

Case #3: Who Do I Treat Non-Operatively for Rotator Cuff Tear? *Indications for Surgery*

Session IV: Rotator Cuff
Saturday, February 1, 2020, 2:15pm-2:30pm

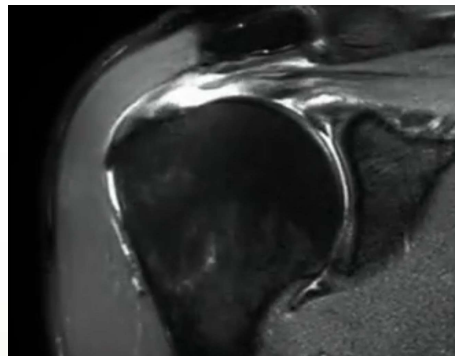
John E. Kuhn, MD
Kenneth D. Schermerhorn Professor of Orthopaedics
Chief of Shoulder Surgery

Panelists

- Jeffrey Abrams, MD
- Jay Keener, MD
- John Kelly IV, MD
- Mark Mighell, MD



When I was Young.....



Presence of the Condition was the Indication for Surgery



I have Learned:

Relationship between Pain and Degenerative Cuff Tears is Not Robust

- <5% of Cuff Tears in USA Get Surgery
- Pain Level, Duration of Sx, Activity Levels do NOT Correlate with Cuff Tear Severity
- Failed Cuff Repairs have same PROs and Satisfaction as Intact Repairs (strength better if intact)
- Physical Therapy is Highly Effective in Treating Atraumatic Cuff Tears

How Many Cuff Tears Are There?

- US Population in 2010 = 308.4 Million
- Over age 60 = 57 Million



Prevalence Data

- What proportion of people have full thickness rotator cuff tears?

Table 4 Composite table of results

Group	Total number	Mean age (years)	FTTs prevalence (%)	PTTs prevalence (%)	Total prevalence (%)
Total cadaveric	4629	69.3	12.7	10.4	23.1
Full data cadaveric	2553	70.1	11.8	18.5	30.3
Ultrasound asymptomatic	591		21.7	17.2	38.9
Ultrasound symptomatic	1038	50.4	34.7	6.7	41.4
MRI asymptomatic	271	44.3	10.3	15.9	26.2
MRI symptomatic	490	43.6	40.8	8.6	49.4

POINT 1: PREVALENCE
HOW MANY CUFF TEARS ARE THERE?
5.7 to 22.8 MILLION IN USA



Who Has Surgery?

- 270,000 rotator cuff surgeries/year
- $270,000 / 5.7 \text{ Million} = 4.7\%$
- $270,000 / 22.8 \text{ Million} = 1.2\%$

***1.2% to 4.7% of people with cuff tears
are getting surgery.....***

Big Denominator

25,000 Orthopaedic Surgeons in USA-5.3 Million Surgeries in 2010

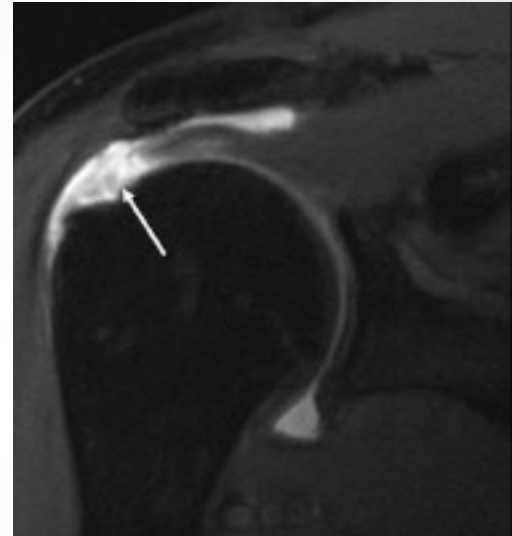
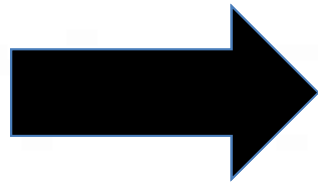
Every Orthopaedic Surgeon in USA would need to be fixing cuffs All Of the Time

POINT 2: SYMPTOMS

Assumption



SUBJECTIVE



OBJECTIVE

MOON Shoulder Group

- Multicenter Orthopaedic Outcomes Network (MOON)
- 16 Shoulder Surgeons
- 11 Sites across USA
- Academic and Private Practice
- Collaborative Effort to Study Shoulder Disorders
- *Effectiveness of PT in Symptomatic Atraumatic Cuff Tears to Determine Indications for Surgery*



METHODS

- 452 subjects were enrolled and given an EBM based physical therapy program
- Work with therapist until ready for Home Program
- Surgery at Any Time
- Evaluated at T=0

MOON COHORT DATA

Do Symptoms Correlate with Cuff Tear Severity?

Pain Level? **NO** (Dunn et al JBJS 96(10):793-800, 2014)

Duration of Symptoms? **NO** (Unruh et al JSES 23(13):1052-8, 2014)

Activity Level? **NO** (Brophy et al AJSM 42(5)1150-4, 2014)

Symptoms **DO NOT** Correlate with Cuff Tear
Severity

Point 3: **FAILED** CUFF REPAIRS Do Well

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Structural Integrity After Rotator Cuff Repair Does Not Correlate with Patient Function and Pain

A Meta-Analysis

Robert D. Russell, MD, Justin R. Knight, MD, Edward Mulligan, DPT, and Michael S. Khazzam, MD

*Investigation performed at the Sports Medicine and Shoulder Service, Department of Orthopaedic Surgery,
University of Texas Southwestern Medical Center, Dallas, Texas*

Conclusions: The results of this study suggest that there is not a clinically important difference in validated functional outcome scores or pain for patients who have undergone rotator cuff repair regardless of the structural integrity of the repair. Patients with intact repairs do have significantly greater strength than those with retears.

Level of Evidence: Therapeutic Level II. See Instructions for Authors for a complete description of levels of evidence.

Point 3: **FAILED** CUFF REPAIRS

Do Well

Approximately 1/3 of Cuff Repairs Fail

Patient Satisfaction, Pain and PROs are the Same
if your Cuff Repair FAILS

*If the Cuff Tear was the Source of Pain-Shouldn't
These Hurt?....*



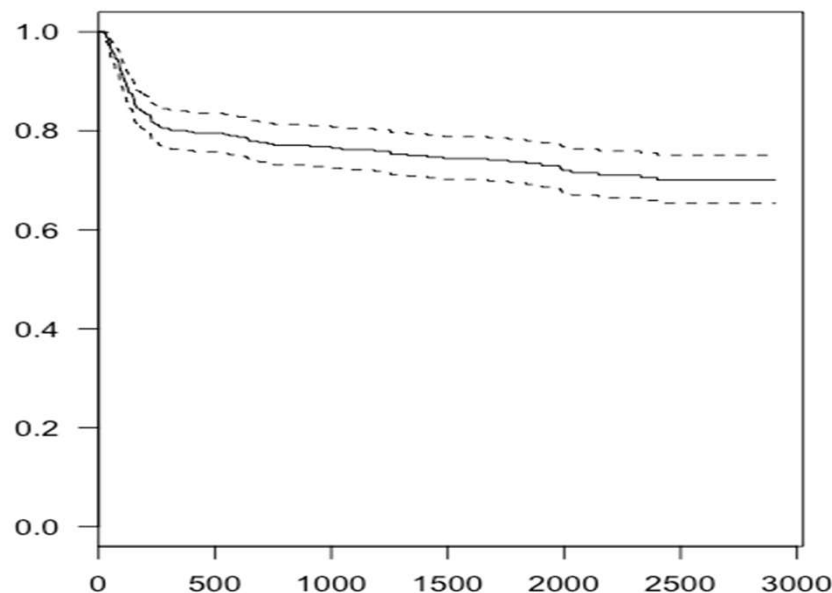
POINT 4: REHABILITATION IS EFFECTIVE

PT does not Fix the Cuff Tear

*If the Cuff Tear was the Source of Pain
PT Should Fail*

Effectiveness of Therapy

5 Year Outcomes



85% Follow up at 5 years
3% died, 16% lost to follow up
24% had Surgery; 76% Did Not
Those that had Surgery Decided Early

DID NOT PREDICT SURGERY

Pain Level

Duration of Sx

Cuff Tear Size/Anatomy

DID PREDICT SURGERY

Activity Level

Not Smoking

Patient Expectations

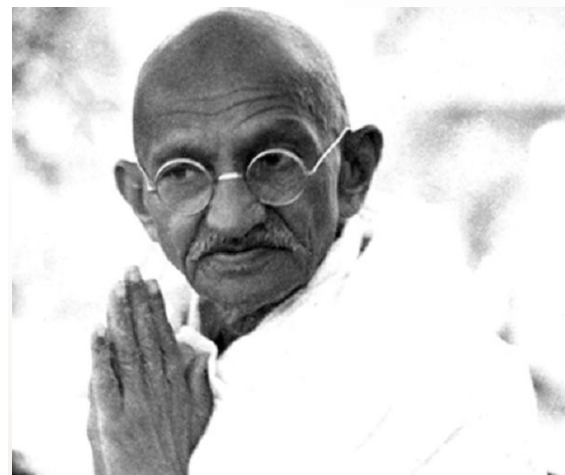
What Predicted Surgery?

PATIENT EXPECTATIONS

- If a patient ***believed*** PT would work-It did
- If a patient ***believed*** PT would not work-they had surgery

YOUR BELIEFS become your thoughts,
YOUR THOUGHTS become your words,
YOUR WORDS become your actions,
YOUR ACTIONS become your habits,
YOUR HABITS become your values,
YOUR VALUES become **YOUR DESTINY**

— Mahatma Gandhi





What I have Learned

The Relationship between Pain and Rotator Cuff Tears is NOT Robust

SUBJECTIVE is NOT related to the OBJECTIVE

THE CUFF MAY NOT BE THE SOURCE OF PAIN

Some Patients Do Better with Surgery

Who Are They?

Case

- 75 Year Old Retired Clinical Psychologist
- Enjoys Gardening and Bike Riding
- No Injury
- Developed Pain
- Difficulty Sleeping



Physical Exam

- Mild Atrophy in Supraspinatus Fossa
- Full Elevation
- Full External Rotation
- Mild Limitations of Internal Rotation of the Abducted Arm
- Pain and Mild Weakness in ER and SSP Testing



If you Suspect Cuff Disease, what physical examination tests are most helpful?

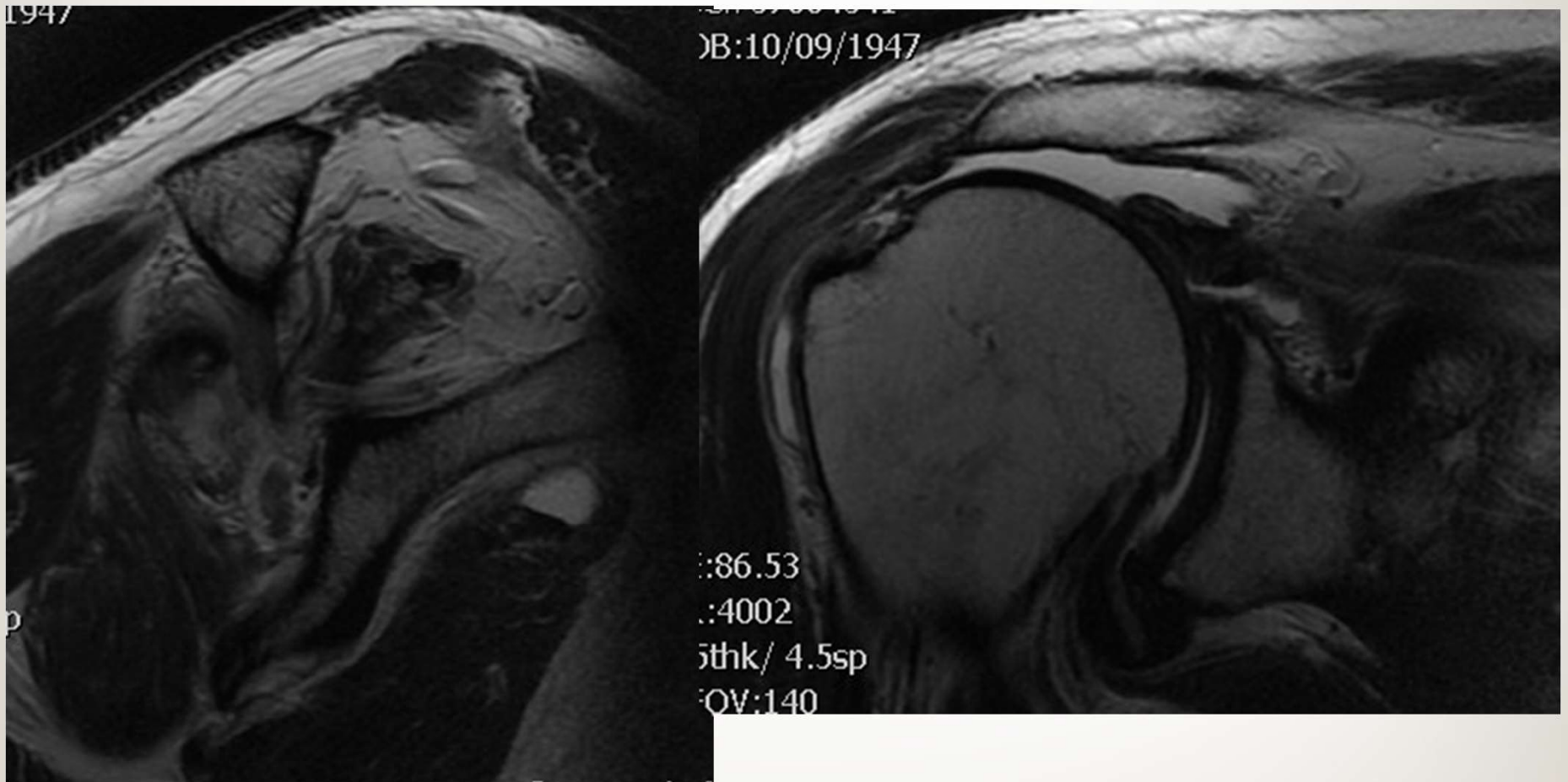
Imaging



Is there anything on Plain Imaging that might influence your decision for recommending Surgery?

Would you order an MRI or Ultrasound?

Imaging



How would you manage this Patient?

New History Same Images

- Was fine with minimal pain
- Fell in the Ice
- Severe Pain
- Lost Ability to Raise his Arm



How would you manage this patient?

Features

- *What Historical Features do you use to decide indications for surgery?*
 - *Age?*
 - *Traumatic?*
 - *Activity?*
 - *Comorbidities*
 - *Expectations?*

Features

- *What Physical Exam Features do you use to decide indications for surgery?*
 - *Pain*
 - *Weakness*
 - *Functional Loss*
 - *Lag Signs*

Features

- *What Imaging Features do you use to decide indications for surgery?*
 - *Size of Tear*
 - *Fatty Infiltration*
 - *Tendon Stump on Greater Tuberosity*
 - *OA?*

Let's Talk about Tear Progression

PROGRESSION IS NORMAL

Is All Progression Bad?

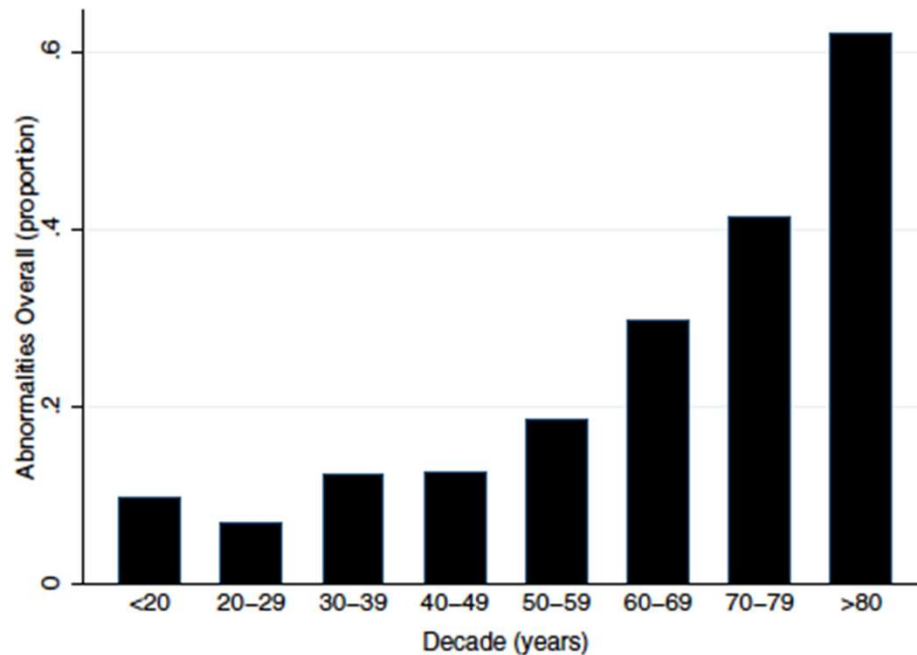


Figure 2 Histogram of rotator cuff abnormalities by age group across all studies.

Cuff Tear Progression

- *Who Will Progress?*
- *Does Progression Lead to Symptoms?*
- *Can Surgery Change the Natural History of this Ageing Process?*

“Pseudoparalysis”

What is your Definition?

“Pseudoparalysis”

Will this Respond to Therapy?



The role of anterior deltoid reeducation in patients with massive irreparable degenerative rotator cuff tears

Ofer Levy, MD, MCh(Orth), Hannan Mullett, FRCS(TR & Orth), Sarah Roberts, Bsc(Hons), Bed(Hons), MCSP, and Stephen Copeland, FRCS, Reading, United Kingdom

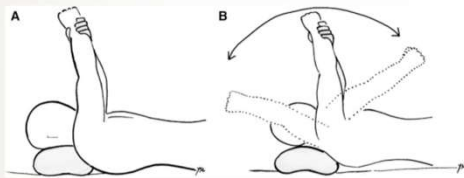


Figure 1 A, The patient is instructed to bring his arm to the upright position first and try to keep it upright with his deltoid muscle contraction force. **B**, Laying down flat, supine, the arm movement is initially within short amplitude from the upright position within a comfortable arc with gravity eliminated.

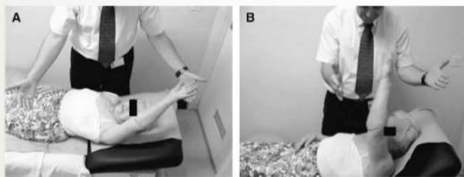


Figure 2 A and B, The arc of movement is demonstrated with the instructor's palms indicating the limits of the arc.

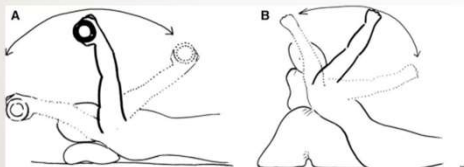


Figure 3 A, The arc is repeated with a small weight, such as a can of beans, and the excursion is gradually increased as confidence increases. **B**, The patient progresses to use the arm against gravity in a semi-sitting position.



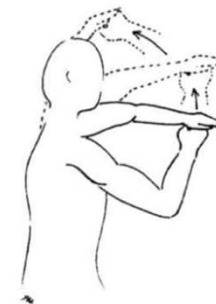
Reading Shoulder Unit

Mr Stephen A Copeland, FRCS
Consultant Orthopaedic Surgeon

Mr Ofer Levy, MD MCh (Orth)
Consultant Orthopaedic Surgeon

- Another useful exercise for re-education of concentric contracture of the deltoid muscle.

Performing the exercise:

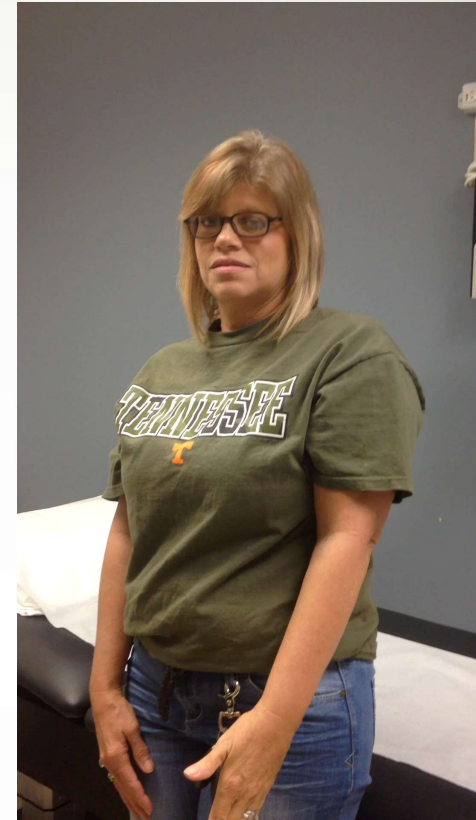


Make a fist with the hand of the affected side. The flat hand of the opposite side is providing resistance. Push your affected side hand against resistance from the other hand. While

Vanderbilt Sports Medicine



Hand Over Fist Sign



Preacher Sign

Final Questions

Of all patients with atraumatic symptomatic full thickness cuff tears you see, what % come to surgery?

Final Questions

Who is the ideal patient for surgery?

Thanks!

