



ELSEVIER

## ORIGINAL ARTICLE

# Patients with a long-standing cuff tear in one shoulder have high rates of contralateral cuff tears: a study of patients with arthroscopically verified cuff tears 22 years ago

Mats C. Ranebo, MD<sup>a,b,\*</sup>, Hanna C. Björnsson Hallgren, MD, PhD<sup>c</sup>,  
 Lars E. Adolfsson, MD, PhD<sup>b,c</sup>

<sup>a</sup>Department of Orthopedics, Kalmar County Hospital, Kalmar, Sweden

<sup>b</sup>Faculty of Medicine and Health Sciences, Linköping University, Linköping, Sweden

<sup>c</sup>Department of Orthopedics, Linköping University Hospital, Linköping, Sweden

**Background:** The prevalence of contralateral full-thickness cuff tears (FTTs) and cuff tear arthropathy (CTA) is presumed to be higher in patients with long-standing cuff tears than in those with newly diagnosed tears, but data are currently lacking.

**Methods:** Sixty-one patients with 38 partial and 23 full-thickness tears of 1 shoulder at arthroscopy were examined with bilateral radiographs, ultrasound, and the Constant-Murley score at a mean of 22 years (range, 21-25 years) after arthroscopy.

**Results:** The overall rate of full-thickness tears in the contralateral shoulder was 50.8%. In patients with a full-thickness tear and CTA (Hamada grade  $\geq 2$ ) in the index shoulder at follow-up, 18 of 20 (90%) had a contralateral full-thickness tear and 4 of 20 (20%) had CTA. In patients with a partial tear in the index shoulder at follow-up, 3 of 22 (13.6%) had a contralateral full-thickness tear and none had CTA. CTA changes were more common in patients with FTT and a previous acromioplasty ( $P < .001$ ). The correlation between shoulders was 0.72 for the number of tendons with FTT ( $P < .001$ ), 0.31 for the Hamada grade ( $P = .016$ ), and 0.65 for the absolute Constant-Murley score ( $P < .001$ ). The number of tendons with a full-thickness tear at follow-up was a risk factor (odds ratio, 3.28; 95% confidence interval, 1.67-6.44;  $P < .001$ ) for a contralateral full-thickness tear. Patients with a partial or full-thickness tear in the contralateral shoulder had pain in 39.2% of cases.

**Conclusion:** Patients with long-standing cuff tears have high rates of contralateral cuff tears. The severity of the condition is strongly correlated between the shoulders. Patients with full-thickness tears and a previous acromioplasty have a significantly higher frequency of CTA than patients with cuff tears who had not undergone a previous acromioplasty.

**Level of evidence:** Descriptive Epidemiology Study

© 2017 Journal of Shoulder and Elbow Surgery Board of Trustees. All rights reserved.

Ethical committee approval: Regional Ethics Committee Linköping (Dnr 2013/330-31).

\*Reprint requests: Mats C. Ranebo, MD, Department of Orthopaedics, Kalmar County Hospital, S-391 85 Kalmar, Sweden.

E-mail address: [mats.ranebo@ltkalmar.se](mailto:mats.ranebo@ltkalmar.se) (M.C. Ranebo).

**Keywords:** Shoulder; rotator cuff; contralateral tear; cuff tear arthropathy; long-term follow-up; ultrasonography

Rotator cuff tear is often described as a degenerative condition with a multitude of potentially causative factors,<sup>7,27</sup> several of which are systemic, such as hypercholesterolemia,<sup>1</sup> hypertension,<sup>10</sup> smoking,<sup>3</sup> and genetic factors,<sup>11,28,29,31</sup> among others. Because systemic risk factors are likely to influence the condition in both shoulders and thereby increase the risk of a rotator cuff tear regardless of hand dominance, overuse, and trauma, the contralateral shoulder may be at risk as well in a patient with a symptomatic tear in 1 of the shoulders. Diagnosing a contralateral tear at an early stage could be important, since a late diagnosis may increase the risk of having to treat retracted irreducible tears with fatty infiltration of the muscles, factors that may decrease the likelihood of healing after a repair.<sup>8</sup> In a study on the prevalence of contralateral tears in patients with a symptomatic tear on 1 side, the prevalence of full-thickness tears on the contralateral side was 35.5%.<sup>33</sup> Similar findings have been made in the contralateral shoulder in patients treated with cuff repair.<sup>16,23</sup> We hypothesized that patients with a known cuff tear on 1 side for many years would have a high rate of contralateral cuff tears after a long follow-up period and that a more severe rotator cuff condition in 1 shoulder would be linked to a more severe condition also in the contralateral shoulder. Such long-term data are currently lacking.

The primary aim of this study was to investigate the frequency of full-thickness rotator cuff tears and cuff tear arthropathy (CTA) in the contralateral shoulder more than 20 years after an arthroscopically documented tear in the other shoulder. The secondary aims were to assess risk factors for having a contralateral cuff tear, as well as the symptoms and function of the contralateral shoulder.

## Materials and methods

For this retrospective long-term follow-up study, we identified all patients operated on with an arthroscopic subacromial decompression between 1989 and 1993 at Linköping University Hospital through the internal database of operative procedures, in which all surgical interventions were recorded. Findings during shoulder arthroscopy in these years were documented in an operative protocol, and the condition of each rotator cuff tendon was documented as being intact, having a partial tear, or having a full-thickness tear. One hundred eleven patients had an intraoperative finding of either a partial or full-thickness rotator cuff tear, constituting a consecutive series of patients with an arthroscopically verified cuff tear. None of the patients underwent a cuff repair at the index operation. We reviewed the medical records from the study period and the contemporary digital medical records, as well as operative protocols, 21 to 25 years after the operation. The inclusion criteria were an intraoperative finding of either a partial or full-thickness tear, willingness to participate, and ability to undergo clinical and radiographic examination. We contacted all eligible patients by phone and asked

them to visit the clinic for bilateral radiographs, bilateral shoulder ultrasonography, and bilateral clinical examinations, including the Constant-Murley (CM) score.<sup>6</sup> Patients diagnosed with stroke with severe sequelae, dementia, alcoholism, or severe chronic obstructive pulmonary disease or who were receiving ongoing cancer treatment were considered medically too ill after review of present medical records and were not contacted. Participating patients gave written informed consent. Follow-up assessment was done by 2 examiners (M.C.R. and H.C.B.H.), neither of whom had taken part in the operations. The results of the 22-year follow-up of the index shoulder, including CM score, Western Ontario Rotator Cuff index, radiographs, and ultrasonography, have been previously published.<sup>22</sup>

## Clinical examination

We assessed pain and function with the CM score.<sup>6</sup> Strength measurement was performed with a digital myometer (Nottingham Mecmesin myometer; Mecmesin, Sleaford, UK), validated for this purpose.<sup>14</sup> We calculated the absolute value and the age- and sex-adjusted value for the CM score (called relative Constant-Murley score).<sup>5,6</sup> Information regarding profession during working life was gathered from interview and medical records and classified as manual or nonmanual labor. We recorded status regarding diabetes and smoking without details of years or amount of exposure.

## Ultrasonography

Ultrasonography was performed with a linear array transducer, 6-18 MHz, on a BK Medical Flex Focus 500 (BK Medical, Peabody, MA, USA) by an orthopedic surgeon well experienced in the technique (H.C.B.H.), according to a previously described protocol.<sup>4</sup> For each tendon of the rotator cuff, a full-thickness tear was diagnosed when there was a hypoechoic defect through the whole thickness of the tendon visible in 2 perpendicular planes. A hypoechoic defect of the undersurface of the tendon or on the bursal side in 2 perpendicular planes was diagnosed as a partial tear.

## Radiographic examination

Plain radiographic images were taken with standard frontal and lateral projections. The frontal projection was used for assessment of CTA according to the Hamada classification<sup>12,13</sup> as grade 1-5 (where grade 1 represents no arthropathy), and the images were independently classified by 2 of the authors and a radiologist not otherwise involved in the study. The  $\kappa$  values were calculated for the individual classifications, and consensus discussion was used for definitive classification. The acromiohumeral interval was measured in the digital workstation Picture Archiving and Communication System (PACS; Sectra, Linköping, Sweden) as the shortest distance from the cortical bone of the undersurface of the acromion to the subchondral bone of the most superior part of the humeral head. CTA was defined as Hamada grade 2 or more.

Download English Version:

<https://daneshyari.com/en/article/8801028>

Download Persian Version:

<https://daneshyari.com/article/8801028>

[Daneshyari.com](https://daneshyari.com)