



SHOULDER

What happens to patients when we do not repair their cuff tears? Five-year rotator cuff quality-of-life index outcomes following nonoperative treatment of patients with full-thickness rotator cuff tears



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Background: The purpose of this study was to examine 5-year outcomes in a prospective cohort of patients previously enrolled in a nonoperative rotator cuff tear treatment program.

Methods: Patients with chronic (>3 months), full-thickness rotator cuff tears (demonstrated on imaging) who were referred to 1 of 2 senior shoulder surgeons were enrolled in the study between October 2008 and September 2010. They participated in a comprehensive, nonoperative, home-based treatment program. After 3 months, the outcome in these patients was defined as “successful” or “failed.” Patients in the successful group were essentially asymptomatic and did not require surgery. Patients in the failed group were symptomatic and consented to undergo surgical repair. All patients were followed up at 1 year, 2 years, and 5 or more years.

Results: At 5 or more years, all patients were contacted for follow-up; the response rate was 84%. Approximately 75% of patients remained successfully treated with nonoperative treatment at 5 years and reported a mean rotator cuff quality-of-life index score of 83 of 100 (SD, 16). Furthermore, between 2 and 5 years, only 3 patients who had previously been defined as having a successful outcome became more symptomatic and underwent surgical rotator cuff repair. Those in whom nonoperative treatment had failed and who underwent surgical repair had a mean rotator cuff quality-of-life index score of 89 (SD, 11) at 5-year follow-up. The operative and nonoperative groups at 5-year follow-up were not significantly different ($P = .11$).

This study was approved by the Conjoint Health Research Ethics Board, Faculty of Medicine, University of Calgary (study ID E-21979).

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Conclusion: Nonoperative treatment is an effective and lasting option for many patients with a chronic, full-thickness rotator cuff tear. While some clinicians may argue that nonoperative treatment delays inevitable surgical repair, our study shows that patients can do very well over time.

Level of evidence: Level II; Prospective Cohort Design; Treatment Study

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Rotator cuff tears are an age-related finding on diagnostic imaging.¹⁰ Pathology that causes pain and disability in one patient's shoulder may not cause symptoms in another individual. The variability in rotator cuff symptoms and treatment is extensive and thus poses a conundrum for clinicians, surgeons, and researchers.

An abundance of literature supports surgical repair as a primary and long-lasting treatment option, while seemingly just as much literature supports conservative management.^{2,4-9} This is likely because some patients will get better with nonoperative management whereas some will not. We have previously published the results of a prospective cohort of patients who underwent a structured and supervised course of nonoperative treatment for chronic, full-thickness rotator cuff tears with very favorable outcomes. Follow-up to 2 years has previously been reported.¹ Seventy-five percent of patients in this cohort were successfully treated with a comprehensive, nonoperative treatment program and did not require surgery. Clinical factors were identified that helped predict the outcome of nonoperative treatment versus which patients would more likely benefit from surgical repair.

Of concern, however, was that nonoperative management might not yield a long-lasting successful result. Therefore, the purpose of this study was to examine 5-year outcomes of patients previously enrolled in our nonoperative rotator cuff study.

Materials and methods

Patients with chronic (>3 months), full-thickness rotator cuff tears (demonstrated on ultrasound or magnetic resonance imaging) who were referred consecutively to 1 of 2 senior shoulder surgeons were enrolled in this prospective cohort study between October 2008 and September 2010.

The inclusion criteria were as follows:

- Age of 40 to 85 years
- Full-thickness tear of supraspinatus or infraspinatus, confirmed on ultrasound or magnetic resonance imaging
- Symptomatic for a minimum of 3 months

The exclusion criteria were as follows:

- Already exhausted nonoperative treatment: minimum of 3 months of stretching and strengthening with the use of analgesics, anti-inflammatories, and/or modalities; with or without injections

- Full-thickness tear of subscapularis and/or teres minor
- Concomitant pathology of the affected shoulder (eg, instability, high-riding humeral head indicating cuff tear arthropathy, or osteoarthritis)
- Substantial cervical spine pathology and/or radiculopathy
- Elite athlete
- Acute injury (symptoms for <3 months)
- Substantial medical issues precluding surgery
- Secondary-gain issues (ie, workers' compensation or litigation)
- Unable or unwilling to complete study outcomes
- Unable or unwilling to provide informed consent

Patients participated in a comprehensive, nonoperative, home-based treatment program. Under supervision of a physiotherapist and sports medicine physician, patients undertook stretching and strengthening exercises, supplemented on an individual basis with anti-inflammatory and/or corticosteroid pain control. After 3 months, patients met with the surgeon and their outcome was defined as "successful" or "failed." A patient was defined as having a successful outcome if surgery was no longer deemed an appropriate treatment option by both the patient and the surgeon because the patient had improved considerably and was predominantly asymptomatic. In contrast, nonoperative management was deemed to have failed if the patient elected to undergo surgery because he or she had not improved and remained symptomatic. The definitions of "success" and "failure" were a joint classification by the patient and surgeon. All patients were followed up at 1 and 2 years (the results were previously reported¹).

For 5-year follow-up, all patients were contacted by the research coordinator using all available contact information, including home phone, work phone, and cell phone numbers and E-mail addresses. After 3 contact attempts by the research coordinator, the surgeon then attempted to contact any patient who had not responded. If there was no response following the contact attempt by the surgeon (4 attempts in total), the patient was considered lost to follow-up. Responsive patients were asked whether they had sought treatment (specifically surgery) and were asked to complete the rotator cuff quality-of-life index (RC-QOL) questionnaire.³

The patients were grouped according to the outcome of the original nonoperative treatment protocol: successful (no surgery) or failed (surgery). Group means and standard deviations were calculated for the RC-QOL scores. The significance level was set at $P = .05$.

Results

A total of 116 patients were originally screened prospectively, of whom 104 met the inclusion criteria and provided informed consent for participation (Fig. 1). Of the 104

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