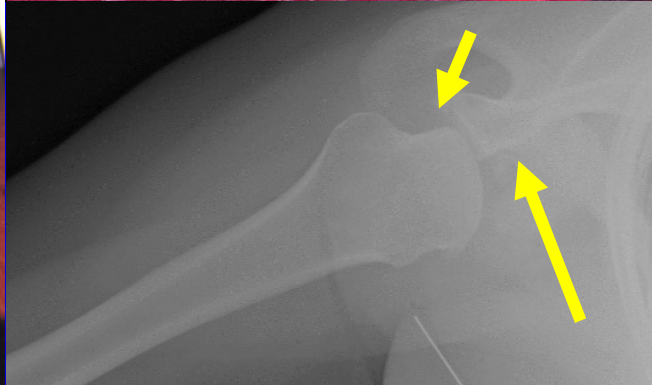
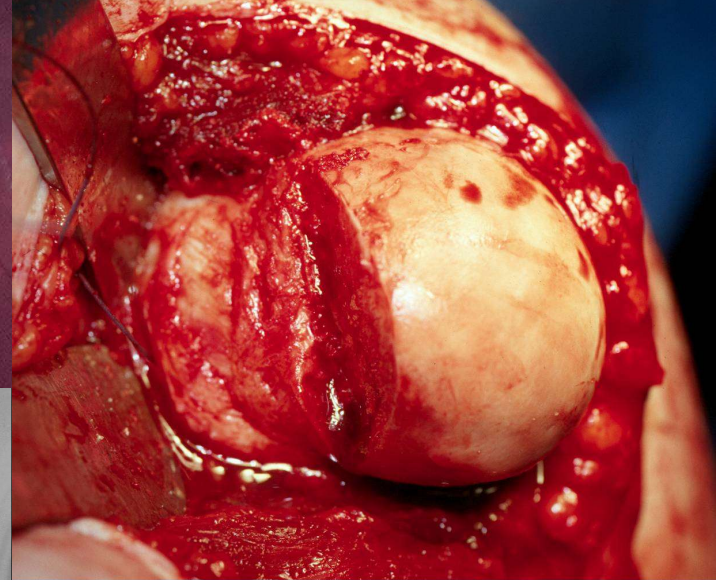
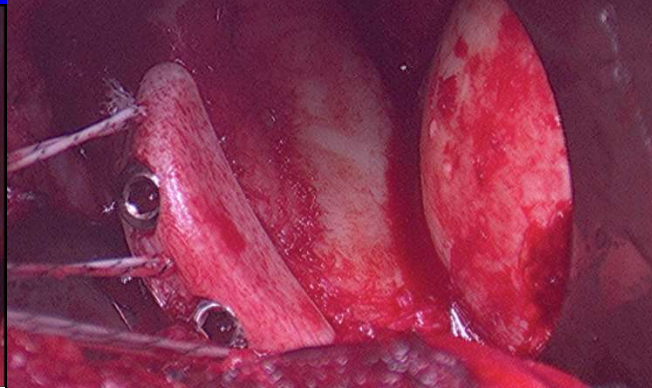
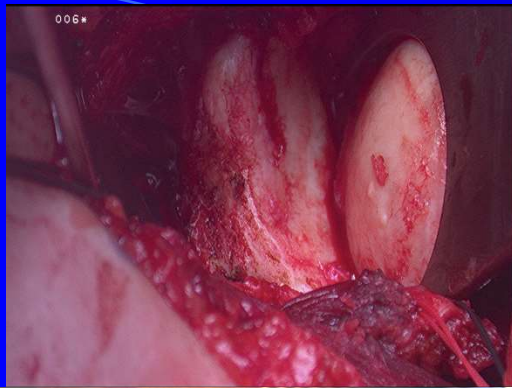


Bone Defects in Shoulder Instability

Why not get the Anatomy right again?



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I (and/or my co-authors) have something to disclose.

Detailed disclosure information is available via:

“My Academy” app;



Printed Final Program; or

AAOS Orthopaedic Disclosure Program on the AAOS website at

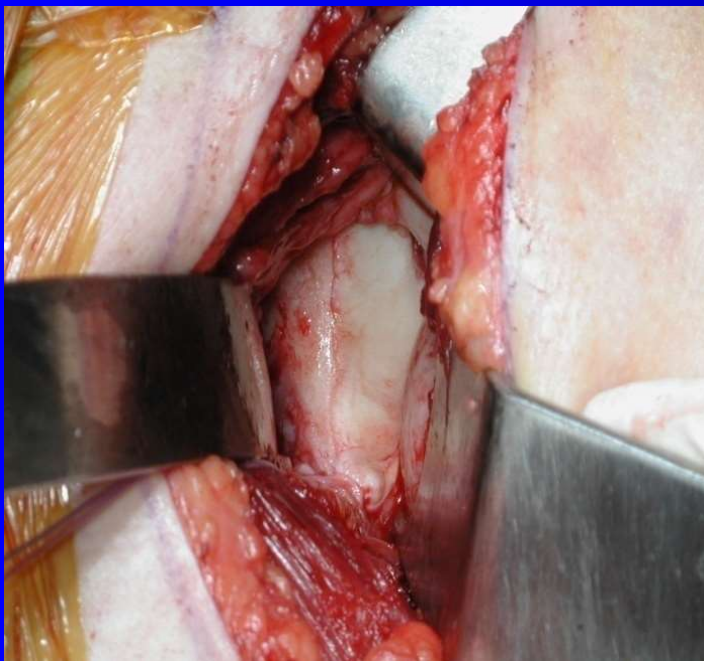
<http://www.aaos.org/disclosure>



Problems with this Debate

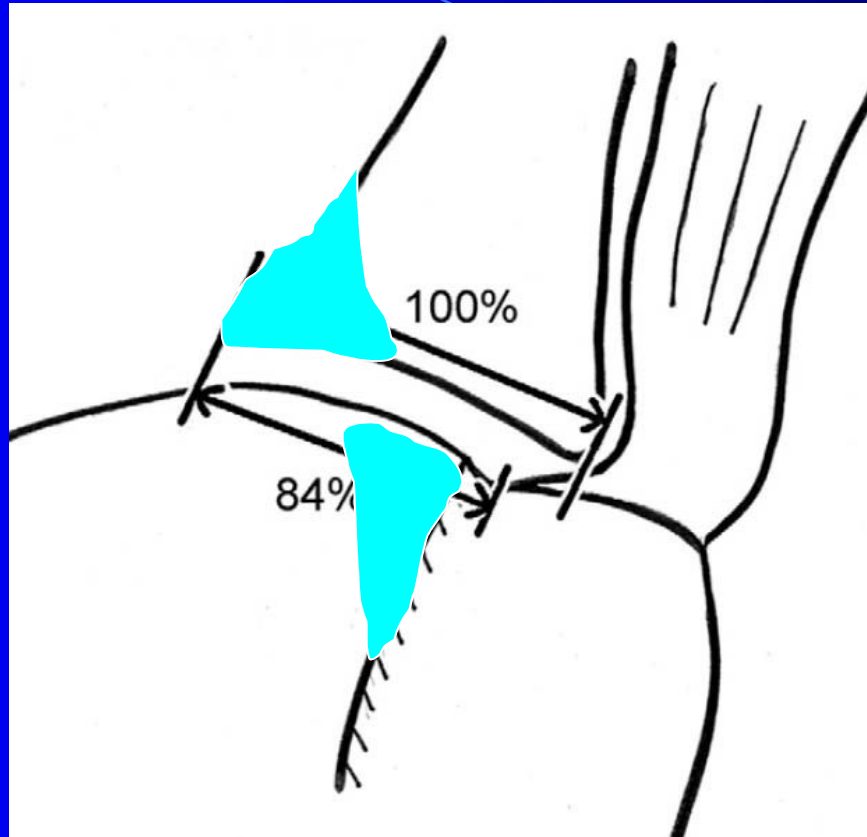
1. Historically Bankart repairs(soft tissue) have had a high success rate- bone defects are not new- what are we TREATING?
2. Assumes we are all speaking of the same pathology and clinical problem- validated size location etc..??
3. Assumes isolated pathology which is rare- need to define the contributions of glenoid, humerus, capsule to decide what to do!!

Shoulder Instability Surgery



- Many shifting questions
- Open vs. arthroscopic repairs?
- What factors are involved in successful surgery? (failures)
- **Bone Defects- Glenoid and Humeral Head**

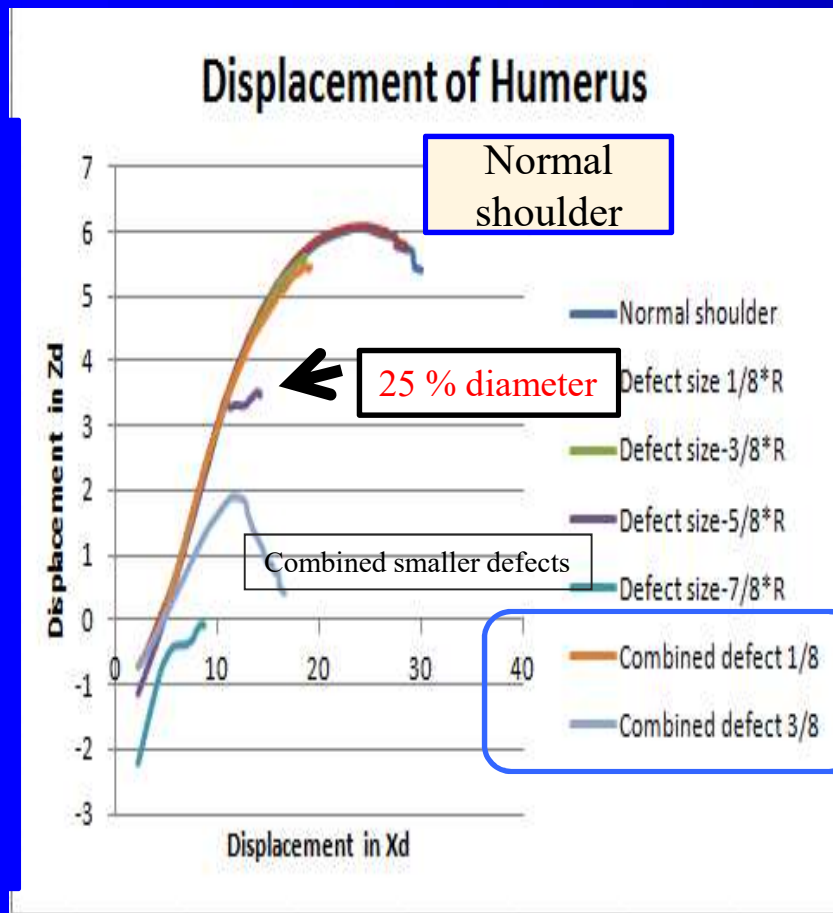
The Glenoid Track



Contact between the **glenoid** and the humeral head in abduction, external rotation, and horizontal extension: a new concept of **glenoid track**.

Yamamoto N, Itoi E, Abe H, Minagawa H, Seki N, Shimada Y, Okada K.
J Shoulder Elbow Surg. 2007 Sep-Oct;16(5):649-56.

Instability- Biomechanics Summary

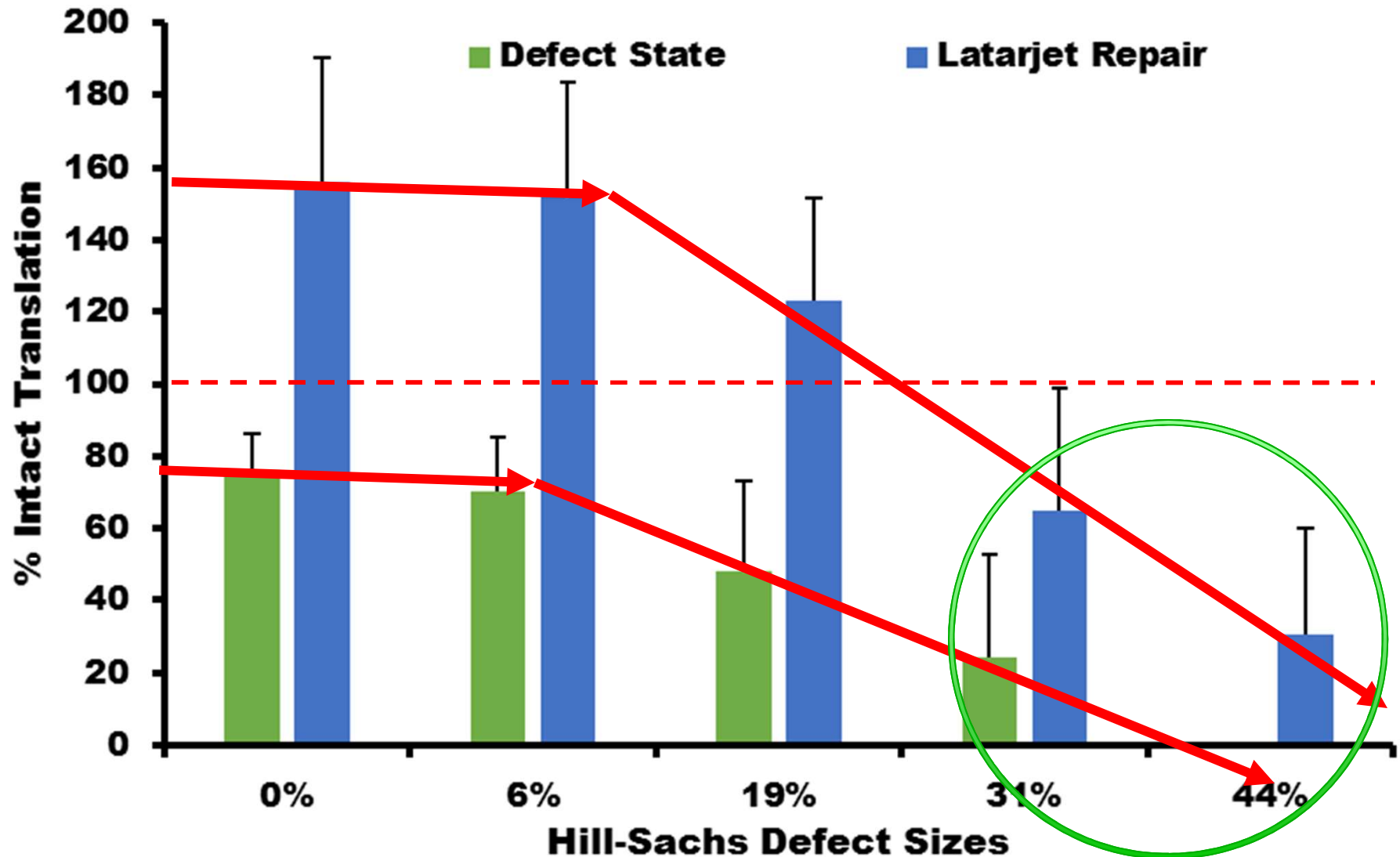


- The majority of bone defect problems can be dealt with by reconstructing glenoid- moves instability curve towards stability
- Glenoid >20%, HH > 30%
- When glenoid defect is > 30 % (rarer) Latarjet (coracoid) not sufficient size
- When HH defect is >20 % combined with glenoid consider fixing both

AJSM, JSES

So what do I fix and
when do I fix it ?

20% Glenoid Defect 60° ABD and 80° ER



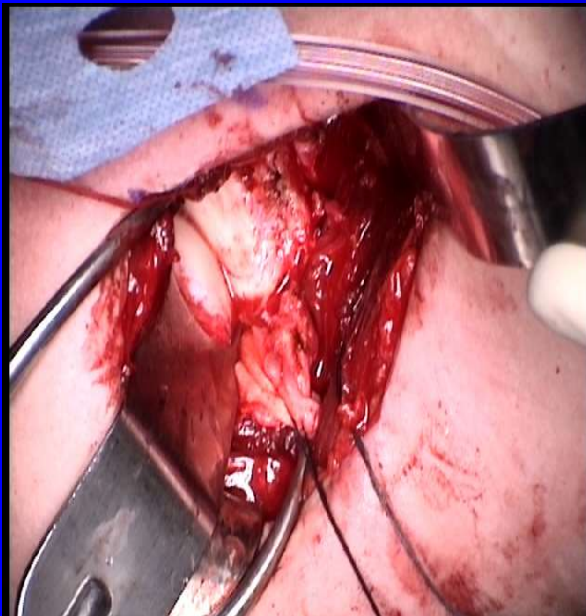
Treatment options- remember combined lesions!

Glenoid Bone Loss

1. Bristow /Latarjet
2. Bone Graft- auto/allo

Humeral Bone Loss

1. Remplissage
2. Decreased ER
3. Arthroplasty-Bone/Metal



Jeff Abrams MD

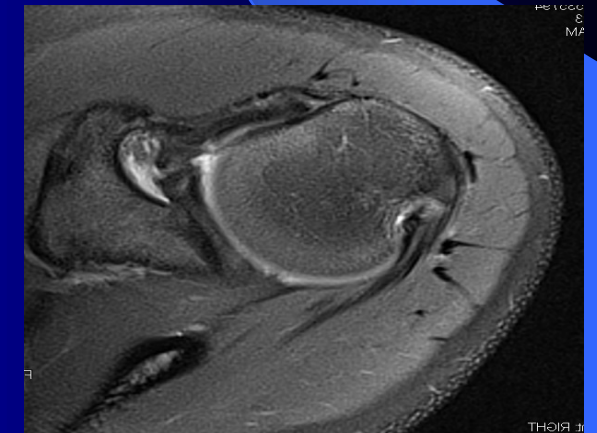
“Remissage Man”



- Smart
- Fit
- Good looking
- Well dressed
- US World and News
Best Orthopedic Surgeon
Shopper 20 years

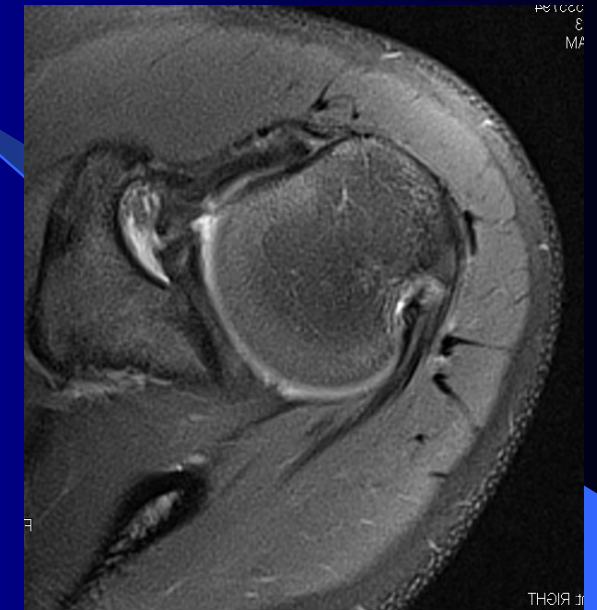
Remplissage

- Anatomical and functional results after arthroscopic Hill-Sachs remplissage.
- Loss of some ER but “healed”
 - Boileau P, et al J Bone Joint Surg Am. 2012 Apr 4;94(7):
- But does it really heal , what size?
- Little benefit in 15% defects. Prevents engagement in 30% defects but significant loss of motion, Increased stiffness
 - Elkinson et al JBJS June 2012
- To regain range soft tissue is disrupted
- Soft tissue operation for a bony problem- have we not learned our lesson !!??



Results of Remplissage

- 189 pts, 2 centers
- > 25% off track lesions
- Remplissage- more pain, less motion IR
- Latarjet higher complication rate but better in revision, contact/collision pts, glenoid bone loss > 10 %

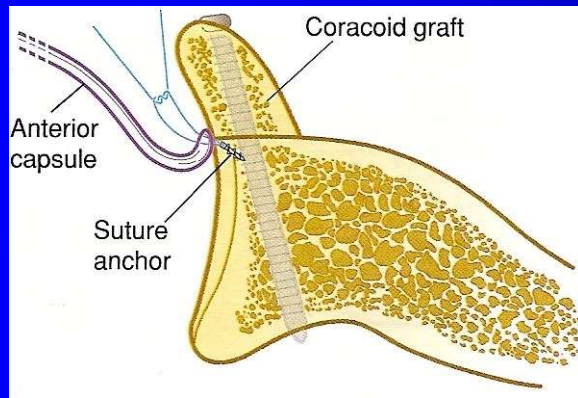


Am J Sports Med. 2018 Jul;46(8):1885-1891.

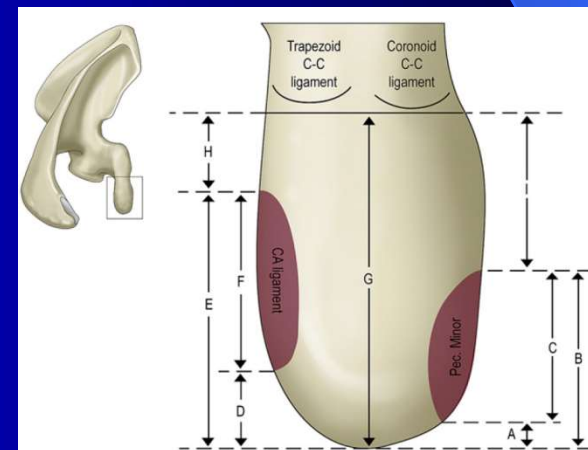
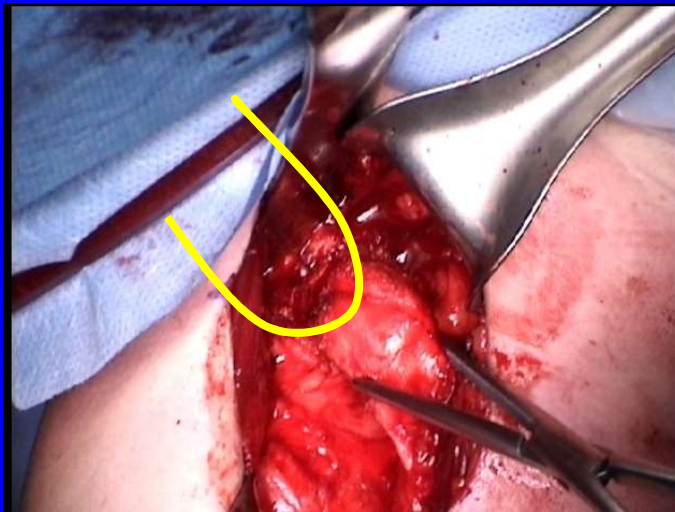
Remplissage Versus Modified Latarjet for Off-Track Hill-Sachs Lesions With Subcritical Glenoid Bone Loss.

Yang JS¹, Mehran N¹, Mazzocca AD², Pearl ML¹, Chen VW¹, Arciero RA

Latarjet Procedure- Reborn !



- Graft is placed so that it becomes an extra-articular platform that acts as an extension of the articular arc of the glenoid



Latarjet Procedure- Complications

- Systematic review

Griesser et al JSES Feb 2013

- 3 % redislocation
- 30 % complication rate
- 7% reoperation
- Neurologic- MC, axillary
- hardware/bone complications (non union, fracture, displacement)
- In the presence of HH bone loss increased ER increases stress on bone graft!!- ? Non union , fractured screws ??

- Dislocation arthropathy 36 %

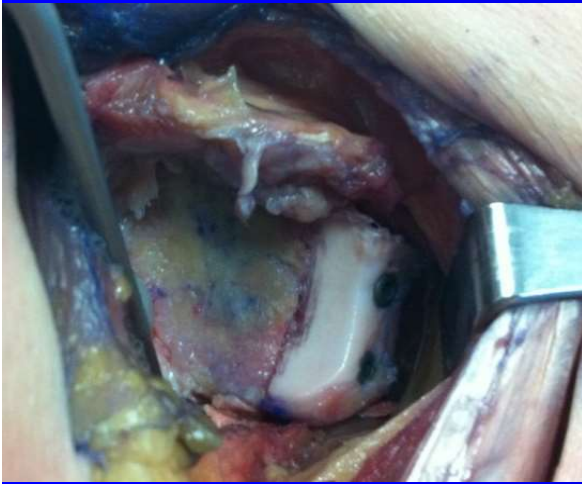
Ladermann et al Int Orth
Jun 2013

- Inappropriate placement- guides

Meyer et al JSES May
2013

- Loss of external rotation

Allograft Reconstruction Results



➤ Tibial Allograft

- Excellent 2-5 year results-expensive
- Hardware and graft prep and placement
- Angulation of graft !

Arthroscopy 2009 Provencher et al

➤ Iliac crest allograft for recurrent instability in athletes

- 10/10 no instability 94% WOSI
- 80% osseous union @ 6 month

IJSS 2014 Mascarenhas et al



➤ Allograft Reconstruction for glenoid bone loss in glenohumeral instability: a systematic review

- 8 studies - 70 shoulders, 44.5 month f/u
- Bone integration, no resorption in 100%, 94% satisfact
- 3% dislocation, 4 % subluxation

Arthroscopy 2014 Sayegh et al

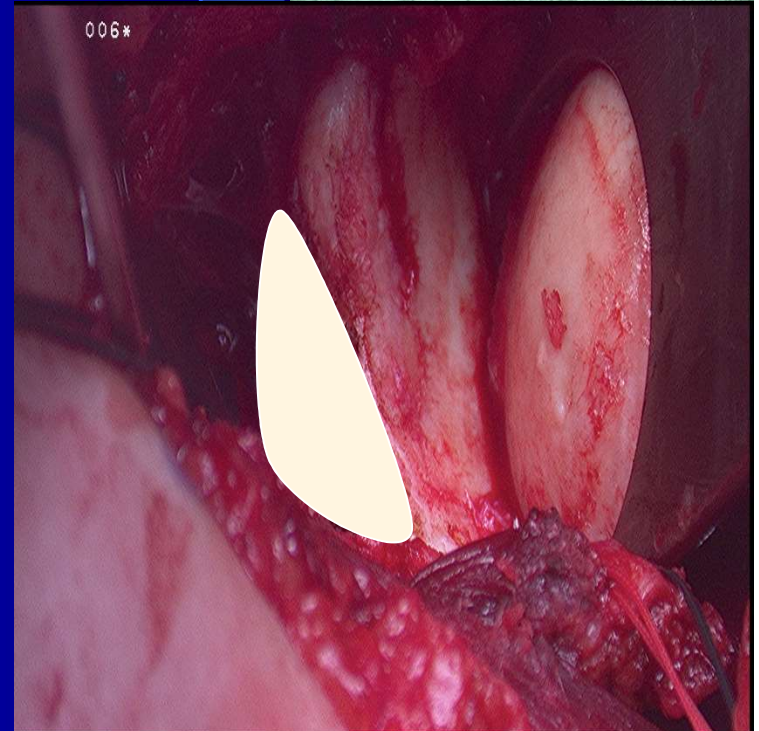
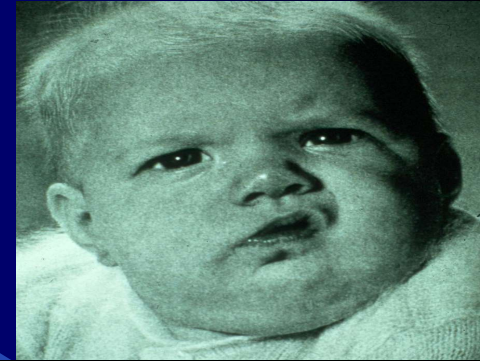


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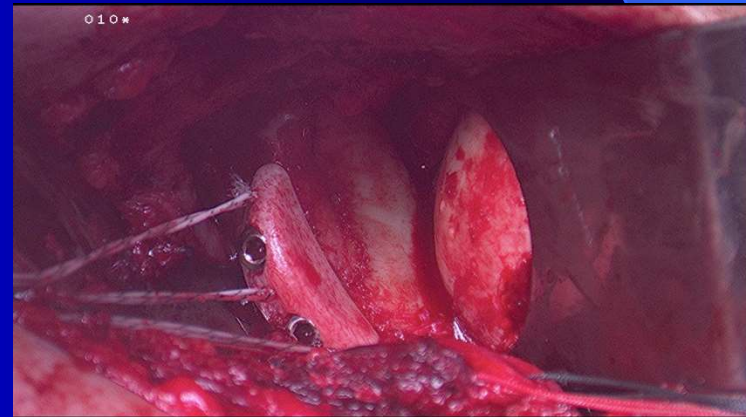
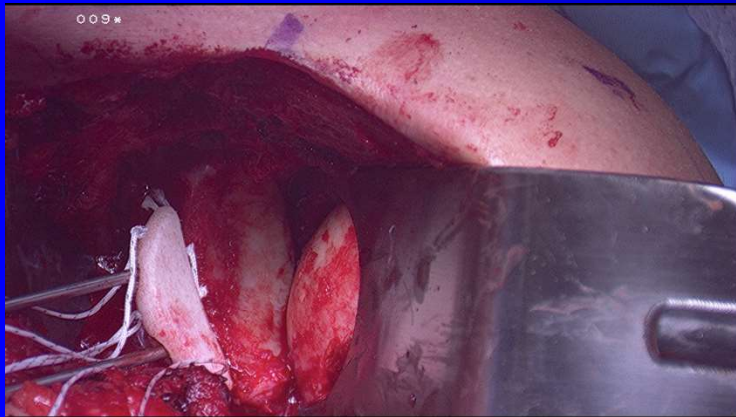
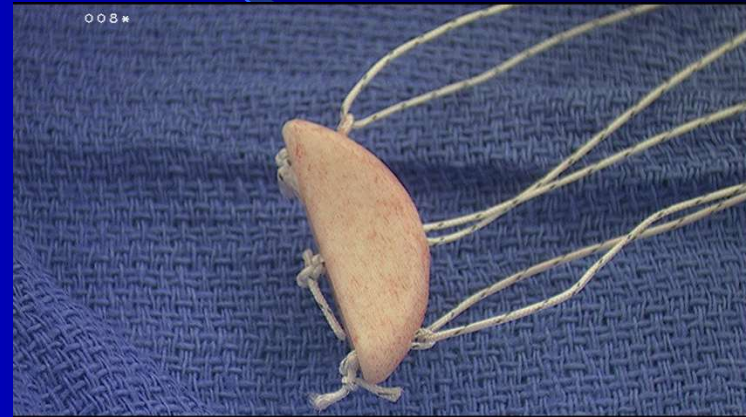
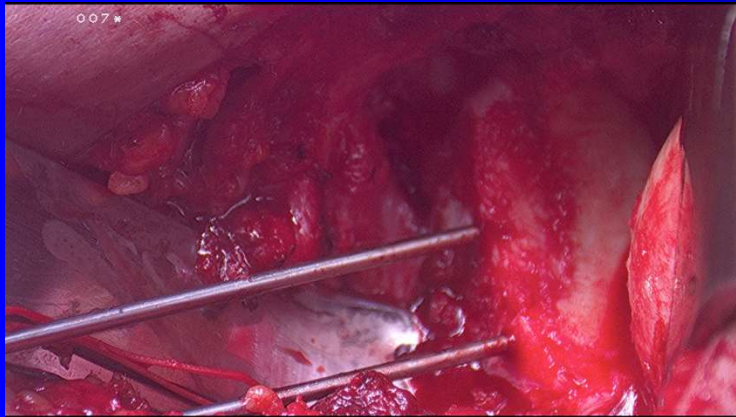
Sports Health

Fix the Glenoid-Great idea and results-Problems?

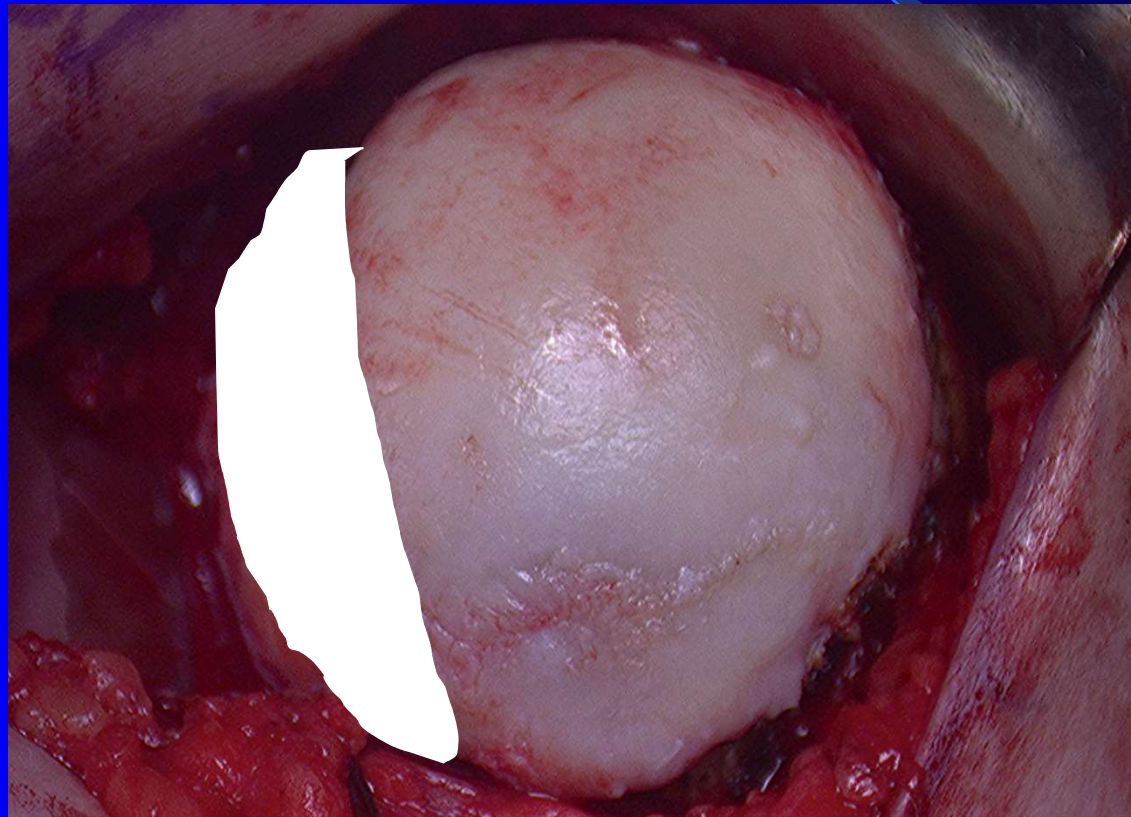
- Latarjet- coracoid harvest- time, risks, **complications**
- Selecting and preparing appropriate bone graft- **Surgical prep time**
- **Reproducible technique** (size, preparation, position, screws, sutures, soft tissues)
- Anatomical reconstruction- **minimize complications**



“Glenojet- preshaped, predrilled graft”
Accurate Placement of screws and
flush articular surface



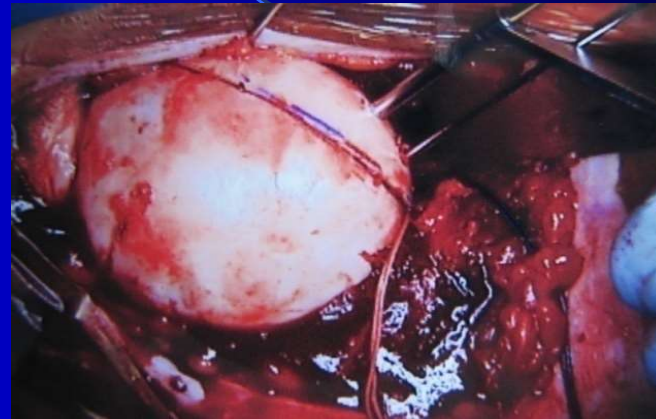
***What about the Hill Sachs ?
Do not ignore when >20%***



**A Randomized Clinical Trial Comparing Open and Arthroscopic Stabilization
for Recurrent Traumatic Anterior Shoulder Instability
Mohtadi et al JBJS 2014- young males, HS defects - failure**

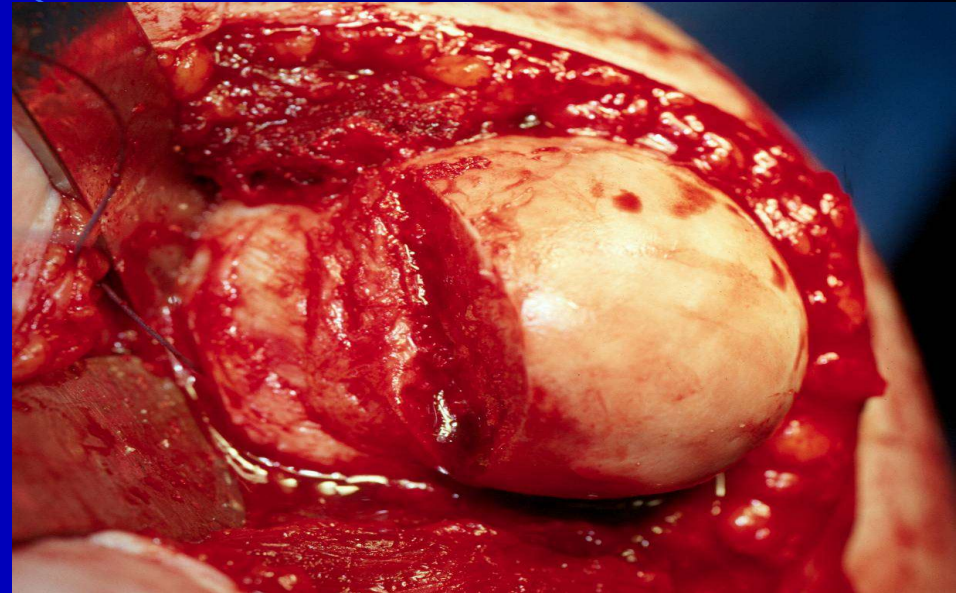
Anatomic Reconstruction Options(Fix the Pathology)

- Matched Allograft
- Autogenous Iliac crest Autograft
- Focal Resurfacing Option
- Both studies with reported 0% redislocation
- Preservation of motion!!

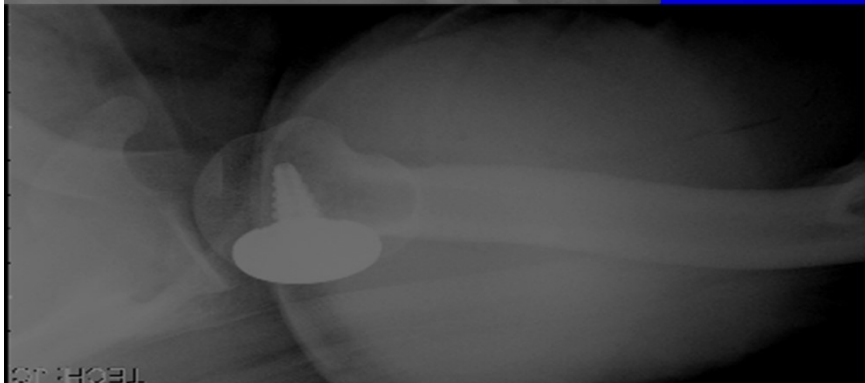
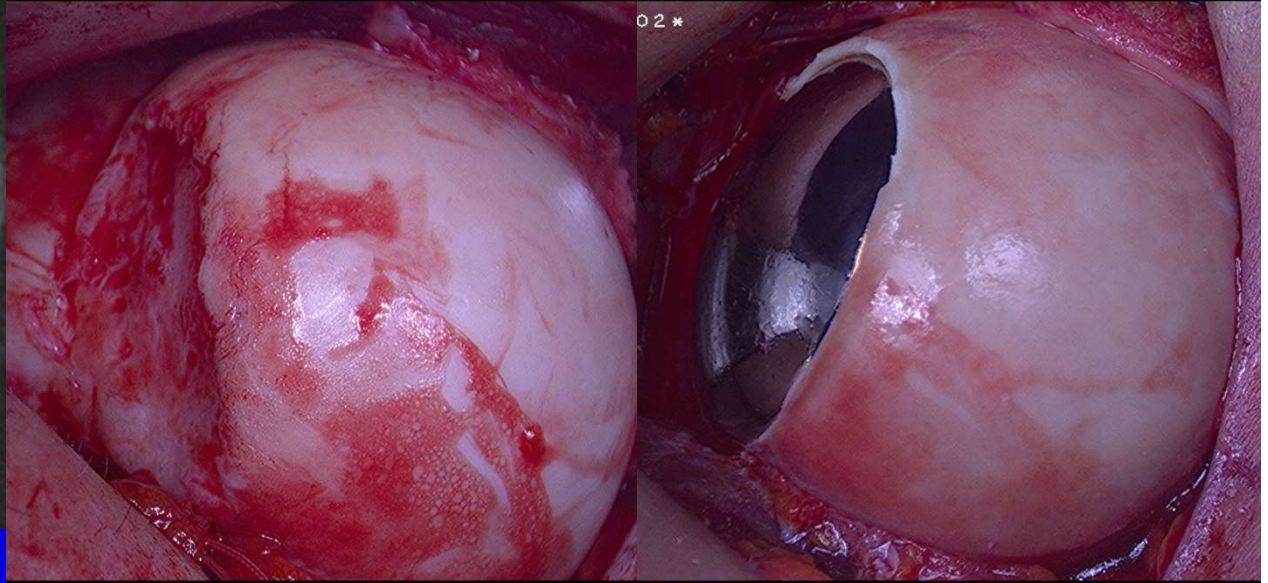
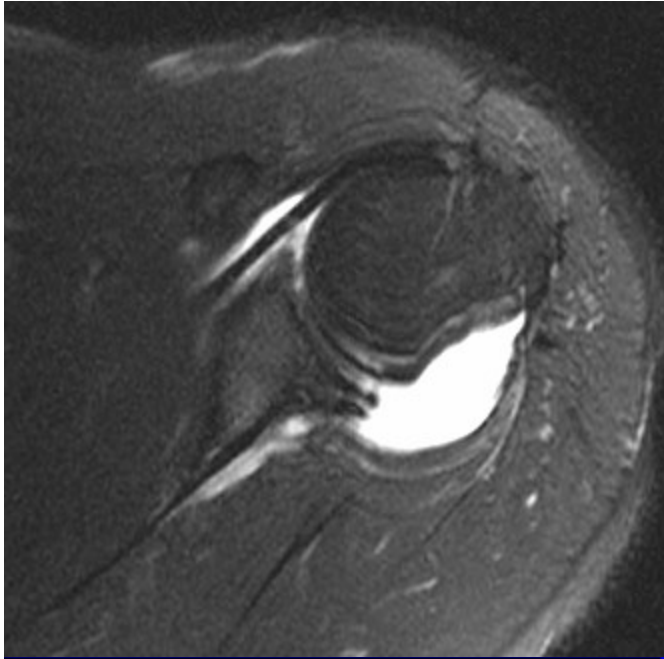


Surgical Technique

- Deltopectoral approach
 - Size and side match irradiated (now fresh frozen) proximal humeral allograft
 - 18 pts, no instability
 - 2 progression of OA
 - 2 or 3 compression screws
1. Miniaci A, Gish Michael: **Management of Anterior Glenohumeral Instability Associated with Large Hill-Sachs Defects**. *Techniques in Shoulder and Elbow Surgery*. 5(3):170-175 2004



Hill Sachs Defect



20 pts – Minimum 2 year follow up
All had Hill Sachs with Hemicap
9 combined with Latarjet/allograft
glenoid
0 repeat dislocations/instability
Improved QOL

Sports Analogy

- Active figurine
- Dislocated from its position with a fractured piece- now unstable
- Me – her husband
- Gilles Walch
- Jeff Abrams



Latarjet



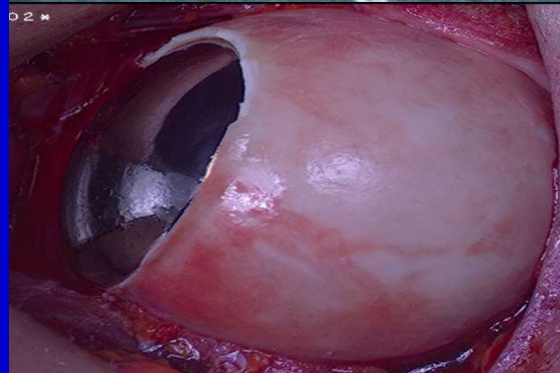
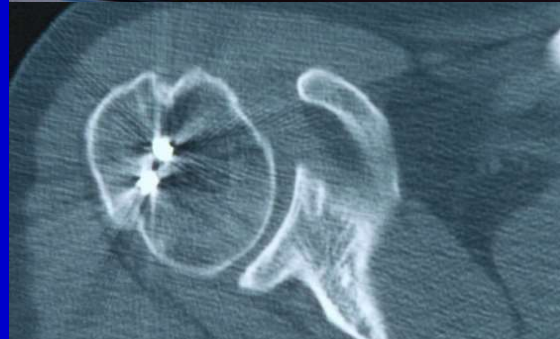


Anatomic repair



Summary

- Excellent clinical results with both humeral and glenoid anatomic reconstruction- bone or metal
- Low recurrence rates
- Improved range of motion and function
- Reduced complication rates
- Soft tissue Repairs





THANK-YOU

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