



The Irreparable Rotator Cuff Tear:
What are my options?

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4/26/2019



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Disclosures



- Consulting
 - > Mitek
- Committee Member
 - > AAOS, AOSSM,
- Journal Reviewer
 - > AJSM, JSES, JBJS
- Clinical Trial Support
 - > Zimmer
- Grant Support
 - > DoD, OREF, Institutional funding
- Institutional Support
 - > Zimmer, Stryker, Synthes, Smith & Nephew



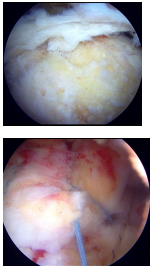


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Outline

- Background
- Definition & Classification
- Pathomechanics
- Clinical Presentation
- Treatment Options
- Summary



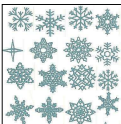



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"20 second TO": What this talk is NOT

- *Comprehensive review of literature for treatment options for the irreparable rotator cuff tear*
- *Endorsement of any one treatment strategy*
- *Comprehensive review of rotator cuff tear arthropathy*





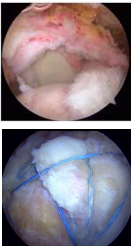
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Background: Rotator Cuff Disease

Epidemiology

- Millions of Americans have some aspect of rotator cuff disease
- Full-thickness tear
 - 28% (> 60 yo)
 - 65% (>70 yo)
- Those with asx tear
 - 50% chance of developing sxs w/in 3 yrs
 - 40% chance of tear progression



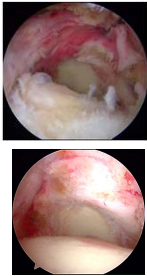
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Background

Irreparable Rotator Cuff Tear (IRCT)

- Complex clinical spectrum
 - Lack of consensus (regarding treatment)
- Progression
 - Fatty infiltration
 - Tendon retraction
 - Inelastic tissue
 - Scar & adhesion formation
- Repair
 - Unpredictable
 - Highly morbid



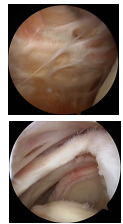
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Definition & Classification

- Massive tear ≠ Irreparable tear
 - Lack of healing potential
 - Not technical feasibility
- Size (USA)
 - Cofield JBJS 1985
 - > 5 cm
- # of Tendons (Europe)
 - Gerber JBJS 2000
 - Prognosis, function, outcome

Consider: amount of humeral head exposed, tear pattern, tissue mobility

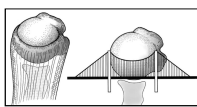


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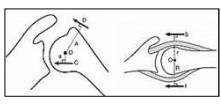
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Pathomechanics

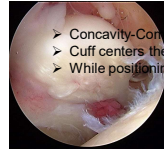
Suspension Bridge



Force Couple



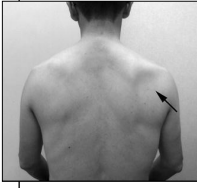
- Impoverished biologic environment
- Concavity-Compression
- Cuff centers the head
- While positioning hand in space
- Attritional changes to tendon
- Attritional changes to muscle
- Relative hypovascularity

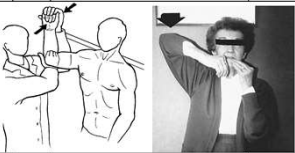


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JBJS 1999
JBJS 2007



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Clinical Presentation (IRCT Pearls)

History


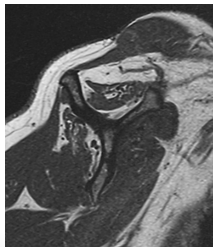
Physical Exam


- Lag signs

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Clinical Presentation (IRCT Pearls)



MRI

- ✓ Size
- ✓ Retraction
- ✓ Fatty infiltration
 - Stage 3 & 4 no improvement after repair (AJR 2005)

*****U/S cannot determine reparability*****

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Treatment Options


Nonoperative

vs

Operative



TAYLOR THE PLAN: patients goals, symptoms, demands (patient and shoulder)... remember the snowflake

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Treatment

Nonoperative

- Physical therapy
 - Subscap; trapezius;
 - **ANTERIOR DELT**
 - Scapular stabilization
- Corticosteroid injection
 - PT participation
 - Defines true pseudoparalysis v pain
- Treat people not x-rays



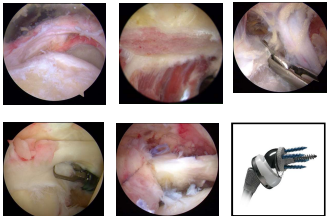
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Treatment

Operative

- Arthroscopic
- Reconstruction
 - Superior Capsule
 - Grafts
 - Tendon Transfers
- Arthroplasty
 - Hemi
 - RSA



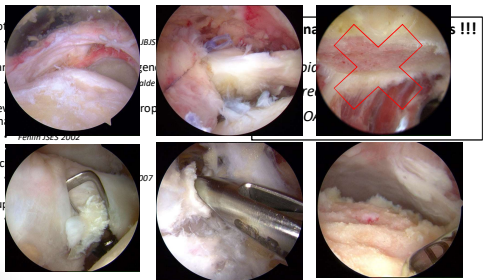
* They can all work really well with an equal opportunity for catastrophic failure
* Do the right thing for the right person at the right time

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Treatment: Arthroscopic

- Rot
- Par
- Rev (m)
- Bic
- Sup



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Treatment: Reconstruction (Salvage?)

Superior
 • Biomaterials
 • Clinical results promising
 • Gerber CORR 1992

2011
 2011
 JBS 2011
 JBS 2011

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Treatment: Arthroplasty

Hemiarthroplasty

- Balance mechanics - AKA -
- Preserved coronal plane force couple (intact subscap)
- Conventional
 - 67% or 63% good results; previous SAD bad
 - Sanchez Sotelo JBJS 2001
 - Field JBJS 1997
- EAS head
 - Copeland J Surg Orthop Adv 2009
- Function and cost better with RSA
 - Leung JSES 2012; Leung JSES 2012

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Treatment: Arthroplasty

Cuff Tear
 Superior Glenoid Erosion
 Superior Migration
 Deltoid
 S. D'Appolite, M.D.

F1 L1 C
 F2 L2 C


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Treatment: Arthroplasty

Reverse Shoulder Replacement (Results)

- Grammont's modification (invented for CTA)
- Clinical Success
 - Boileau JSES 2007
 - Wall JBJS 2007
 - Frankle JBJS 2010
- DO's
 - Elderly; low demand; arthropathy; consider lat tranfer too
- DON'T's
 - Young age; high function preop; neurologic dysfunction



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Case 1: LE

47 yo male s/p MVC

Poly trauma: flail chest, bilateral shoulder injuries w/ acromial fracture ORIF

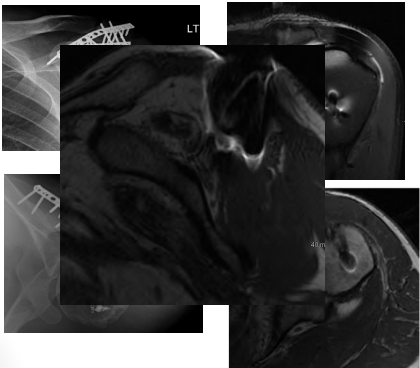
Underwent attempt at RCR – failed

Now 8 months from initial injury



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Case 1: LE

Summary

- Chronic subscap, supra, and infra tear
- Failed previous repair attempt
- Significant atrophy of supra

Plan

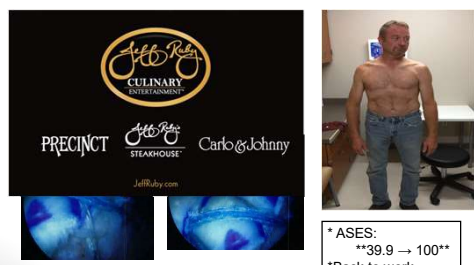
- Pectoralis major transfer
- SCR



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Case 1: LE



* Pec transfer: under coracoid

* ASES:
39.9 → 100
*Back to work





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Summary

- Treat all patients like snowflakes
- Define expectations early
- Consider injection to define pseudoparalysis
- PT should focus on ANTERIOR DELTOID
- Arthroscopic surgery can help in certain pts
- RSA should not be take lightly
 - Good pain control
 - Overhead power less reliable
 - Complication rate relative high



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END



Thank you!

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