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CASE REPORT

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Abstract

Background: Despite current published reports, a thorough understanding of the natural history of non-operatively treated full thickness tears remains limited. The rate and risk of tear progression, increasing fatty infiltration, muscle atrophy, and other factors of symptomatology are not completely understood.

Case Description: We present a 10-year course of non-surgically treated full thickness supraspinatus tear in a relatively young patient. Initial operative treatment was recommended, but the patient refused and pursued physical therapy and continuation of an active lifestyle. Over the decade in which the patient remained asymptomatic he had minimal progression of cuff pathology as shown by MRI.

Literature Review: While several studies have been published discussing outcomes of non-operatively managed full thickness rotator cuff tears, there are no reports involving this demographic over such an extended period of time [4,14,15,26,27]. Current studies following the conservative courses of full thickness tears range from averages of 1.9 to 5 years in length of follow-up and mean age ranges from 52 to 64 years [4,14,15,26,27]. Due to concerns with the advancement of pathology with worsening long-term outcomes, surgical intervention is typically recommended for relatively young patients with symptomatic full thickness tears [22].

Clinical Relevance: With this case, we seek to portray a scenario in which the algorithmic thinking of operative treatment as the standard in young patients may be studied more extensively. It is also unique in that the continued use of the rotator cuff over an extended period of time did not contribute to a significant progression in tear size.

Keywords
Rotator cuff tear– conservative management– operative management– 10-year follow-up– young patient– chronic rotator cuff tear– rotator cuff

CASE REPORT

10-year follow-up of non-operatively treated full thickness rotator cuff tear

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Introduction

This is the case of a 49 year old male with a 10-year course of a traumatic full thickness supraspinatus tear treated non-operatively that remained asymptomatic until re-injury and demonstrated negligible progression of pathology. The patient remained persistently symptomatic following conservative management after the reoccurrence. On examination of the patient's MRI imaging before and after a period of ten years, a board certified musculoskeletal radiologist found there to be an insignificant amount of tear progression with little to no fatty atrophy or infiltration. These findings drew into question the patient's initial decision of whether or not to pursue operative therapy, which he had previously denied.

With an ever shifting basis on which to determine invasive versus conservative therapy, it has been the consensus that if a young patient suffers a traumatic rotator cuff tear with activity and function deficits present, operative therapy is the optimal treatment. This line of thinking is to avoid future recurrence and the perpetuation of tear size, atrophy, and fatty infiltration. While this has been the prevailing thought process behind our current algorithmic treatment, this case represents an instance in which the end point of conservative therapy with subsequent reinjury did not result in compromise of the rotator cuff unit over time.

The primary motive behind documentation of this case is lack of significant progression of a full thickness supraspinatus tear on imaging in association with the considerations and tradeoffs of operative versus nonoperative therapy for full thickness rotator cuff tears in young patients. With this patient's treatment history and re-emergence of symptomatology, there would be an expectation that the recurrence of injury and symptoms would be indicative of a cause of further deterioration of the rotator cuff's integrity. This case highlights the temporal complexity of rotator cuff tear pathology and variability in long-term courses. Possible protective factors against disease progression are age and tear size, while trauma may not worsen

outcomes. Though this resulted in no permanent disability, we cannot recommend non-surgical treatment for all given the inherent unpredictability and risk of irreversible progression, but can show that there are cases in which irreversible detriment does not occur.

Case Report

This is the case of a 49 year old male with chronic full thickness rotator cuff tear that was initially seen ten years previously for an acute injury involving the left shoulder. Initial exam revealed full range of motion with 5/5 internal and external rotation strength. Abduction was 4/5 and impingement testing was positive on Hawkins' and Neer's test. MRA demonstrated a full thickness supraspinatus tear (Figures 1–4). Operative management was declined. He resumed activities of daily living including unrestricted work as a landscaper until 10 years later following re-injury.

Examination demonstrated symmetric active and passive range of motion with 4/5 abduction and external rotation strength on the left compared with 5/5 on the right. He had moderate pain with Hawkins' and Neer's tests on the left as well as a positive O'Brien's sign.

The initial MRI demonstrated a full thickness 1.6 cm supraspinatus tear with 1.6 cm retraction and tear of the superior labrum (Figures 1–4) The new MRI revealed the supraspinatus tear measuring 1.8 cm with 2.2 cm retraction with partial undersurface infraspinatus extension and a degenerative superior labrum (Figures 5–8). Additionally, no appreciable advance of muscle atrophy and fatty infiltration was seen with Goutallier Grade 0 findings (Figures 1–8). The Warner scale for determining atrophy was utilized by a musculoskeletal radiologist and an orthopedic surgeon with findings of negligible muscle atrophy at the

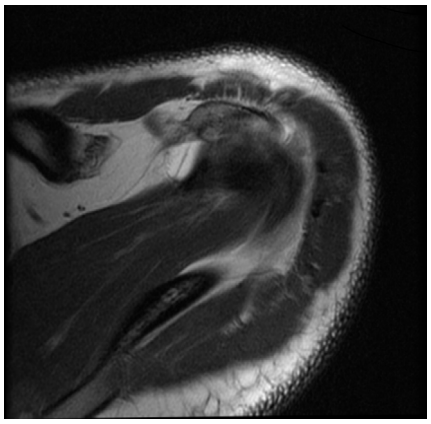

Figure 2
2004 MRI: Axial proton density non-fat saturation.

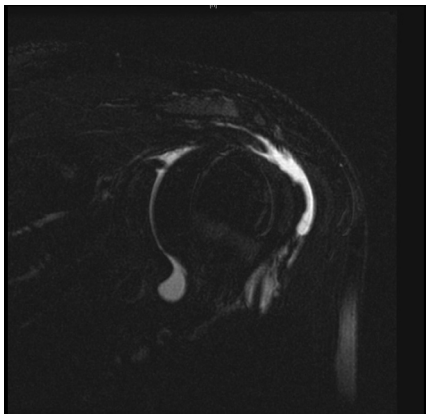

Figure 4
2004 MRI: Coronal T2 fat-saturation showing tear size and degree of retraction.

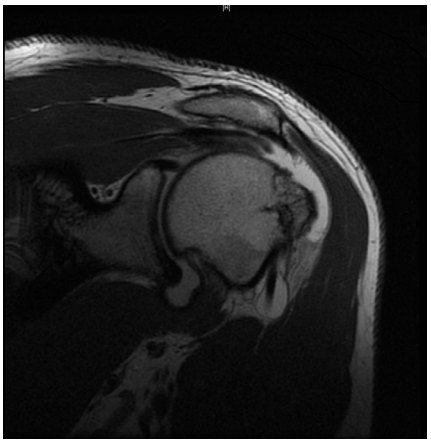

Figure 1
2004 MRI: Coronal proton density non-fat saturation.

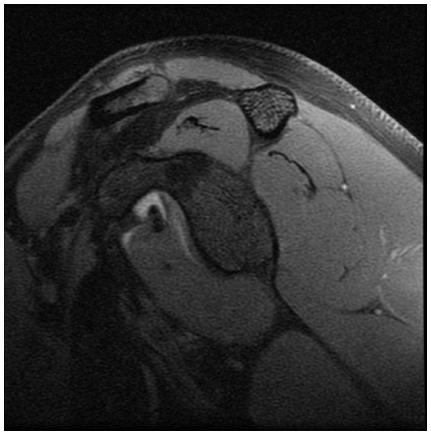

Figure 3
2004 MRI: Sagittal T1 fat-saturation showing same muscle size with negative (normal tangent sign).

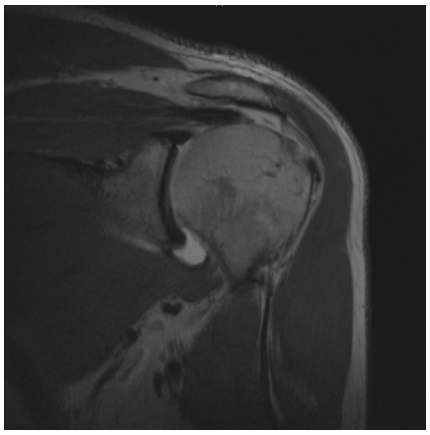

Figure 5
2014 MRI: Coronal proton density non-fat saturation.