

Should we perform Acromioplasty?

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Surgery for Partial-Thickness Rotator Cuff Tears

Three surgical options:

- 1) Debridement alone
- 2) Decompression and debridement
- 3) Excision of damaged tendon with primary repair (usually along with decompression)

Surgery for Full-Thickness Rotator Cuff Tears

- Codman (1909, 1934): RC repair without acromioplasty or incision of the CA ligament
- Neer (1972): advocated routine anterior acromioplasty at the time of RC repair
- Norwood (1989), Siekanowicz (1996): repair of the tendons without acromioplasty
- Decompression and repair remains the most common treatment for full-thickness tears requiring surgery. (Blevins 1996, Gartsman 1998, Hawkins 1985, Romeo 1999)

Decompression

- Traditionally, decompression at the time of cuff repair has consisted of anterior acromioplasty, resection of the CA ligament, and if needed, resection of downward projecting AC osteophytes (Neer 1972)
- Coracoacromial arch has a normal buffering role in passively resisting superior humeral translation, especially when the dynamic stabilizing function of the cuff muscles has been lost. (Flatow EL, Nirschl RP 1989, Watson M 1985, Wiley AM 1991)
- Anterosuperior subluxation from decompression without repair of massive cuff tears (Wiley AM 1991)

Pathophysiology

- It is uncertain whether acromioplasty is effective in preventing the progression of cuff failure. (Hyvonen P 1998)

- Tensile overload of cuff insertion, often after insertion has been weakened by age, disuse, smoking or steroids (Codman 1937, Matsen III 1998, Milgrom C 1995, Uthoff HK 1993)
- There is no objective evidence that primary extrinsic factors are involved in most disorders of the rotator cuff, as changes within the rotator cuff often occur without accompanying changes on the acromion. (Nirschl RP 1989)
- “the pathogenesis of most tears of the rotator cuff is a degenerative process” that predates the formation of osteophytes and that the acromial changes, when present, are reactive osseous changes secondary to impingement from superior humeral migration rather than primary acromial variants. (Ozaki et al. 1988)
- “Before focusing on the coracoacromial arch and the shape of the acromion, we must understand why fiber failure occurs.” (Harryman 1991)
- No convincing evidence linking the cause of this condition to subacromial ‘impingement’ .
 - Contact between the rotator cuff and the undersurface of the coracoacromial arch is physiological (it does not need ‘decompression’).
 - Tendon defects rarely occur on the acromial side (Uthoff, Ozaki, Payne, Loehr)
 - Models of impingement have not reproduced the lesions seen clinically (i.e. intrasubstance and articular side defects)
 - Acromial spurring takes place in the substance of coracoacromial ligament and does not commonly encroach on the superior aspect of the cuff tendons
 - Subacromial roughness is usually caused by bursal hypertrophy, tuberosity excrescences, or repair attempts, rather than by acromial morphology
 - Shoulders with cuff defects have a smooth undersurface of coracoacromial arch on palpation

Advantages of Acromioplasty

- Provides both enlargement of the anterior subacromial space to accommodate the rotator cuff and repair tissue and a more predictable relief of pain, even if the cuff repair fails to heal completely.
- Weulker: In a cadaveric model, subacromial decompression decreased subacromial compression forces by only 5%.

The potential disadvantages of routine acromioplasty and CA ligament section

- The potential risk of weakening the deltoid origin by surgical detachment of some of its anterior acromial fibers. (Kumar VP 1997, Matsen III FA 1998, Neer II CS 1972, Torpey BM 1998)

- High risk for postoperative avulsion (Matsen III FA 1998, Neer II CS 1972, Pollack RG 1997, Sher JS 1997)
- In irreparable RC repairs or tears that recur or progress despite surgery, resection of the acromion and CA ligament can contribute to antero-superior instability. (Matsen III FA 1998, Watson M 1987, Wiley AM 1991)
- A cicatrix can form between this raw bone and the underlying tendon. (Liu SH 1997)
- Adhesions in the humeroscapular motion interface can limit motion, smoothness, and comfort. (Matsen III FA 1998, Romeo AA, 1998)

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