

Current Solutions in Shoulder and Elbow Surgery
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Decision Making in Massive Cuff Tears: Options

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Disclosure Richard J. Hawkins, MD

Hawkins Foundation:

Greenville Health System
DJO Surgical
Arthrosurface
Smith & Nephew
Neurotech

Pacira
ArthroCare
Euflexxa
Breg
Arthrex

Consulting Agreement:

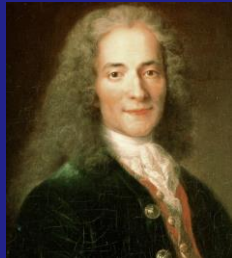
DJO Surgical
Arthrex
Pacira

Royalties:

Lippincott, Williams & Wilkins
Ossur

“If you wish to
speak with me, first
define your terms.”

- Voltaire



Classification

Size

- < 1cm small
- 1 – 3cm medium
- 3 – 5cm large
- > 5cm massive



“Coronal or Sagittal”

*Post M et al. Clin Orthop, 1983
Cofield et al. JBJS, 1984*

Decision Making

Clinical Evaluation

- Acute vs. chronic
- ROM & weakness
- Shoulder shrug (Pseudoparalysis)
- Physiologic age



X-Ray (AP)



X-Ray (Ancillary)

Axillary

- Arthritis?



Massive Tear: Decision Making

MRI Findings

- Size of tear
- Fatty infiltration
- Atrophy



Coronal View



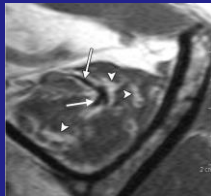
Sagittal View



Goutallier's Classification

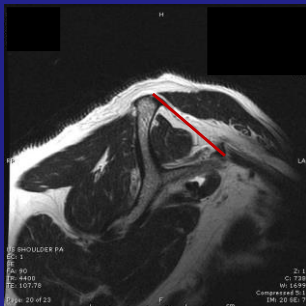
Fatty Infiltration:

- 0 – Normal
- 1 – Fatty Streaking
- 2 – Muscle > Fat
- 3 – Fat = Muscle
- 4 – Fat > Muscle



Goutallier et al. CORR, 1994

Tangent Sign



Axillary View



Surgical Treatment Options

- Debridement & smoothing
→ open vs. arthroscopic
- Partial cuff repair
- Tendon Transfers
- **Biceps release, Walch (Boileau)**
- Conventional repair, Abrams
- Reverse arthroplasty, Frankle

Boileau

“Horse is out of the barn”

- Tangent sign
- Goutallier 3 or 4
- No AHI (head vs actinium)
- Chronic, classic pseudoparalysis

Tenotomy for Massive Cuff Tear 307 Cases

- 87% satisfied
- Constant 48 → 67
- Acromioplasty if A-H interval > 6 mm
- No ↑ H.H. migration



Walch, et al. JSES, 2005

Isolated arthroscopic biceps tenotomy or tenodesis improves symptoms in patients with massive irreparable rotator cuff tears.

Boileau P, et al, JBJS, 2007

(Outcomes)

Massive irreparable tear with biceps → tenotomy

- 2/3 Do Great
- 1/3 Reverse

Moon Shoulder Group Study

Atraumatic full thickness cuff tears

- 80% respond to therapy for 2 yrs
- PT is 12 weeks of supervised therapy

Rehab Works?

Kuhn et.al, JSES 2013

Rotator Cuff Repairs

Harryman, Matsen et al. JBJS, '91

- Ultrasound – 105 Patients
- > 50% large tears came apart
 - Pts overall satisfied
- Fxn & ROM better for intact cuffs

Correlation of function and integrity

Repairability: Open vs. A

Go to work
See what happens



Tendon Tranfers

- Subscapularis
→ Karas & Giachello
- Latissimus
→ Miniaci, Gerber
- Deltoid
→ Gazielly

*Physiologically
Younger Pts*



Cuff Arthropathy

Reverse Shoulder
Arthroplasty



(Age Related)

Bioengineered Collagen Membranes

- “Close the hole”
- Bridge gap
- Reinforce repair



Future Directions

Tissue Engineering

- Growth factors
→ BMP, PDGF, etc.
- Stem Cells
- Gene Transfer



(Amnion – Placenta)

Pain Generators in the Shoulder

- Cuff Tears – Sometimes
- AC Joint – Occasionally
- Acromial Spurring – Maybe
- Arthritis – Often
- *Biceps – Yes*



Biceps – Killer

Some Thoughts

- All massive tears can't be repaired
- Repair of massive tears can fail
- Biceps is a pain generator
- Repair rarely reverses pseudoparalysis
- RSA often reverses pseudoparalysis
- Age is an important factor

What To Do

Consider all these factors and choose

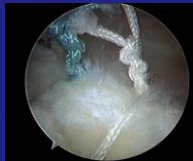
- ROM – Pseudoparalysis
- X-Ray ↓ AHI
- Goutallier changes (III, IV)
- Tangent sign

Biceps Release Simple

Ideally

Repair early (before massive)

- Great outcomes
- Seems to last





Thank You
