



ELSEVIER

ORIGINAL ARTICLE

Reverse shoulder arthroplasty in patients with os acromiale

William R. Aibinder, MD, Bradley S. Schoch, MD, Robert H. Cofield, MD, John W. Sperling, MD, MBA, Joaquin Sánchez-Sotelo, MD, PhD*

Department of Orthopaedic Surgery, Mayo Clinic, Rochester, MN, USA

Background: Os acromiale has been reported in up to 15% of the general population. Reverse total shoulder arthroplasty (RTSA) increases deltoid tension, which could potentially lead to excessive stress on a pre-existent os acromiale. The purpose of this study was to determine the outcome and complications of primary RTSA in patients with radiographic evidence of an os acromiale.

Methods: Between 2005 and 2013, 25 shoulders underwent primary RTSA with an associated os acromiale, which was classified preacromion (3), mesoacromion (20), and meta-acromion (2). All patients were observed for a minimum of 2 years or until reoperation. Mean follow-up time was 30.8 (range, 1-81.4) months. Outcomes included pain scores, range of motion, patient satisfaction, American Shoulder and Elbow Surgeons scores, and radiographic outcomes.

Results: RTSA led to an improvement in pain scores in 24 of 25 shoulders. Mean elevation, external rotation, and internal rotation were improved at final follow-up (124°, 46°, and L4, respectively). Three patients required reoperation, including revision surgery for dislocation (2) and excision of a painful os acromiale (1). Postoperative tilting of the os acromiale was noted in 7 shoulders (28%). There was no statistically significant difference in any outcome measures between shoulders with and shoulders without postoperative tilt of the os acromiale.

Discussion and Conclusion: The outcome of RTSA does not seem to be negatively affected by the presence of an os acromiale. Pain around an os acromiale after RTSA is rare. Inferior tilting is observed in approximately one-third of the shoulders after RTSA and does not seem to change the overall outcome.

Level of evidence: Level IV; Case Series; Treatment Study

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

Keywords: Shoulder arthroplasty; os acromiale; reverse total shoulder arthroplasty; shoulder pain; radiographs; cuff tear arthropathy

Failure of the separate ossification centers of the acromion to unite results in an os acromiale.^{3,6} The reported incidence of os acromiale has ranged between 1% and 15%

in various study populations.^{7,10,14,21} This condition is often an incidental radiographic finding that may or may not contribute to an individual's shoulder symptoms.¹³ However, the presence of an os acromiale has been suggested by some to increase the probability of impingement and rotator cuff tears.^{3,8,18} Thus, a number of individuals with end-stage cuff tear arthropathy (CTA) will present with radiographic evidence of an os acromiale and may be considered for reverse total shoulder arthroplasty (RTSA).

Approval for this study was provided by the Mayo Clinic Institutional Review Board: 15-003344.

*Reprint requests: Joaquin Sánchez-Sotelo, MD, PhD, Mayo Clinic, 200 First Street SW, Rochester, MN 55905, USA.

E-mail address: sanchezsotelo.joaquin@mayo.edu (J. Sánchez-Sotelo).

Implantation of an RTSA results in increased tension on the deltoid, one of the mechanisms through which this procedure improves active elevation and strength.¹ Because the anterior and lateral deltoid originates from the acromion, theoretically the unfused portion of the acromion could be displaced after RTSA, become symptomatic, or compromise the biomechanical advantage of the deltoid muscle. There is limited published information about the effect of acromial disease on outcomes after RTSA, particularly in patients with an os acromiale.

Standard practice at our institution is not to address an asymptomatic os acromiale at the time of index RTSA. The purpose of this study was to determine the clinical outcomes, complications, and radiographic consequences of primary RTSA performed in patients with radiographic evidence of an os acromiale.

Materials and methods

A retrospective review was conducted of all primary RTSAs performed at our institution between 2005 and 2013 to identify shoulders fulfilling the following criteria: (1) presence of an os acromiale on preoperative imaging studies, (2) underlying diagnosis of CTA or massive irreparable cuff tear, and (3) complete clinical and radiographic follow-up for at least 2 years after the index procedure or until revision surgery. During that time frame, 1079 primary RTSAs were performed, and 25 shoulders fulfilled these inclusion criteria. Demographic data for the study group of these 25 shoulders are summarized in [Table I](#). The mean age at the time of the index arthroplasty was 72 years (range, 46-84 years). The mean follow-up time was 30.8 months (range, 24.0-81.4 months).

The indication for surgery was CTA in all cases. Eight shoulders had undergone prior surgery, including open reduction and internal fixation of a proximal humerus fracture in 1, arthroscopic rotator cuff repair in 6, and open rotator cuff repair in 1. The os acromiale was classified on the basis of preoperative radiographs as preacromion in 3, mesoacromion in 20, and meta-acromion in 2. This was confirmed on advanced imaging with either computed tomography (CT) or magnetic resonance imaging (MRI), which was available for all cases ([Fig. 1](#)). Eighteen patients had a CT scan, 4 had MRI, and 3 had both CT and MRI. There was no information in the medical record to suggest that any patients had symptoms directly related to the unfused acromion before arthroplasty.

Table I Demographic data

Gender	
Male	68%
Female	32%
Age at shoulder surgery	72.0 years (46-84)
Dominant extremity	56.0%
Operative time	93.3 minutes (46-170)
Body mass index	30.0 kg/m ² (20.9-44.5)
Prevalence of diabetes	24.0%
Tobacco use	
Current	16.0%
Past	32.0%
ASA class	2.5 (1-3)
Charlton Comorbidity Index	4.5 (0-7)
Follow-up duration	30.8 months (24-81)

ASA, American Society of Anesthesiologists.

Continuous variables are presented as mean (range).

At the time of RTSA, there was no deviation from standard operative protocols, given the presence of an os acromiale. The deltopectoral approach was used in 24 shoulders, and the anterosuperior approach was used in 1 shoulder. Implant designs used included Delta Xtend (DePuy, Warsaw, IN, USA) in 4, Aequalis (Wright Medical, Nashville, TN, USA) in 1, Comprehensive (Zimmer-Biomet, Warsaw, IN, USA) in 19, and RSP (DJO Surgical, Austin, TX, USA) in 1. The humeral component was uncemented in 20 and cemented in 5 shoulders. Standard offset glenospheres were used in all cases and were 32 mm in 1 shoulder, 36 mm in 16, 41 mm in 4, and 42 mm in 4.

Clinical and functional outcomes included Neer pain scores, active range of motion, subjective patient satisfaction, modified Neer ratings, and American Shoulder and Elbow Surgeons (ASES) scores.⁹ Preoperative, immediate postoperative, and postoperative radiographs were reviewed for migration or tilt of the unfused segment of the os acromiale. The amount of inferior tilt was measured on anteroposterior radiograph in degrees as the angle between the distal segment and the proximal acromion ([Fig. 2, C](#)). Measurements 5° or less were classified as no tilt. In addition, radiographs were reviewed for evidence of implant failure and loosening on the glenoid or humerus, as previously described.¹⁷ Scapular notching was graded on the basis of the classification described by Sirveaux.¹⁶

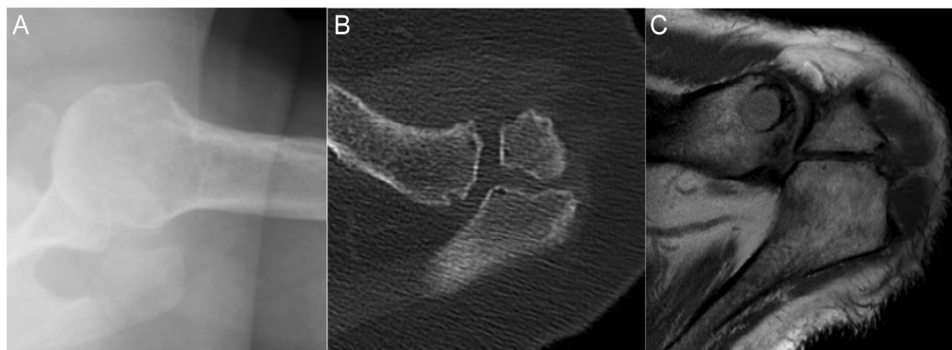


Figure 1 (A) Radiograph demonstrating a mesoacromion. (B) Computed tomography scan demonstrating a mesoacromion. (C) Magnetic resonance imaging scan demonstrating a mesoacromion.

Download English Version:

<https://daneshyari.com/en/article/5710394>

Download Persian Version:

<https://daneshyari.com/article/5710394>

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