The natural course of nonoperatively treated rotator cuff tears: an 8.8-year follow-up of tear anatomy and clinical outcome in 49 patients

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Background: The natural course of nonoperatively treated rotator cuff tears is not fully understood. We explored the long-term development of tear anatomy and assessed functional outcomes.

Methods: Eighty-nine small to medium-sized full-thickness tears of the rotator cuff, all primarily treated by physiotherapy, were identified retrospectively. Twenty-three tears needed surgical treatment later on, and 17 patients were unable to meet for follow-up. The remaining 49 still unoperated tears were re-examined after 8.8 (8.2-11.0) years with sonography. Re-examination by magnetic resonance imaging was possible for 37 patients. Shoulder function was assessed with shoulder scores. Primary outcome measures were progression of tear size, muscle atrophy, and fatty degeneration and the Constant score (CS).

Results: Mean tear size increased by 8.3 mm in the anterior-posterior plane (P = .001) and by 4.5 mm in the medial-lateral plane (P = .001). Increase of tear size was −5 to +9.9 mm in 33 patients, 10 to 19.9 mm in 8 patients, and ≥20 mm in 8 patients. The CS was 81 points for tear increases <20 mm and 58.5 points for increases ≥20 mm (P = .008). Muscle atrophy and fatty degeneration progressed in 18 and 15 of the 37 patients, respectively. In tears with no progression of atrophy, the CS was 82 points compared with 75.5 points in tears with progression (P = .04).

Conclusions: Anatomic tear deterioration was found in the majority of patients, but it was often moderate. Large tear size increases and progression of muscle atrophy were correlated to a poorer functional outcome.

Level of evidence: Level II; Prognosis Study
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