

A full thickness and partial rotator cuff tear with retraction of fibers and reconstruction with palmaris longus graft

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ABSTRACT

The report mainly appraises full-thickness tears at myotendinous junctions which are rare and only described in the supraspinatus and infraspinatus muscles. There is very little literature describing both tears occurring concurrently. After suffering mechanical damage to her shoulder, a 64-year-old woman was examined for pain in the shoulder on movement; the patient underwent radiographic and clinical evaluation which revealed full-thickness rotator cuff tears with retraction of fibers. Hence, the plan of care is to offer the best surgical techniques to guarantee a good result and a quick recovery. A full-thickness tear at the myotendinous junctions of the supraspinatus tear and partial tear at the subscapularis tendon and infraspinatus tendon at humeral attachment was confirmed radiographically in this case. To make a diagnosis, a high level of clinical suspicion must be supported by specific magnetic resonance imaging characteristics.

Key words: Full-thickness, Infraspinatus tendon, Rotator cuff tears, Subscapularis tendon, Supraspinatus

The main purpose of the rotator cuff, a set of four muscles that extends from the scapula and inserts into the humerus, is to impart stable motion to the glenohumeral joint [1]. The glenohumeral joint's function demonstrated its vast range of motions such as flexion, extension, adduction, medial rotation, lateral rotation, and circumduction, while the rotator cuff indices revealed their stabilizing role [2]. Usually, it begins with tendinitis; a tear brought on by excessive tension or thickening of the tendon rubbing against the acromion causing fraying to commence [3]. The total separation of the tendon from the bone is a characteristic of full-thickness tearing. Large tears (3–5 cm) and huge tears (>5 cm) fall within this category [4].

We describe a case of a female patient who presented with pain and discomfort in the right shoulder. It was found that she had fallen in the past onto her right shoulder. The magnitude of the tear (represented as a percentage of the ripped tendon thickness), the location (articular and intra-tendinous), and the tendons involved (supraspinatus, infraspinatus) can all be used to categorize the percentage of tears [5]. The full-thickness tear significantly affects the ability, general well-being, and quality of life of patients [6]. If possible, these tears should not be treated conservatively like other tears; instead, implantation also requires appropriate rehabilitation [7].


CASE REPORT

A 64-year-old female of Asian ethnicity reported a right shoulder injury in March 2024 due to falling from her own height onto her right shoulder. Earlier, the physician gave her analgesics to treat this but the symptoms continued to return. The patient was brought to a specialized department with complaints of pain in her right shoulder in the past 3 months. She has difficulty in terms of functioning; she experienced mild pain that was made worse by movement and trouble carrying out routine tasks.

Physical examination revealed tenderness in the right shoulder with a painful and restricted range of movements. Distal pulses were palpable.

The patient was referred for magnetic resonance imaging (MRI) of the right shoulder which revealed a full-thickness tear of the supraspinatus tendon with retraction of fibers. Partial tear of the subscapularis tendon and infraspinatus tendon at humeral attachment and atrophy of the supraspinatus and deltoid muscles (Fig. 1). Other tests including serum electrolytes, viral markers, and renal function tests were within normal limits. The patient was prepped for surgery and advised of pre-operative orders.

Aseptic precautions were done during surgery, the brachial plexus was blocked, the patient was placed in a beach chair position, and the skin over the right shoulder was scrubbed and draped. An incision of 15 × 5 cm was given over the right shoulder region extending from the acromioclavicular joint to the upper

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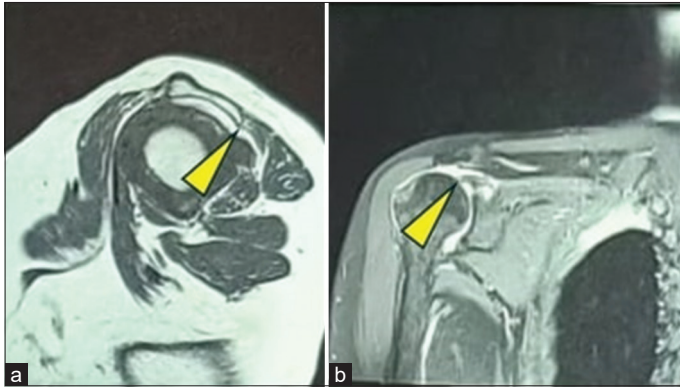


Figure 1: Magnetic resonance imaging showing the (a) full-thickness tear of the supraspinatus tendon with retraction of fibers and (b) complete view of tear

mid 1/3rd of the shoulder. Skin, subcutaneous tissue, and muscles were separated into layers. Hemostasis was achieved. The ruptured supraspinatus tendon was identified by internal rotation and adduction of the shoulder. Ruptured or torn fragments cannot be approximated due to delayed injury. A 10 cm graft (palmaris longus) was taken from the right forearm (mid 1/3rd) and approximated to torn supraspinatus tendon margins with vicryl 2.0 intermittent sutures. Position and movements were checked with shoulder adduction, abduction, and internal rotation. Wound wash was given with betadine hydrogen peroxide, and normal saline. Muscles and subcutaneous tissue were closed using 1.0. Skin was closed with ethilon 2.0, the sterile dressing was done, and the pop slab was applied.

The patient was shifted to the post-operative ward. She was instructed not to move her arm until she returned after a week for her first outpatient review at the hospital after the discharge. After 2 weeks of the post-operative procedure, the patient was attended for the review and reported mild pain at the site and was functionally well and was very satisfied.

DISCUSSION

Among the rotator cuff tears, the overall prevalence (11.7%) of patients experienced a concomitant rotator cuff rupture, falling between the usual range of 5 and 50%. From this statistic, it is possible to derive a full-thickness tear prevalence of 7.1% and a partial-thickness tear prevalence of 4.6% in elderly patients [8]. Hence, full-thickness tears are more commonly seen in elderly patients than younger patients. In this case, the patient was older. Some of the studies have proven that full-thickness rotator cuff tears were associated with age, hypertension as risk factors, and a greater body mass index had a lesser link with full-thickness rotator cuff tears than the previously listed qualities indicated [9]. The Patte test (positive for weakness) and the drop-arm test (positive for pain) demonstrated the best specificity (0.98 and 0.99, respectively), while the empty-can test had the highest sensitivity (0.81). Furthermore, the specificity of the final two tests was comparable to what prior research on MRI and ultrasonography had shown. Hence, we must not completely stick to MRI while diagnosing full-thickness tears [10]. The

full-thickness tears are adjoined by using a palmaris longus graft. An option for acromial ligament transfer could be tendon graft repair, which could offer a permanent biologic restoration with better initial biomechanical qualities, such as tensile strength [11]. The surgical procedure was performed to provide treatment and supportive care in the complete healing of the full-thickness as well as the partial tears.

This case report focused on stopping the progression of partial tears that are left untreated, changing into full-thickness tears or complete rotator cuff tears in the future. We believe in improving patient outcomes or delaying the success of patient outcomes [12]. There is no evidence to suggest that the functional results of patients with rotator cuff injuries will be negatively impacted by arthroscopic surgery if monitored wisely [13]. After surgery, the management of this important by giving rest and limiting activities with the same hand, and strictly adhering to the treatment given to heal tissue completely, if not managed for a specific period, then some literature revealed about 3% of the patients needed revision surgery to replace their shoulder in reverse, and 10% of the patients needed additional surgery [14].

Positioning, stabilizing, and strengthening combination exercises and manual exercises are helpful along with patient education and medication support for quicker recovery. Within an evidence-based framework, exercise-based physiotherapy was the main form of treatment. Oral pain medication, elastic tapes, and subacromial corticosteroid injections were among the supplementary treatments given to a minority of individuals. There is little data to support the efficacy of these therapies for shoulder pain associated with the rotator cuff [15].

CONCLUSION

In a rotator cuff tear, a full-thickness supraspinatus tear combined with two distinct partial articular-sided tears is an uncommon combination. Imaging might not provide a definitive diagnosis of tears. For this reason, a thorough evaluation of tear morphology is essential to the diagnosis. An earlier failure and a more involved revision procedure could arise from the main surgeon's failure to identify and treat this tear pattern in a timely manner.

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