Revision and Complex Instability:
A Case-Based Discussion

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Rush University Medical Center

Disclosures

- Consultant/Royalties:
  - DJO/Encore Medical
  - Tornier/Wright Medical
- Education/Research Support:
  - Arthrex
  - Zimmer
  - DePuy-Mitek

Goals

- Discuss revision instability decision-making
- Discuss complex instability "tool kit"
- 4 cases in 8 minutes

The Problem

- Arthroscopic bankart not as effective as once believed—particularly for those with multiple dislocations
  - Subjective instability in 62% and re-operation in 32%
  - 4x worse than in first time dislocators (Marshall AJSM 2017)
- Multifactorial…

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Case 1

"The Midshipman"

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Case 1

- 27 yo RHD male
- First dislocation in 2007, traumatic
- @ bankart in 2008, redislocated 1 year later
- Increasing frequency and decreasing threshold
- Has had difficulty reducing on occasion

- PE: + Apprehension

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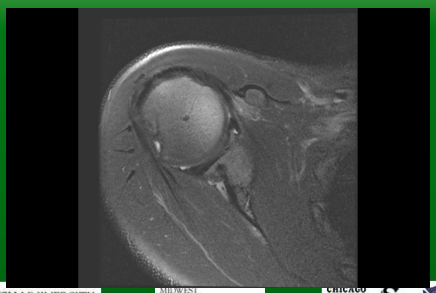
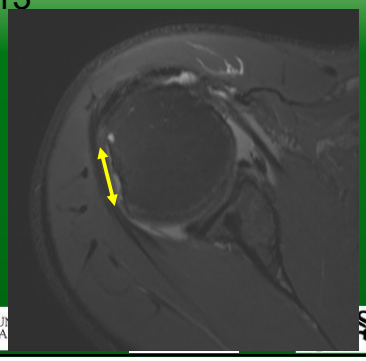
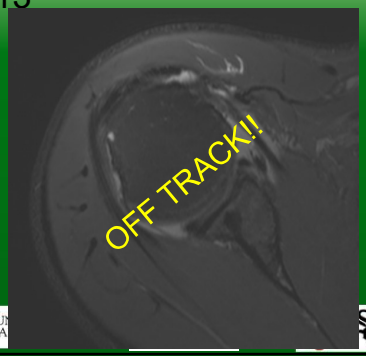
2008

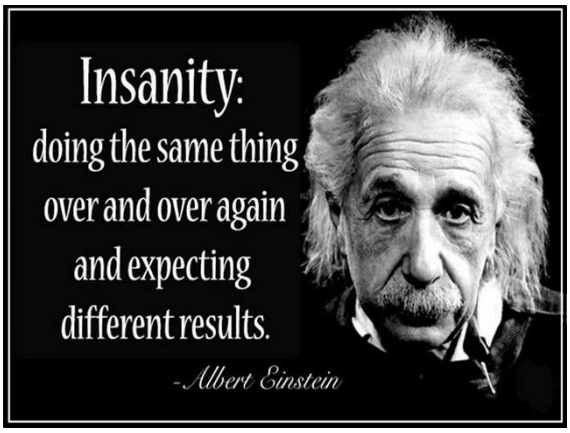


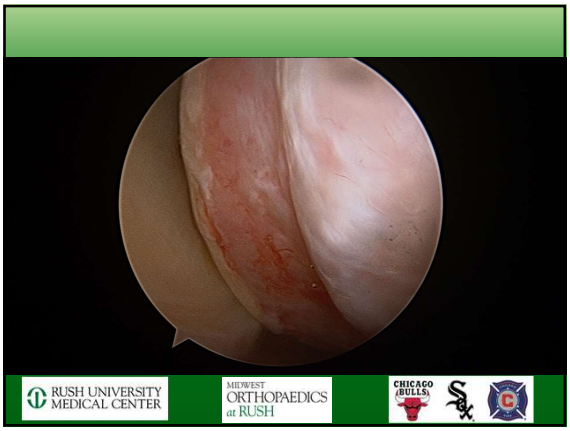
2013



2013




Insanity:
doing the same thing
over and over again
and expecting
different results.
-Albert Einstein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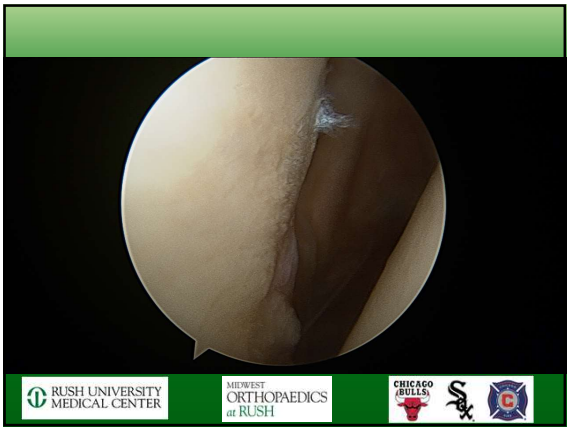
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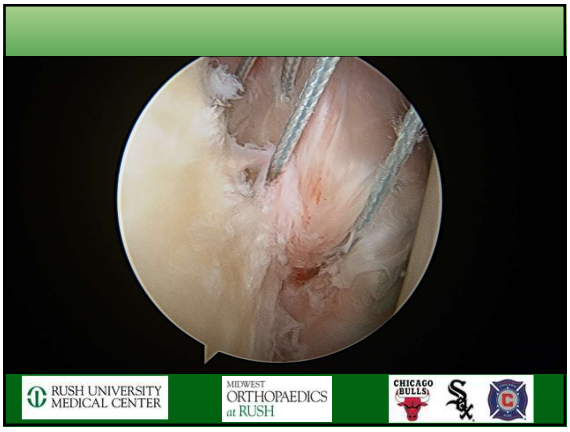
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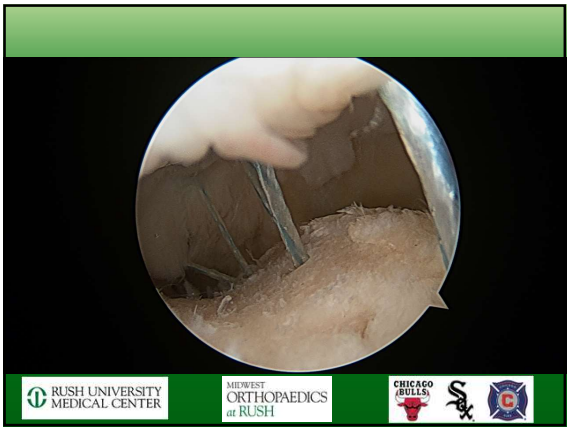
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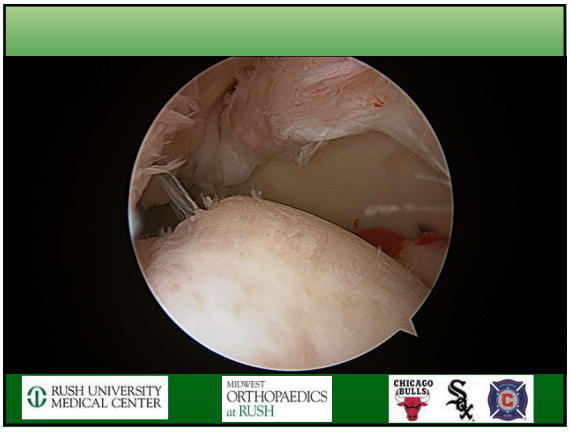
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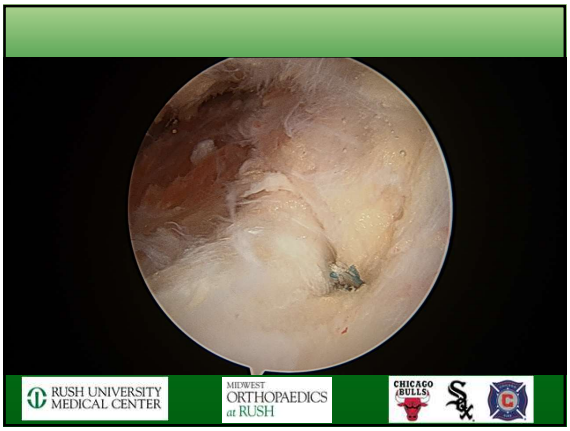
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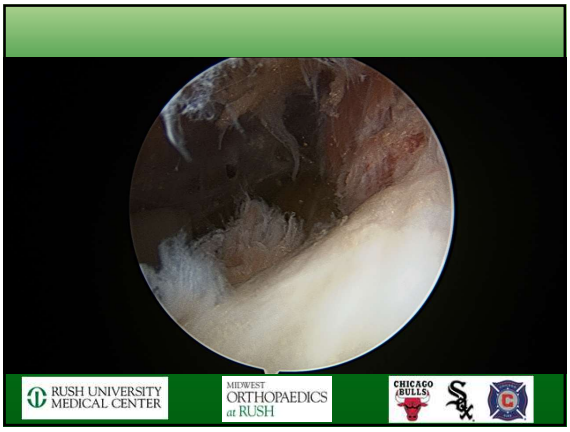
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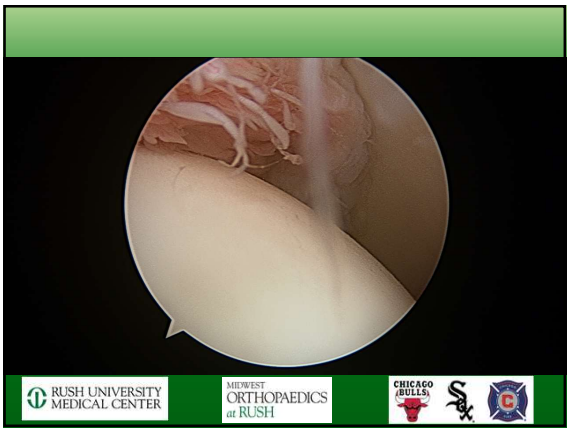

Follow-up

- No pain
- Full strength
- 2 levels different IR
- No further dislocations
- “very satisfied”

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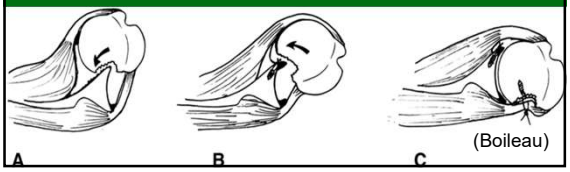
Case 1: Discussion points

- “Remplissage”
  - Fr. “To fill in”, described by E. Wolfe 2007
  - Capsulotenodesis of Infraspinatus into Hill-Sachs
  - Makes HS extra-articular and creates a ”check-rein”



(Boileau)

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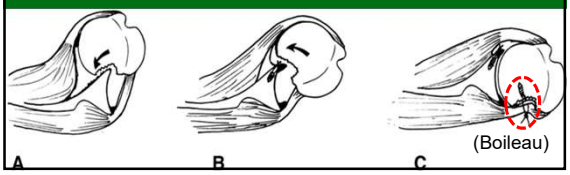
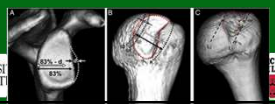


(Boileau)

What went wrong the first time?

- Surgeon factors
  - Off track lesion treated with @bankart alone
  - @bankart inadequately performed (single anchor)
- Patient factors
  - Neglected shoulder with recurrent instability
    - Bony defects, labrum, capsule, and articular cartilage all deteriorating



Clinical results of Remplissage: Currently debated

- Does it heal?
  - Yes (Merolla, dynamic US)
- Do patients lose motion?
  - Unclear
    - Some clinical studies show excellent ROM (Ko; Boileau)
    - Some show decreased ROM
      - ~10 deg ER and IR at 90 deg abduction (Merolla)
    - Biomechanical studies mixed:
      - No loss of ROM? (Argintar)
      - Loss of ER? (Grimberg)

Clinical results of Remplissage: Currently debated

- Does it help instability?
  - Randomized controlled trial: Lower recurrence rate for treatment of traumatic anterior instability with engaging HS (Ko)
  - *Honestly hard to measure as each case has different HS lesion size, orientation, activity level, concomitant labral pathology, dominant/nondominant etc...*

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Case 2

"The Intramural Soccer Star"

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Case 2

- 18 yo RHD female college freshman
- First dislocation in playing JV HS soccer.
- @ bankart 4 years prior
- Subluxated 3 months later and continues to dislocate during intramural sports
- PE exam: + Apprehension, Beighton score 7/9

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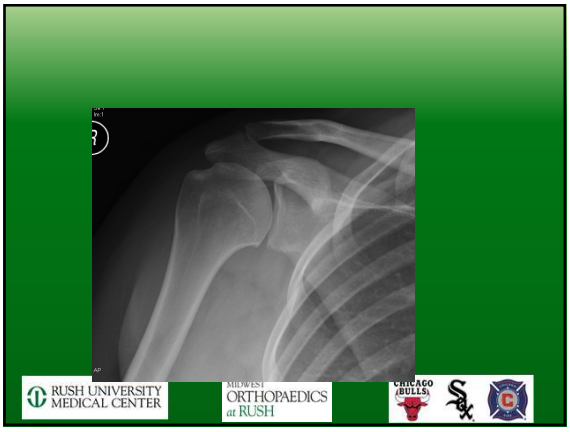
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CHICAGO BULLS


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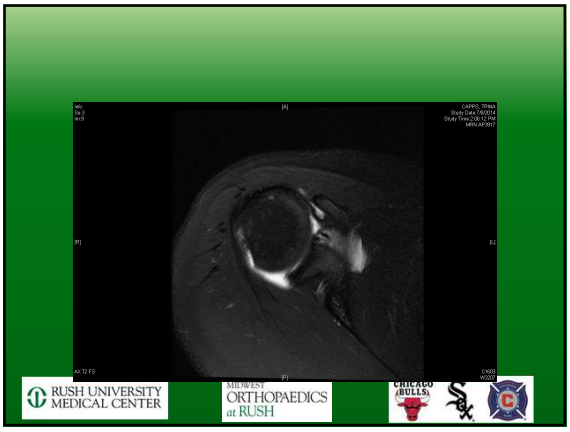
CHICAGO BULLS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CHICAGO BULLS

Decisions, decisions…

- Bipolar glenoid bone loss

+

- Concern about soft tissue/collagen integrity

=

Bony reconstructive procedure

In my hands, I prefer the Arthroscopic Latarjet

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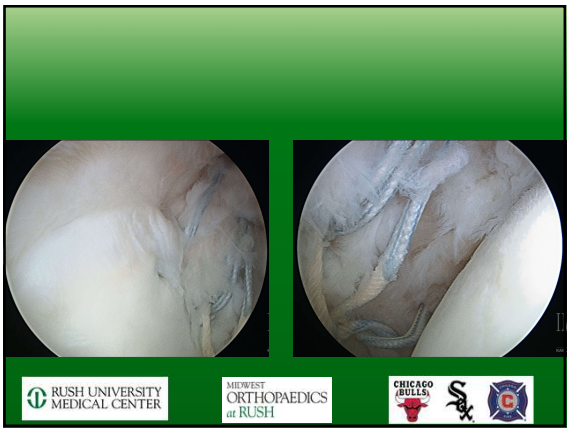
CHICAGO BULLS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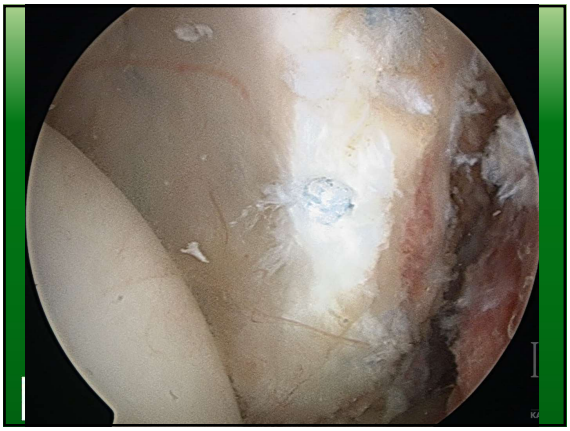
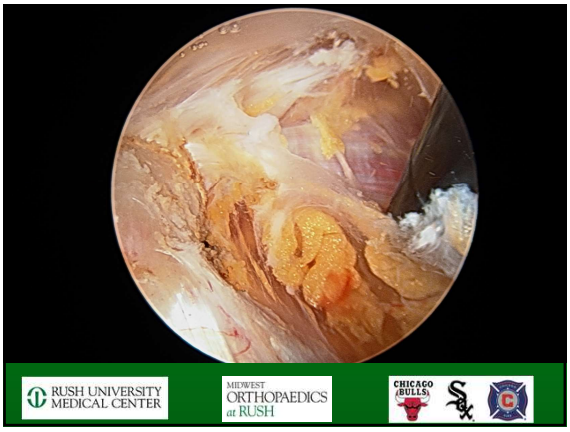
CHICAGO (BULLS)

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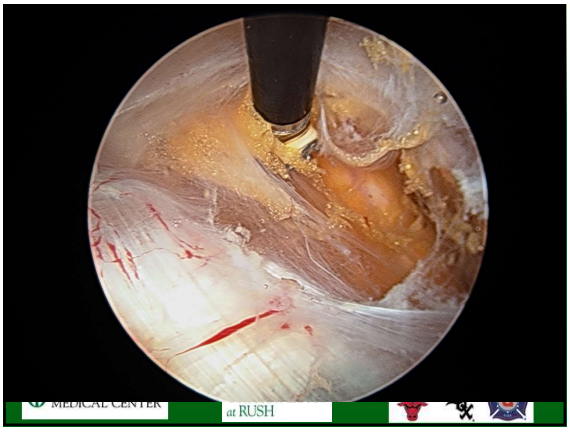
CHICAGO (BULLS)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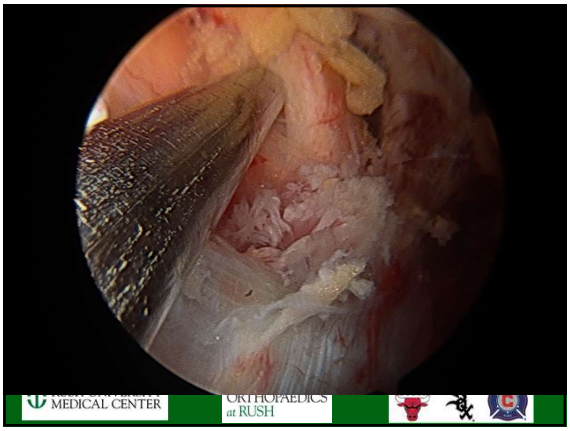
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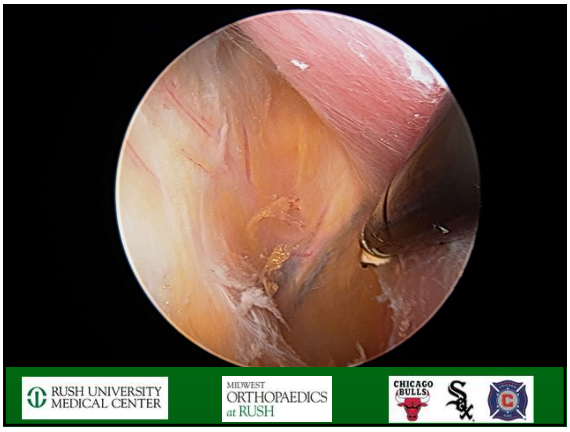
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CHICAGO
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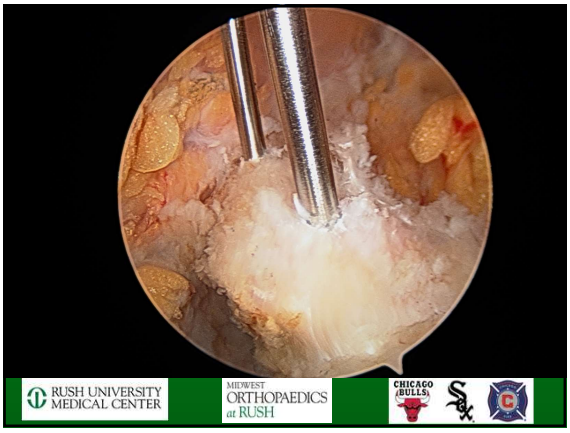
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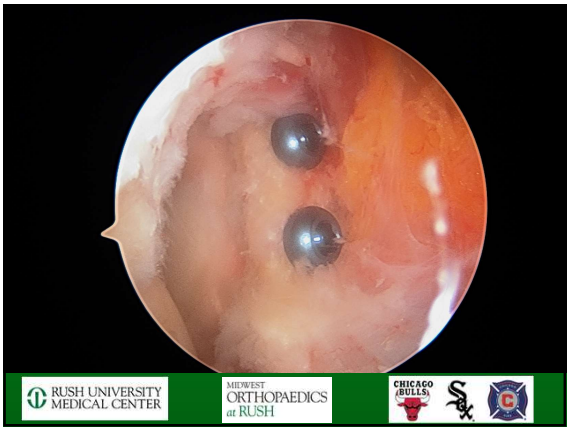
CHICAGO BULLS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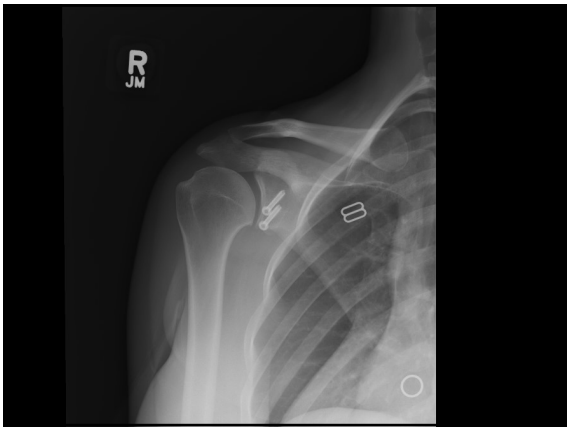
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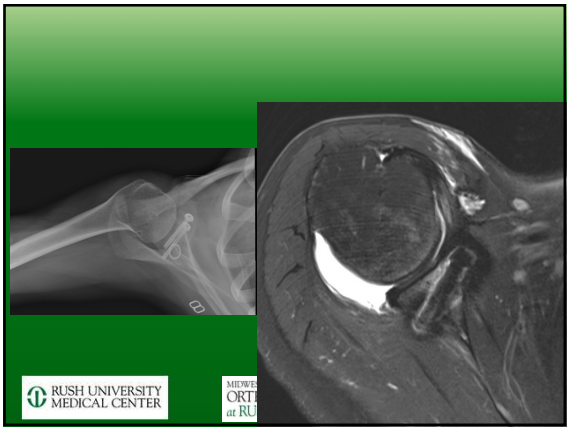

Follow-up

- No pain
- Full strength
- ER R 90, ER L 105
- No further dislocations
- “very satisfied”

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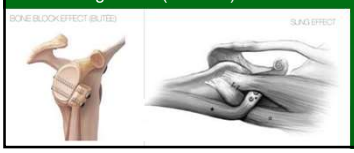
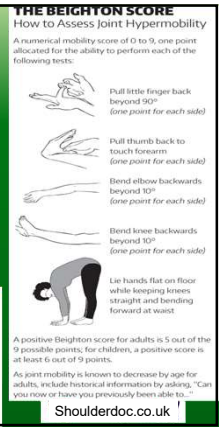
Case 2: Discussion

- Beighton Hypermobility Scale
  - Helpful to quickly assess hyperlaxity
- Arthroscopic Latarjet
  - Pioneered by Lafosse and Boileau
  - Similar results and complications to open
  - Has a learning curve
  - “Sling effect” (debated)





What went wrong the first time?

- Surgeon factors
  - Off track lesion treated with @bankart alone
- Patient factors
  - Hyperlaxity—poor collagen!
  - Neglected shoulder with recurrent instability
    - Bony defects, labrum, capsule, and articular cartilage all deteriorating

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Case 3

"The Disaster"

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Case 3

- 26 yo RHD female
- First dislocation in 7 years ago, traumatic
- @ bankart at that time → recurrent dislocations
- Revision @ bankart → recurrent dislocations
- Open Latarjet → recurrent dislocations and incompletely resolved Ax nerve palsy
- PE: + Apprehension, multiple scars, atrophic deltoid

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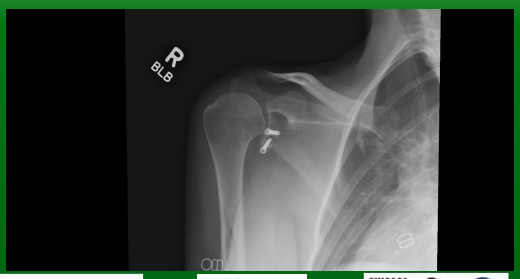
Pre-op



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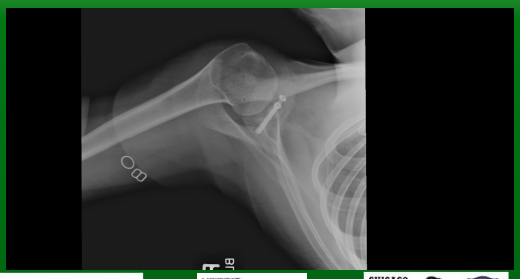

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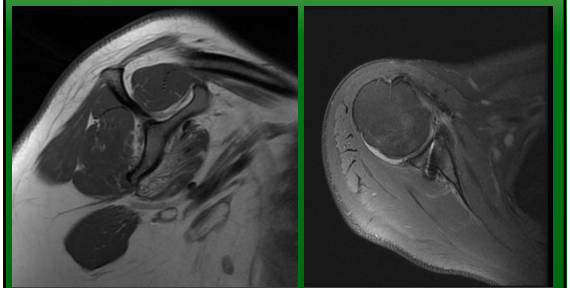

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Open reconstruction

- Revision of Latarjet to distal tibial allograft
- Given Latarjet did not do subscap split
  - Left conjoint attached to subscap
  - Subscap with extensive scar tissue

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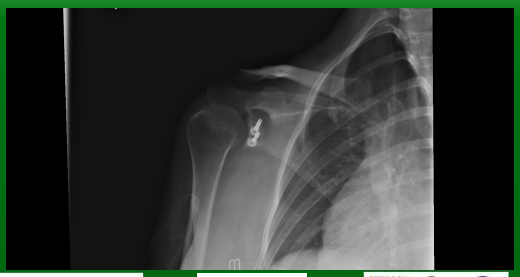
Post-op



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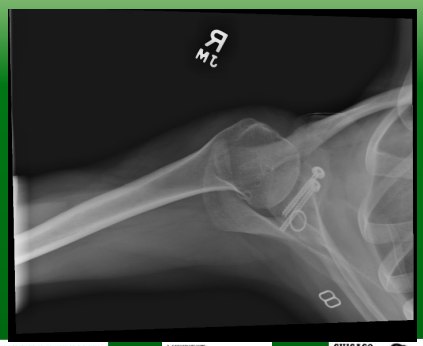

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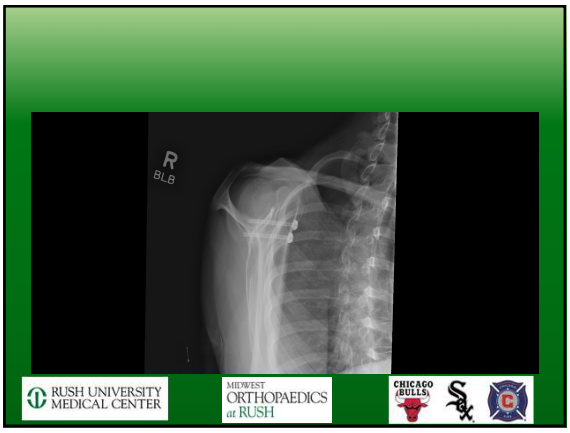

Complications

- Complete plexopathy for 6 weeks!
- Doing well for 3 months then felt a pop and had recurrent anterior pain and subluxation

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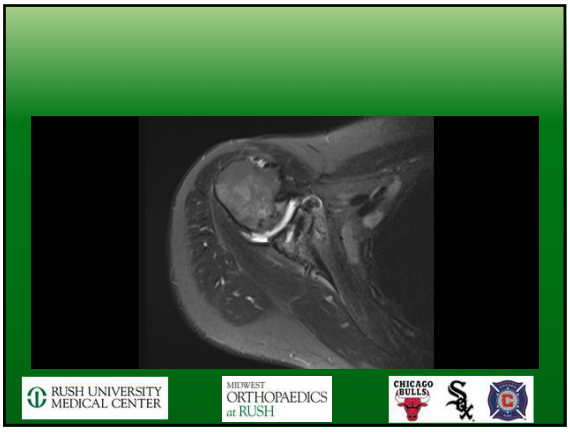
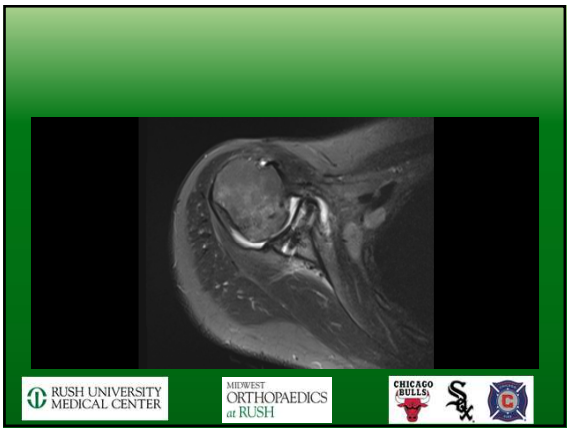
CHICAGO BULLS

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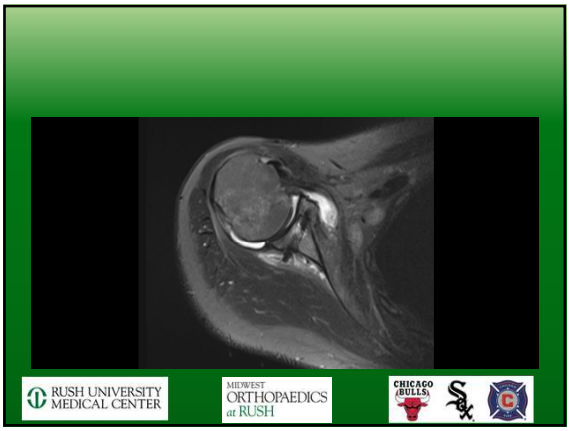
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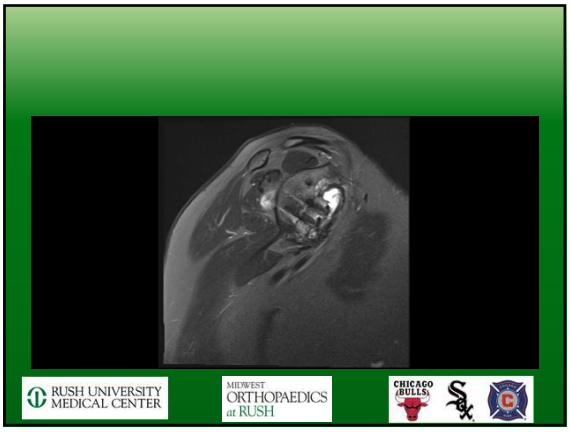
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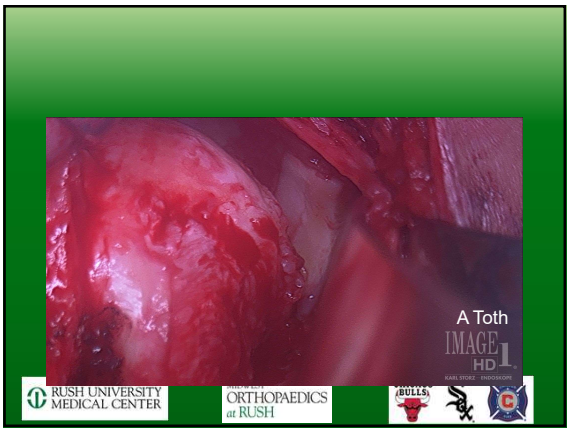
A Toth
IMAGE1 HD
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ORTHOPAEDICS at RUSH


A Toth
IMAGE1 HD
RUSH UNIVERSITY MEDICAL CENTER
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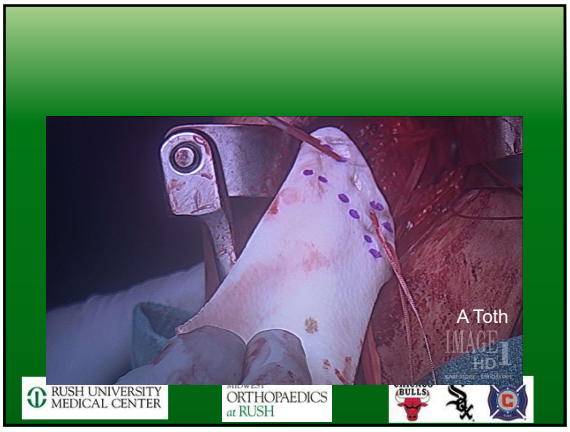
A Toth
IMAGE1 HD
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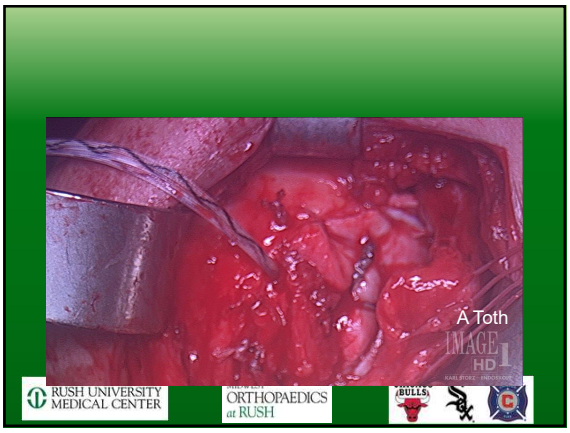
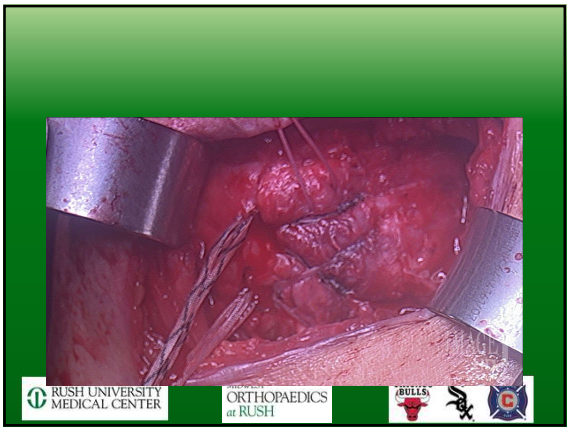
ORTHOPAEDICS at RUSH





Follow-up

- No pain
- Full strength
- No further instability events
- Normal neurologic exam
- "Very satisfied"

	R	L
ER @0	70	80
ER@90	75	90

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Case 3: Discussion

- Prior open procedures
  - Beware of partial/complete subscapularis insufficiency
- Prior Latarjet
  - Beware of altered anatomy
  - Be very cautious with anterior retractor—no conjoint protecting you from plexopathy!
- Any bony procedure
  - Beware of bursitis around the hardware

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What went wrong the first time?

- Surgeon 1 factors
  - Hard to say, but Latarjet didn't heal
- Surgeon 2 (me) factors
  - Beware anterior retractor without conjoint
  - Not sure how to avoid the bursitis—thankfully not very common
- Patient factors
  - Subscap can only take so much abuse

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Case 4

"The Epileptic"

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Case 4: Bilateral posterior instability

- 45 yo RHD male, on schedule for staged left/right @posterior labral repair with another surgeon in town. Has grand mal seizure and presents to ER
- PMH: Epileptic
- Physical exam: Bilateral UE locked in IR

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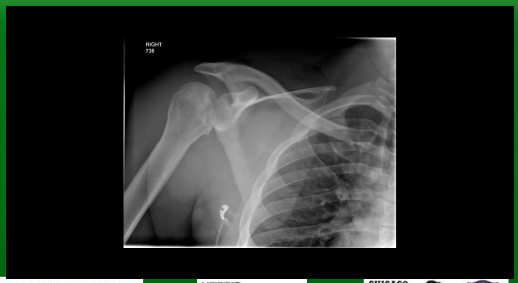
Right



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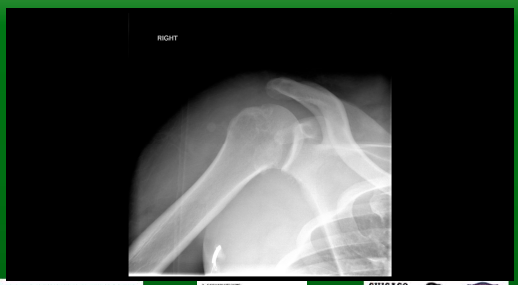

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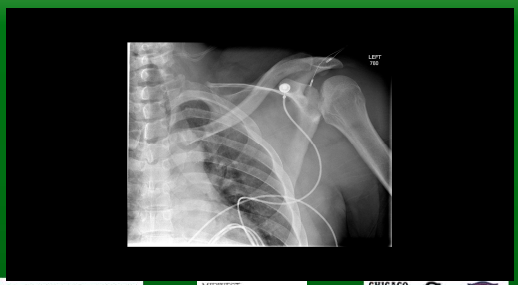
Left



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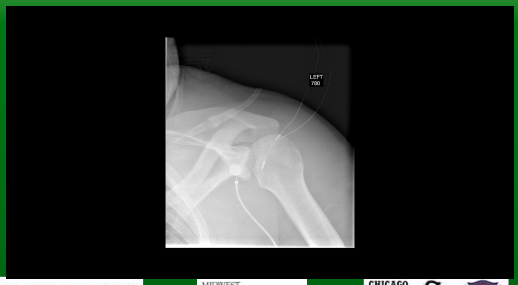

Attempted reduction in ER

- Post-reduction films unconvincing
- Sent for CT

Attempted reduction in ER

- Post-reduction films unconvincing
- Sent for CT
- Is that guy wide awake and smiling??!!

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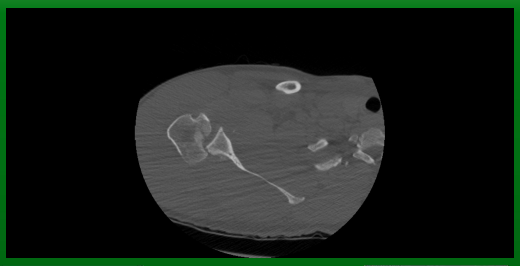
Right—locked posterior fx/dx



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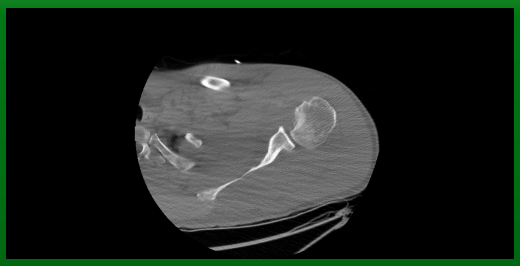
Left—reduced, large reverse HS



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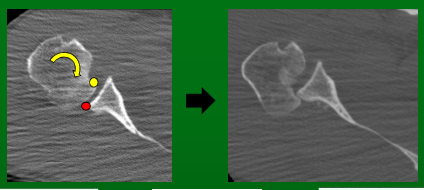
Case 4: Options

- How do we keep the reverse Hill-Sachs from engaging?



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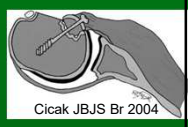
Case 4: Options

- How do we keep the reverse Hill-Sachs from engaging?
  - Immobilization
  - Posterior labrum/bony bankart repair
  - Posterior glenoid bone block
  - Anterior humeral osteoarticular allograft
  - Acute Reduction of defect
  - Reverse remplissage
  - Modified McLauglin
  - Hemiarthroplasty
  - Reverse Total Shoulder Arthroplasty



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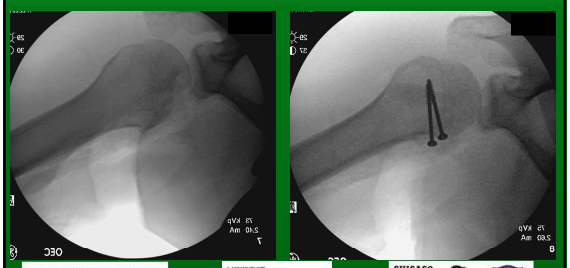
Right: Acute defect reduction and bone grafting



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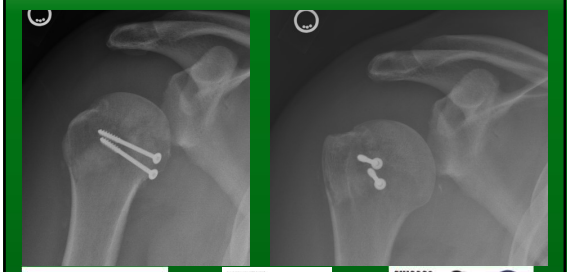

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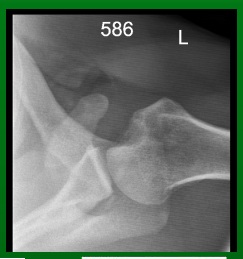
Meanwhile, back on the left…



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CHICAGO BULLS

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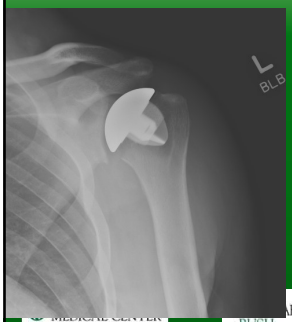
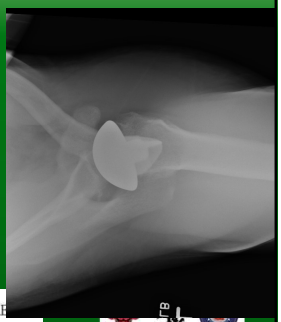


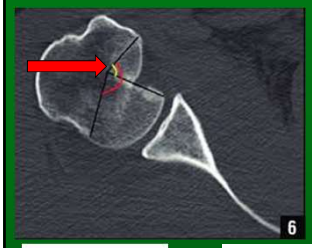


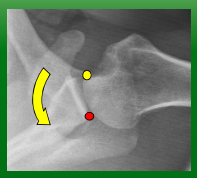
at RUSH

Follow-up

- No pain
- Full strength
- Symmetric ROM
- No further dislocations
- Returned to work
- “very satisfied”

Case 4: Discussion





Case 4: Discussion

- Do not hesitate to get axial images in acute instability cases
  - Especially concern for posterior instability.
- Acute reduction of defect and bone grafting is highly effective
- Don’t forget the arthroplasty option in the right patient population.
  - Hemi for subacute with relatively preserved glenoid
  - Reverse for chronic, cuff deficient, lower-demand

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Summary

- Don't forget the full array of complex instability options
  - Remplissage, Latarjet
  - But also hemiarthroplasty, glenohumeral fusion, etc..
- Beware Beighton score >5/9
- Beware Off-track lesions
- Beware altered anatomy (e.g. post-Latarjet)
- Respect the subscap

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THANK YOU!

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https://www.rushortho.com/doctors/grant-garrigues

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