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”

Cofield et al. JBJS, 1984

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**Decision Making**

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

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**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
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.


(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 Transfers**

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

**Physiologically Younger Pts**

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**Cuff Arthropathy**

Reverse Shoulder Arthroplasty

(Age Related)

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**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