Surgical Repair Did Not Improve Functional Outcomes More Than Conservative Treatment for Degenerative Rotator Cuff Tears

Lambers Heerspink FO, van Raay JJ, Koorevaar RC, van Eerden PJ, Westerbeek RE, van 't Riet E, van den Akker-Scheek I, Diercks RL.

Comparing surgical repair with conservative treatment for degenerative rotator cuff tears: a randomized controlled trial.


**Question:** In patients with degenerative rotator cuff tears, how does surgical repair compare with conservative treatment with respect to functional outcomes?

**Design:** Randomized (unclear allocation concealment), unblinded, controlled trial with 12 months of follow-up.

**Setting:** A university hospital and 2 regional hospitals in the Netherlands.

**Patients:** 56 patients (mean age, 61 years; 63% men) with degenerative, nontraumatic full-thickness rotator cuff tears were enrolled. Exclusion criteria included trauma associated with the onset of complaints, previous shoulder surgery, frozen shoulder, osteoarthritis of the glenohumeral or acromioclavicular joint, diabetes, cognitive disorders, and neurologic diseases affecting the upper extremities. 45 patients (80%) were included in the analysis.

**Intervention:** Patients were allocated to surgery (n = 25) or conservative treatment (n = 31).

Surgery was done using an anterolateral mini-open approach with the patient in the beach-chair position under general anesthesia and supplemental scalene brachial plexus block. After standard acromioplasty, the tendon-to-bone repair was performed in 19 patients and the side-to-side repair was performed in 6 patients. The deltoid muscle was reattached to the acromion. Patients wore a sling for 6 weeks and began physiotherapy according to a standardized protocol, with passive movement allowed during the first 6 weeks, followed by active guided movement and active treatment. Strength development was allowed after 3 months. Conservative treatment consisted of subacromial steroid infiltration (up to 3), physiotherapy, and analgesic medication. Physiotherapy was continued until optimum range of motion and improvement in strength were achieved.

**Main outcome measures:** The primary outcome was function measured by the Constant-Murley score (CMS), which combined a shoulder function test (65 points) with a subjective evaluation by the patient of shoulder complaints (35 points); higher scores indicated better outcomes. Secondary outcomes were perception of pain and function as measured with the Dutch Simple Shoulder Test and a visual analog scale (VAS).

**Main results:** 3 patients in the conservative treatment group were dissatisfied with the treatment and received rotator cuff repair (discontinued intervention). The surgical and conservative treatment groups did not differ in terms of the CMS at 12 months (mean, 81.9 versus 73.7; p = 0.08). The surgical group had less pain (2.2 versus 3.2; p = 0.04) and disability (2.1 versus 3.5; p = 0.02). In an intention-to-treat analysis, in which the last outcome on the CMS was carried forward to include the 11 patients without complete follow-up (including 3 patients who discontinued intervention, 4 who were lost to follow-up, and 4 who were excluded), the mean CMS showed a significant difference between the two groups, in favor of the surgical group (81.6 versus 71.5; p = 0.02).

**Conclusion:** In patients with degenerative rotator cuff tears, surgical repair did not improve functional outcome more than conservative treatment at one year.

**Source of funding:** Anna Fonds.

**For correspondence:** Dr. F.O. Lambers Heerspink, Department of Orthopaedic Surgery, University Medical Centre Groningen, P.O. Box 30,001, NL-9700 RB Groningen, the Netherlands. E-mail address: lambersheerspink@gmail.com

---

**Commentary**

The study by Lambers Heerspink and colleagues showed no “clinically significant” difference in the functional outcomes of conservative treatment and surgical repair in patients with degenerative rotator cuff tears. Should conservative treatment be the first choice? There are two questions that need to be answered: (1) Is the conservative treatment effective for relieving the present symptoms? (2) How long does its effect last?

This randomized trial gave us the answer to the first question: Yes, conservative treatment is effective. However, if the symptoms return repeatedly, we cannot accept it as a successful treatment. Studies on the natural history of asymptomatic tears have indicated that 36% to 51% of patients with asymptomatic tears became symptomatic in two to three years.1,2 During that time, tear progression was observed in about 40% of patients and was often associated with pain1,2. Therefore, if the risk of tear progression is high, surgical repair seems to be a better option than conservative treatment. Recent studies have gradually clarified the risk factors for tear progression, including genetic factors and tear sizes.3 These factors, together with the patient’s age, occupation, and activity level, need to be considered when selecting the most appropriate management for the patient.

Eiji Itoi, MD, PhD
Tohoku University, Sendai, Miyagi, Japan

**References**


**Disclosure:** The author indicated that no external funding was received for any aspect of this work. On the Disclosure of Potential Conflicts of Interest form, which is provided with the online version of the article, the author checked “yes” to indicate that he had a patent and/or copyright, planned, pending, or issued, broadly relevant to this work.