

Management of Humeral Bone Loss in Anterior Shoulder Instability

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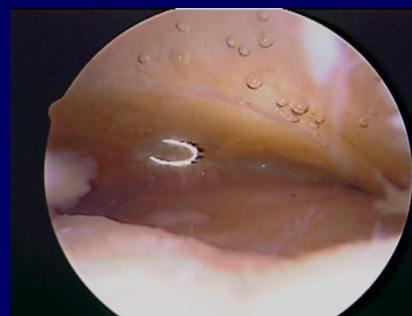
Disclosure

- Smith and Nephew Endoscopy – fellowship support



Importance

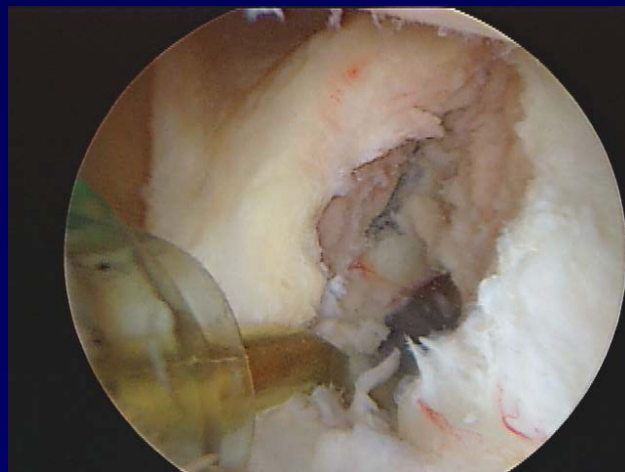
- Bone loss (glenoid or humerus) frequent cause of recurrence
- Kuhn (evidence-based anterior instability):
 - “question isn’t whether arthroscopic Bankart is as good in contact athletes, it is whether it should be done with bone loss”





Burkhart (Arthroscopy, 2000)

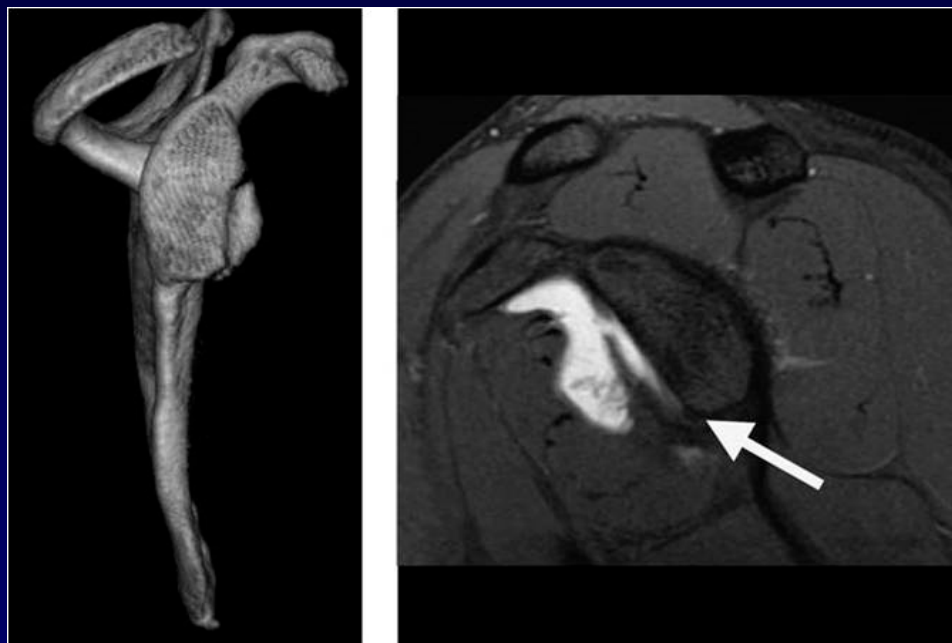
- 194 arthroscopic Bankart repairs
- 7/173 failures without bone defects
- 14/21 failures with bone loss
- Contact athletes – recurrence 6.5% vs. 89%





Glenoid Bone Loss

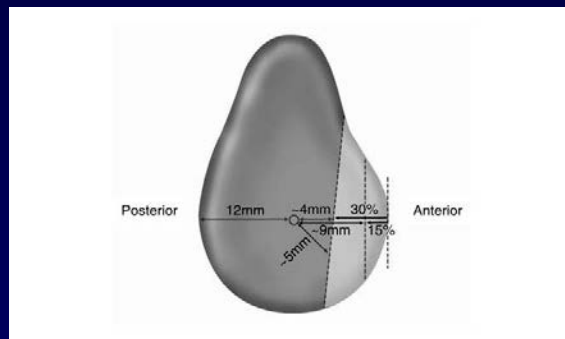
- Bone loss and bony Bankart are very different





When to Address Glenoid Bone Loss

- Best measured on 3D CT scan
- Glenoid defect of around 20%
- Lower threshold
 - Revision surgery
 - Contact athlete





Surgical Options – Glenoid Bone Loss

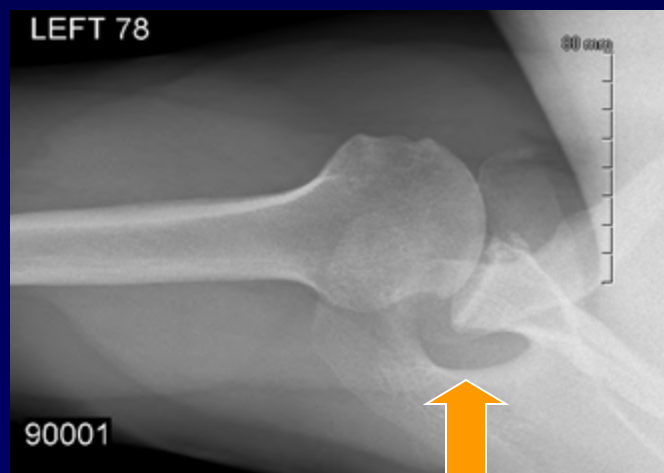
- Open Bankart repair
- Glenoid bone graft
 - Laterjet (coracoid transfer)
 - Distal clavicle
 - Iliac crest
 - Distal tibial allograft





Hill-Sachs Lesion

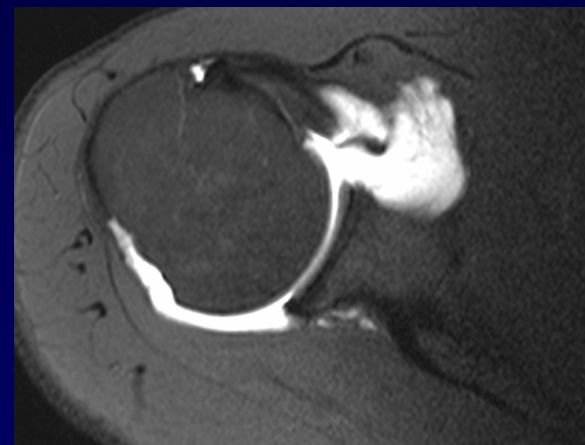
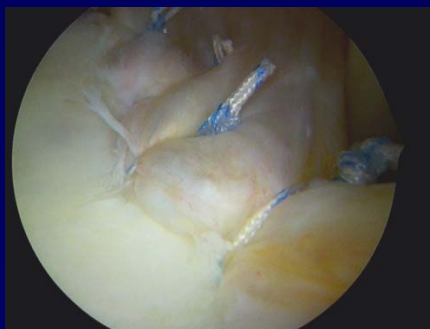
- Impaction injury to posterolateral humeral head
- Described by Hill and Sachs in 1940
- Pathognomonic of anterior shoulder dislocation





Incidence of Hill-Sachs

- First-time dislocation 47-80%
- Recurrent dislocator approaches 100%
- Larger with dislocations of
 - Greater duration
 - Multiple recurrences
 - Higher energy





Bankart, 1948

- Regarding Hill-Sachs lesions

“Nothing can be done about them if they are found”





Surgical Treatment Options

- Ignore
- Restrict external rotation (over-tighten capsule)
- Fill defect (allograft)
- Humeral head-plasty
- Remplissage (infraspinatus tenodesis)
- Rotational osteotomy
- Glenoid augmentation (Laterjet)
- Metal – hemi-CAP or hemiarthroplasty



When to Address Hill-Sachs Surgically

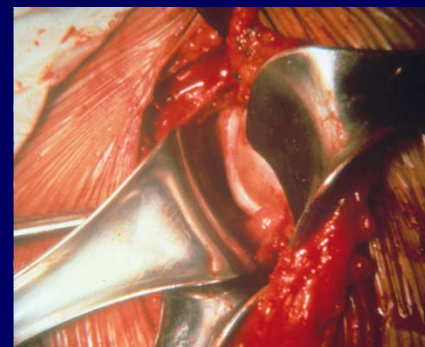
- Size – 20-30% of articular surface
- “Engaging” Hill-Sachs – Burkhart
 - Engagement point is >70 degrees abduction, without extension
- Failure of prior surgery





Restrict External Rotation

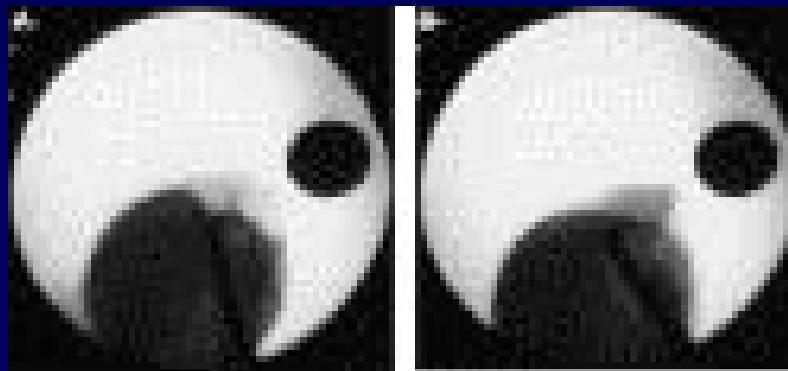
- Open Bankart repair
 - 10-20° ER loss common
- One cm capsule = 20 degrees
- Generally done with open Bankart repair / anterior capsulorrhaphy





Humeral Head-Plasty

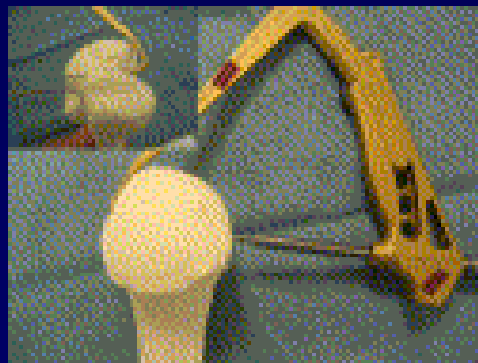
- Percutaneous technique
- 14 cadavers
- None had recurrent dislocation
 - Kazel, et al., Arthroscopy, 2005





Humeral Head-Plasty

- Open technique, acorn drill, ACL guide
- 4 patients
- No instability at 1 year follow-up
 - Re, et al., Arthroscopy, 2006





Fill Defect with Bone

- Anterior or posterior approach
- Options
 - Osteochondral allograft
 - Fill completely or plugs





Open Osteochondral Allograft

- Open anterior deltopectoral approach
- 18 patients
- >25% articular surface involved
- Open Bankart repair / capsulorrhaphy

Miniaci, et al., Tech Shoulder Elbow Surg, 2004



Open Osteochondral Allograft

- Osteochondral allograft fashioned to fill defect
- Fixation with headless screws
- Results – no recurrences, 2 required screw removal

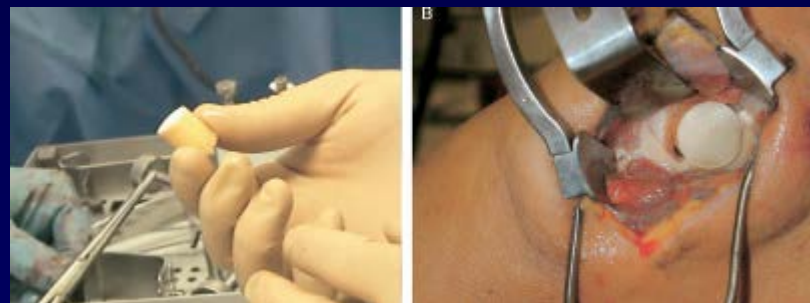
Miniaci, et al., Tech Shoulder Elbow Surg, 2004





Posterior Allograft Plug

- Staged procedure
- Arthroscopic Bankart repair
- 6 weeks later
 - Posterior approach
 - Allograft plug
- Case report



Kropf and Sekiya, Arthroscopy, 2007



Remplissage

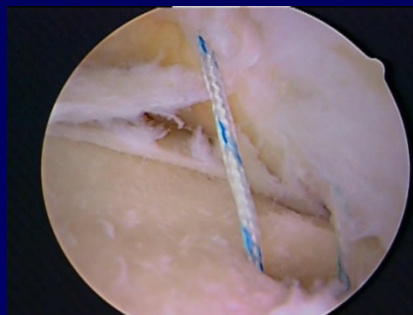
- Eugene Wolf
- French “to fill”
- Infraspinatus tenodesis / posterior capsulodesis





Remplissage - Technique

- Arthroscopic, includes Bankart repair
- Suture anchors placed within defect
- Sutures passed through infraspinatus tendon
- Knots tied in subacromial space
- Tip – 2 separate lateral portals





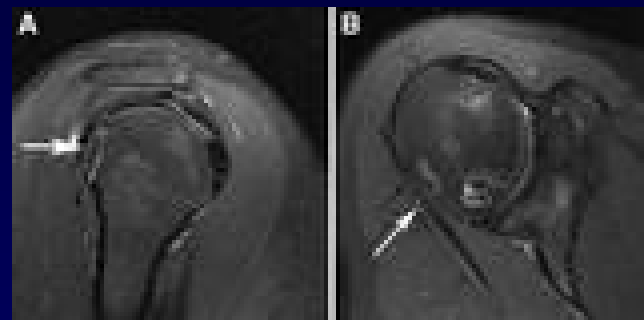
Remplissage – Results (Wolf)

- 20 patients with follow-up (of 22)
- Follow-up 25-57 months
- 2 suffered traumatic re-dislocations
- 2 other second-looks – tendon healed
- No loss of ROM



Remplissage – Do We Get Our Fill?

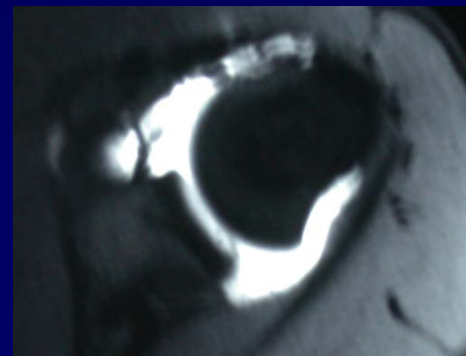
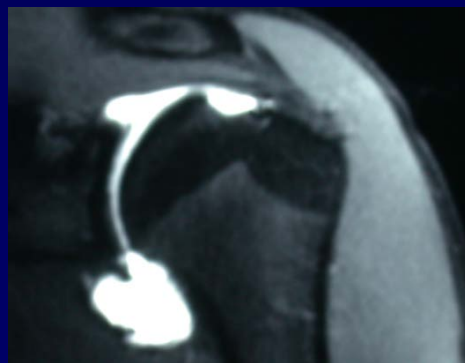
- 11 patients, post-op 9-27 months
- Average 1.4 anchors
- 3T MRI scan
- All defects filled 75-100%
- No infraspinatus muscle atrophy
 - Park, et al., AOSSM Specialty Day 2012





Case Report

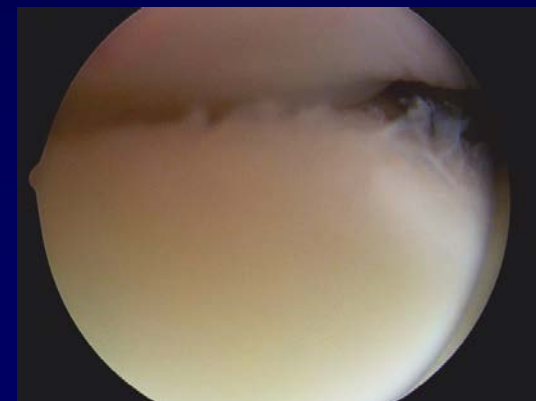
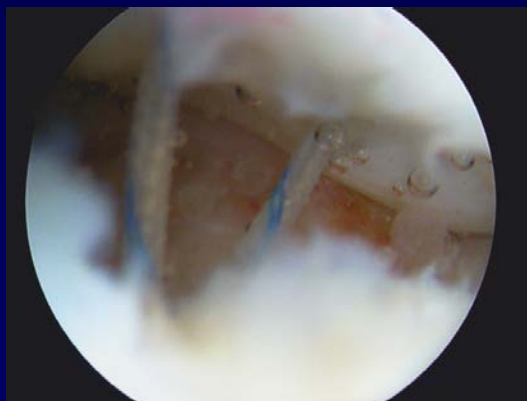
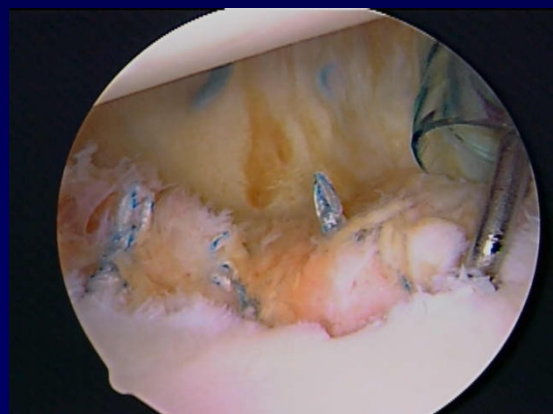
- 19 yo college wide receiver
- Had open Bankart repair in high school
- Dislocated 3 times freshman year
- Also had ER loss and apprehension





Case Report

- Revised Bankart arthroscopically
- Performed remplissage





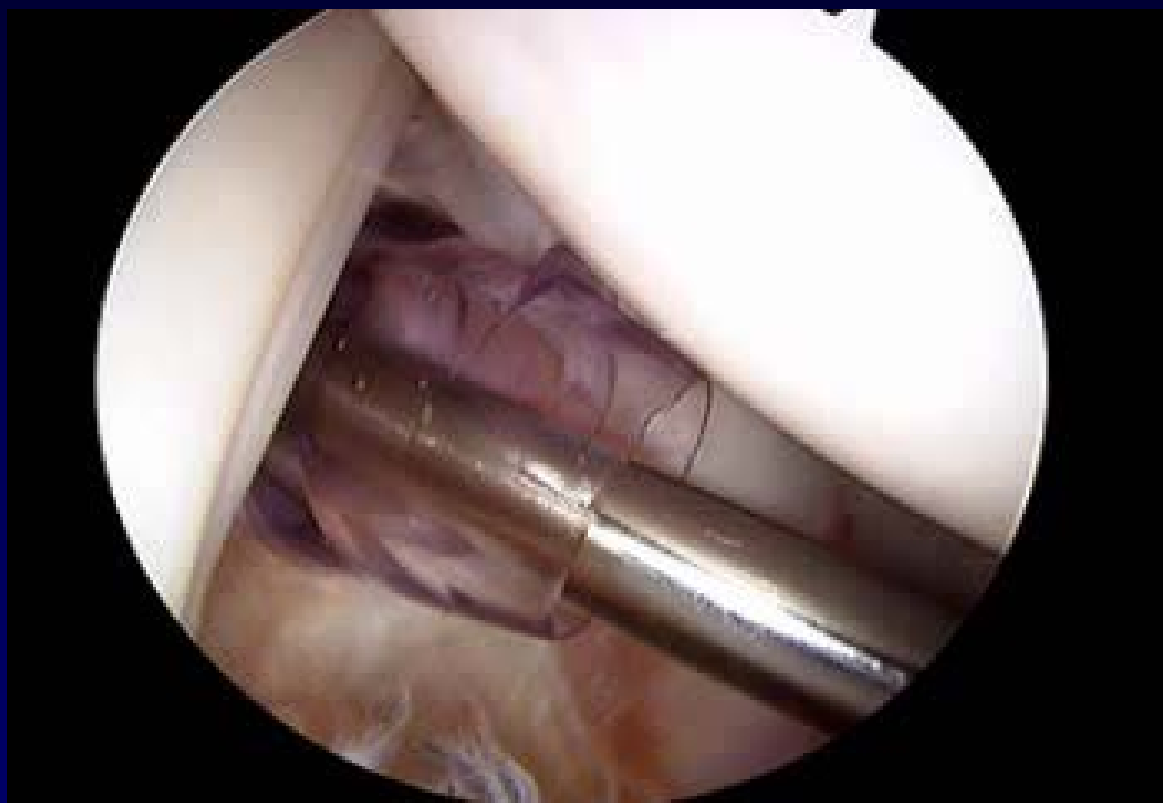
Case Report

- Returned to play 3 years without dislocation





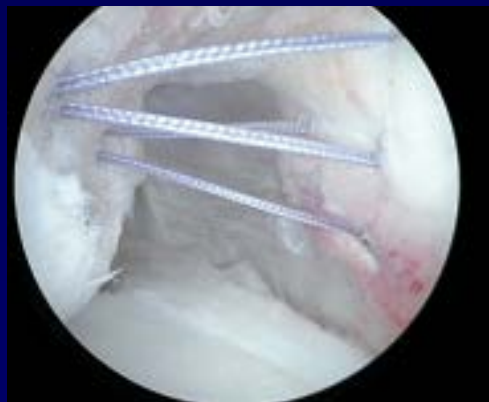
Video - Remplissage





Conclusions

- Most need not be treated surgically
- My preference, young patients
 - Large lesions – remplissage
 - Enormous lesions – open allograft



The image features a close-up of a basketball with a pebbled texture. On the left side, a basketball player's hand is visible, wearing a white jersey with the number 40. The text 'UK Sports' is overlaid on the right side of the basketball. 'UK' is in large, bold, blue-outlined letters, and 'Sports' is in a white, cursive script font.

UK Sports

THANK YOU