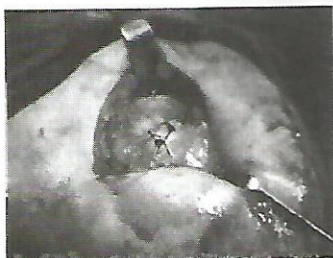
Osteophytes seen at anteroinferior surface of acromion



Arthrogram of shoulder joint showing leakage of dye from rupture site of rotator cuff tear



Rotator cuff tear



Rotatorcuff tear at anterior aspect



Rotatorcuff repair shown

**Discussion**

This study depicts that good results can be achieved by surgical repair of rotator cuff tears. As regard to pain all patients, except one patient who was also suffering from osteoarthritis of shoulder, were satisfied as far as daily routine work was concerned. However, the size of rupture and site of lesion affected the improvement in range of motion and strength. Strength and range of motion postoperatively was more in case of the smaller rupture than large sized rupture. Postoperative progress, as regard to range of motion or strength, was less where tendon was anchored to the greater tuberosity than where split was present in the tendons and required cuff approximation. Moreover, results were also affected by age of patients. This is probably that with increase age, the rest of the rotator cuff is also undergoing degenerative changes and may develop secondary ruptures postoperatively. In two patients rupture of long head of bicip tendon was noticed. Tenodesis in the bicipital groove was done. Both of these patients were old and had massive rupture. In both of these the postoperative results as regard to range of motion and strength were average. Postoperative results were also dependent on the patient's cooperation in physiotherapy programme. Nine patients were very keen for physiotherapy program. All of these patients were close to excellent results as regard to satisfaction, range of movement, strength and pain. Anteroinferior acromioplasty was performed in all cases. This provides better exposure for good repair of rotator cuff. Moreover by acromioplasty impingement of repaired rotator cuff is prevented. This provides protection to tendon while healing and decreases postoperative pain.

In conclusion, we believe that patients who fail to benefit from conservative management and in whom the tear of rotator cuff is suspected, should be subjected to surgical repair and subacromial decompression. We believe good tendon repair techniques, anteroinferior acromioplasty and careful postoperative physiotherapy programme can produce good results as regard to pain, range of motion and strength.

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