

Clin-IQ Project

Clinical Question: In adult athletes with partial thickness rotator cuff tears, is conservative management superior to surgery in allowing the athlete to return to competitive function?

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Answer: No

Level of Evidence for the Answer: B

Search Terms: rotator cuff injury

Date Search was Conducted:

August 5, 2012

Inclusion and Exclusion Criteria:

Inclusion Criteria:

Humans, Adults, English, Full Text

Exclusion Criteria:

Children

Summary of the Issues: (word count=200-300)

Many athletes seek medical attention each year with complaints of shoulder pain caused by rotator cuff pathology. The mechanism of injury is often multifactorial including degeneration, impingement, overload, and trauma. Classically rotator cuff tears present with pain, however chronic tears may be asymptomatic. Partial thickness tears tend to cause more significant pain compared to full thickness tears, while full thickness tears tend to cause more weakness.¹

Rotator cuff tears are most prevalent in middle age and older individuals, although athletes are at

an increased risk due to risks of traumatic injury.²

The rotator cuff is composed of four muscles: supraspinatus, infraspinatus, teres minor and subscapularis. Specialty physical examination techniques have been developed to test the rotator cuff muscles. The painful arc sign, droop arm sign and weakness on external rotation can accurately predict full thickness tears when all three are positive, but partial thickness tears aren't as obvious.

When physical examination elicits positive exam findings and there is clinical suspicion, the initial workup begins with plain radiographs. Evaluating migration of the humeral head in relation to the glenoid and acromion can help with the diagnosis of rotator cuff pathology.¹ MRI is the gold standard for definitively evaluating rotator cuff tears for either a preoperative definitive diagnosis or for evaluation to return to sport.²

Treatment options for partial rotator cuff tears are conservative treatment or surgery. Conservative treatment usually consists of physical therapy, non-steroidal anti-inflammatory drugs, corticosteroid injections, and ultrasound. Physical therapy consists of three phases: relieving pain while restoring normal range of motion, strengthening the rotator cuff muscles, and finally reintegration back into normal activities and sports. A previous unsuccessful trial of conservative management is a predictor of poor outcomes if conservative management is further attempted.²

Summary of the Evidence: (word count=500-700)

Three articles were reviewed; two review articles, and one retrospective cohort study. A review article from 2011 discussed the indications and contraindications to conservative management of rotator cuff tears.² The non-surgical conservative management according to the authors included corticosteroid injection, NSAIDS, and a rehabilitation. The authors point out that in patients who may consider surgery, no more than three shoulder joint injections in a patient's

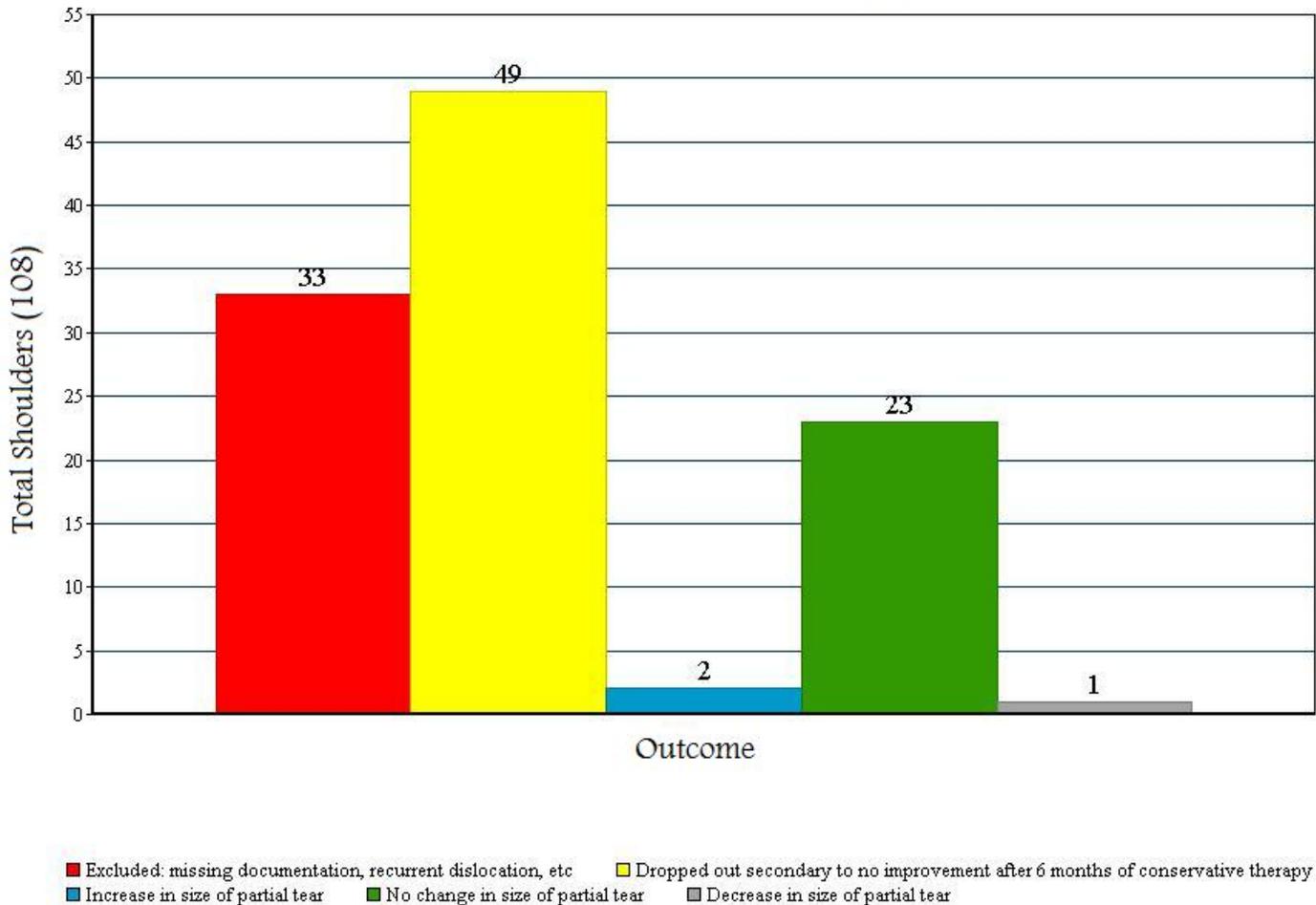
lifetime from the time of injury are advised as corticosteroids have the potential side effect of tendon atrophy that may decrease the quality of available tissue for repair. Factors favoring a good outcome with conservative management include greater muscle strength in the muscles of the rotator cuff and having symptoms of a tear for less than 6-12 months. Heavy overhead workload and overhead sports are two major risk factors for rotator cuff tears that require non-conservative measures such as surgical intervention. The authors recommend early surgical intervention for active 20 to 50 year old patient including competitive athletes who present with pain and functional deficit from a specific event. Complications such as changes in tendon morphology, fatty muscle degeneration, muscle atrophy and degenerative joint changes can be prevented by early surgery. If a patient has been managed unsuccessfully with conservative management then this is also an indication for surgical intervention.²

A retrospective cohort study published in 2009 examined the outcomes of patients with rotator cuff tears who were managed conservatively.³ The study included 59 shoulders in 54 patients all of whom had rotator cuff tears identified on MRI. These patients were treated conservatively and had follow up MRIs 6 months after the tear was diagnosed. The conservative treatment for these patients included physiotherapy, restriction of activities, and cortisone injections. The study started off with 108 shoulders however those who did not show improvement with conservative treatment after six months were sent for surgery and excluded from the study. Also patients with previous shoulder surgery, recurrent dislocations, and patients with missing clinical documentation were excluded. Of the 59 shoulders 26 had partial thickness rotator cuff tears. On follow up, two of these patients had an increase in the size of the tear greater than 5 mm. Twenty-three patients had no change in the tear, and one patient had a decrease in the size of the tear greater than 5 mm. The authors recommended patients who are managed conservatively be monitored for tear progression over time with an ultrasound 6 months from diagnosis and then yearly afterwards.

A review article from 2003 discussed the management of partial thickness tears of the rotator cuff.⁴ The author comments on the fact there is little evidence from histological examination to show the process of spontaneous healing of the rotator cuff and thus spontaneous healing is unlikely in most patients. The author comments that surgical treatment should be considered for patients with partial tears when there are intense pain symptoms and a long duration of symptoms. This article reviews 21 different studies that in total included 945 shoulders with partial thickness rotator cuff tears that were treated with different surgical techniques (the studies ranged from 6 shoulders to 111 shoulders). The patients in these studies were followed for an average of 2.15 years (follow up ranged from 1.1 to 5.9 years). Of these 21 studies 7 of them reported satisfactory results in greater than 90% of their patients. They considered an excellent or good outcome as satisfactory. From examining the studies this paper reported that overhead throwing athletes with causes of rotator cuff tears resulting from degeneration and/or trauma had satisfactory results in 50 to 90% of patients.

Table/Figure/Graph

Outcome of Nonoperative Treatment of Symptomatic Rotator Cuff



Conclusion: (word count=50-100)

Athletes who suffer partial thickness rotator cuff tears have two main options of treatment which are conservative measures or surgical intervention. According to the evidence from the articles cited in this paper, competitive athletes who need to get back to a high level of competition and who have a confirmed rotator cuff tear on MRI should be referred to orthopedics for early surgical intervention rather than conservative treatment of NSAIDs, rest, and physical therapy. On the other hand, conservative treatment is an acceptable option for patients who are recreational athletes. Therefore, in athletes presenting with a partial tear of the rotator cuff, early surgery

intervention is indicated rather than delaying surgery and attempting conservative measures.

Reference List (1-2 review articles, 2 evidence articles):

1. Stephen M Simons, MD, FACSM, et al. Presentation and diagnosis of rotator cuff tears. Literature review current through: Jul 2012. (Accessed August 8, 2012 at www.uptodate.com)
2. Francesco Pegreffi, MD, et al. Conservative management of rotator cuff tear. Sports Med Arthrosc Rev 2011; 19(4): 348-52
3. Maman, E. et al. Outcome of Nonoperative Treatment of Symptomatic Rotator Cuff Tears Monitored by Magnetic Resonance Imaging. J Bone Joint Surg Am. August 2009
4. Fukuda, H. The Management of Partial-Thickness Tears of the Rotator Cuff. J Bone Joint Surg Br. January 2003