

Shoulder Instability and Glenoid Bone Loss

Charles J Gatt, Jr, MD



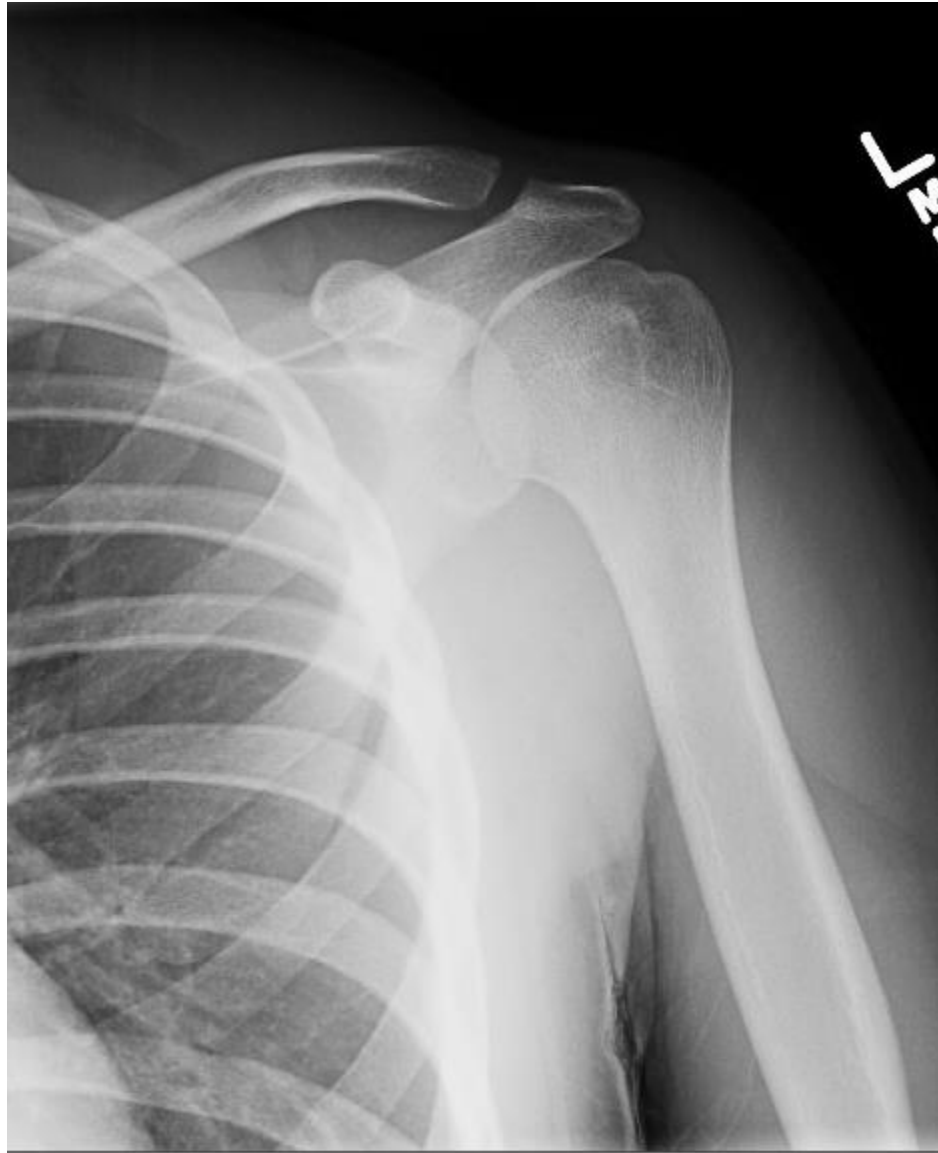
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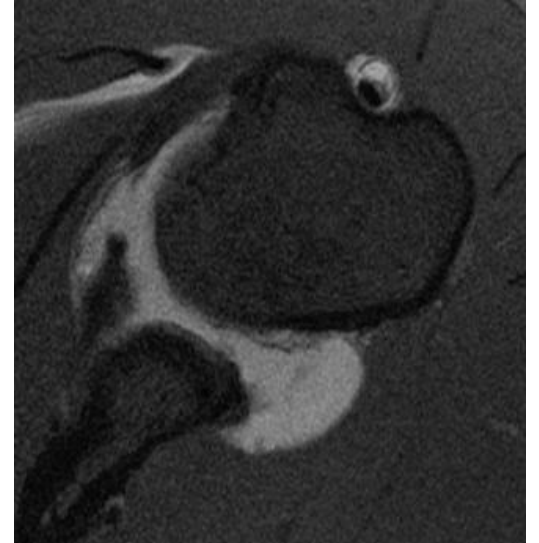
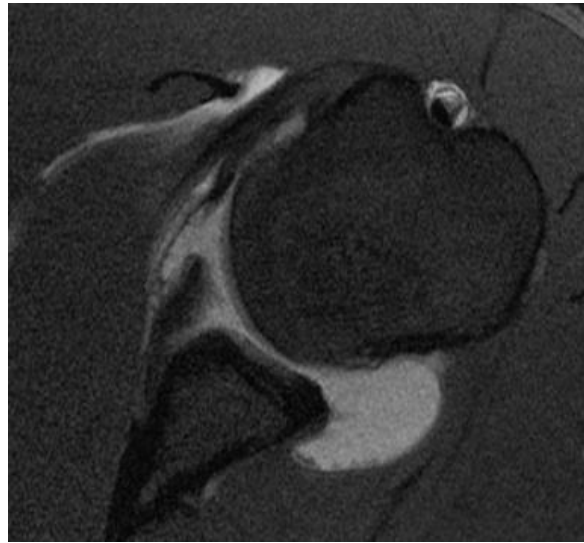
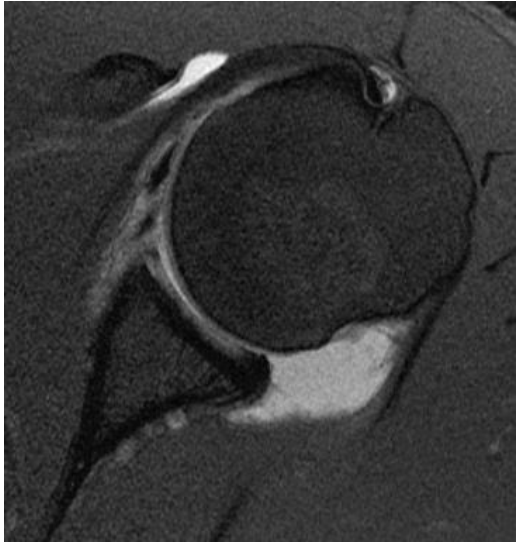
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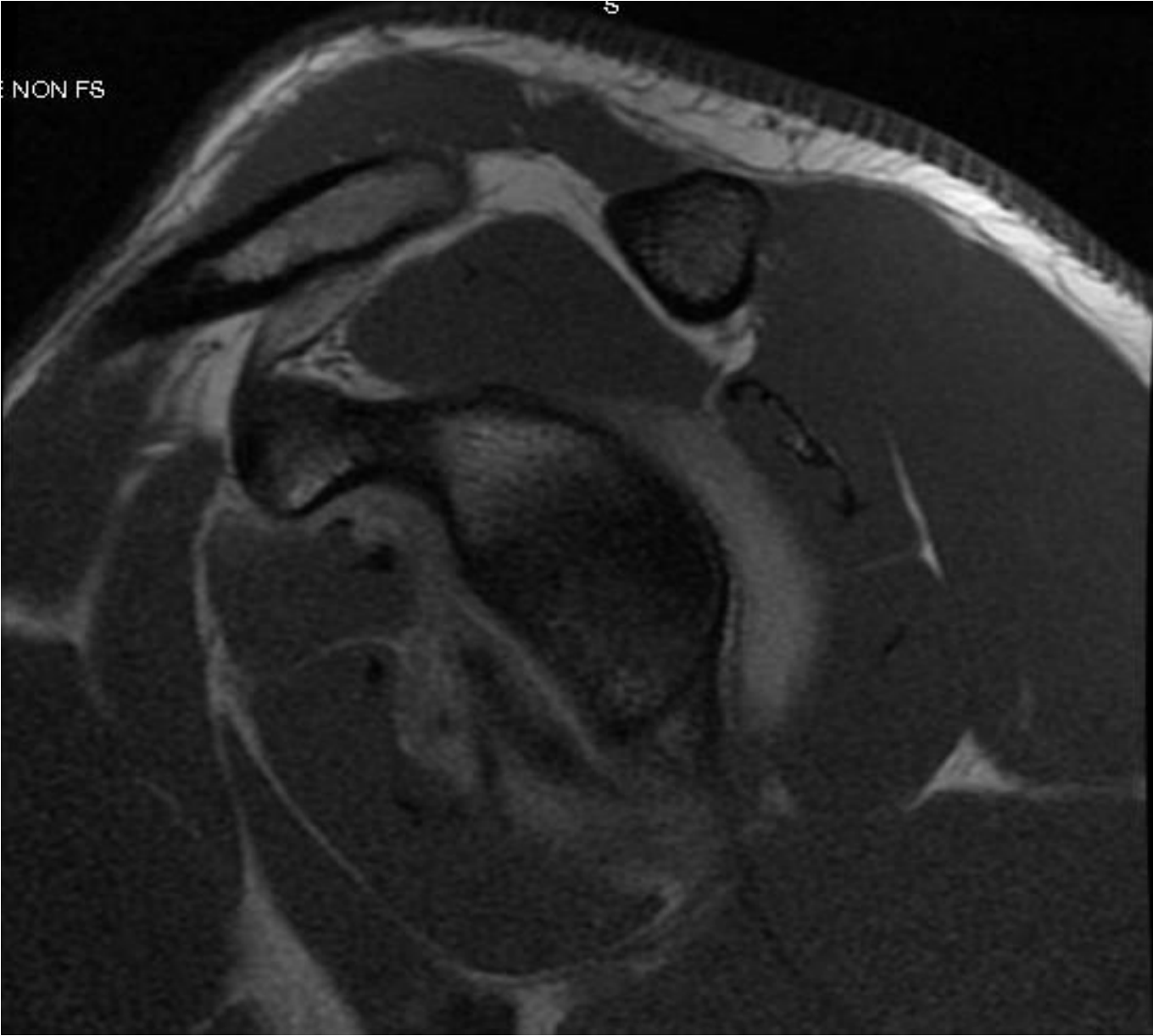
- 
- I have no disclosures

Case Presentation

- 20 y/o RHD male
- Dislocated left shoulder wrestling with college roommate in dorm room
- Spontaneously reduced
- Multiple subluxations since the injury
- Good RC strength, + anterior apprehension, + relocation test
- Hx of prior right shoulder surgery for recurrent dislocation

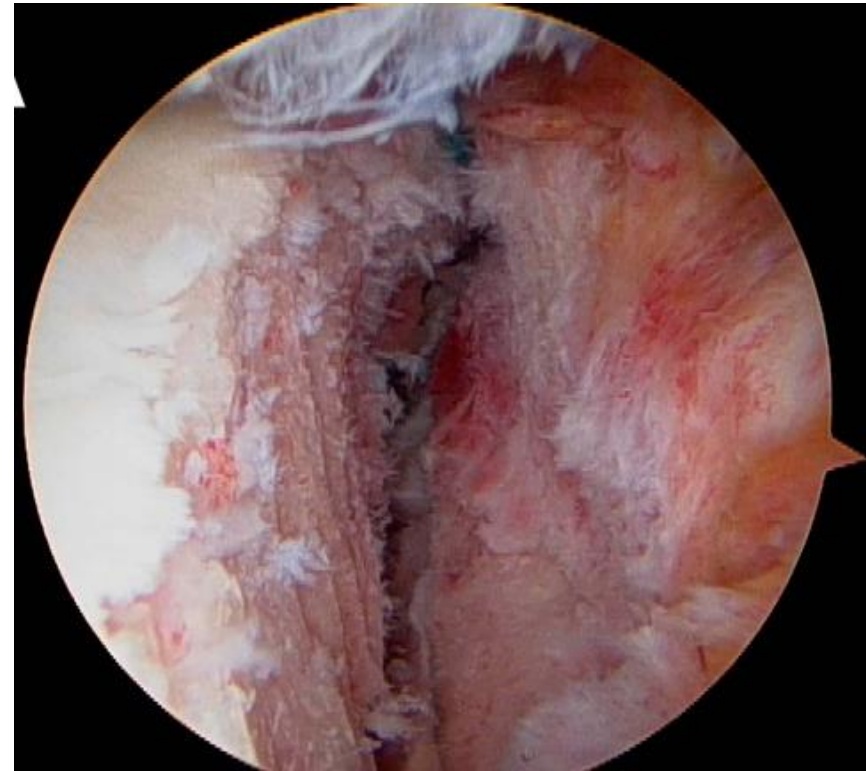






Surgical management

- Open Bankart repair
- Capsular shift
- Full return to activities at four months
- Excellent ROM
- No instability at 2 years



History and Physical Exam

- High-energy mechanism of injury
- Arm was abducted (>70) and extended (>30) at time of initial dislocation
- Patient reports that most instability occurs in midrange of motion (20-60 of abduction)
- Patient notes progressive ease of instability
- Prolonged history of instability
- Deformity is present
- Shoulder apprehension test is positive in midranges of abduction (30-90) and lesser amounts of external rotation
- Anterior translation of humeral head over glenoid rim is reproducible



West Point view



3D CT Scan

- History of multiple dislocations
- History of bilateral shoulder dislocation, especially dislocation on nondominant side
- History of failed stabilization procedure
- Dislocation after trivial trauma (initial episode) or little provocation
- Radiographs or magnetic resonance imaging demonstrating glenoid bone loss
- Instability in midranges of motion



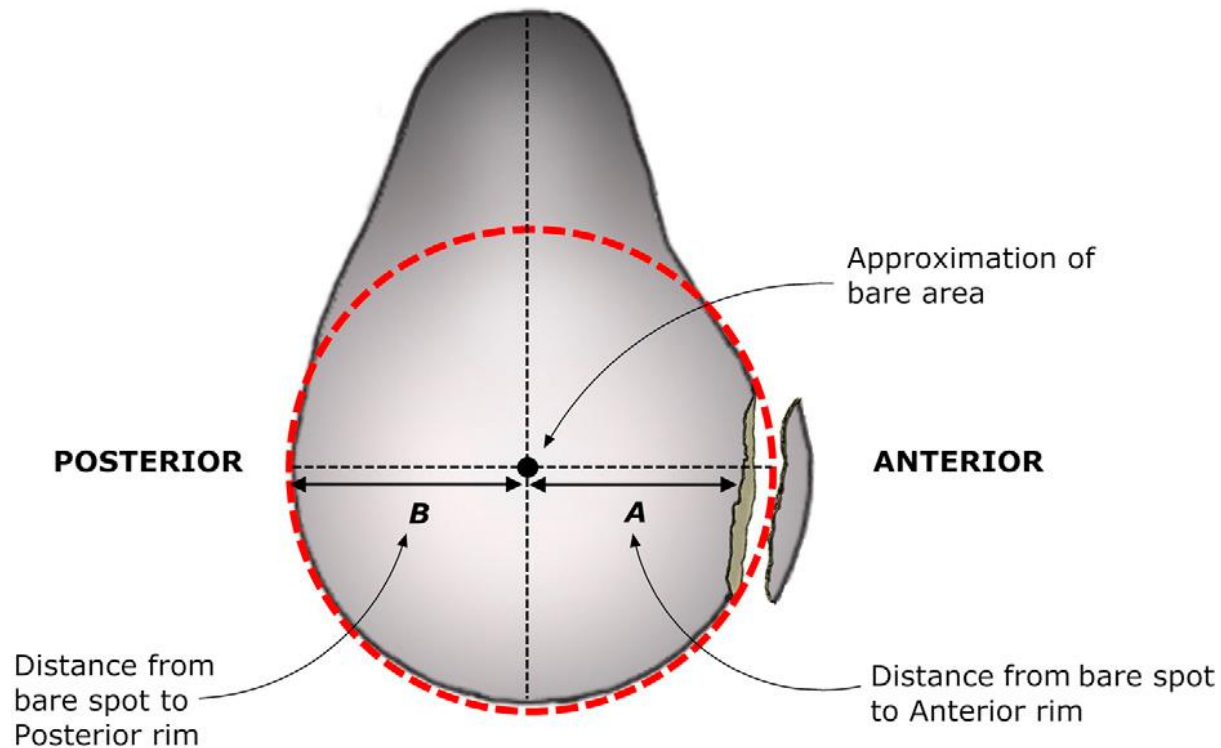
Bigliani classification

- Type I - displaced avulsion fracture with an attached capsule
- Type II - medially displaced fragment malunited to the glenoid rim
- Type III - an erosion of the glenoid rim
 - Type IIIA – less than 25%
 - Type IIIB - greater than 25%

Bigliani LV, JBJS 1994

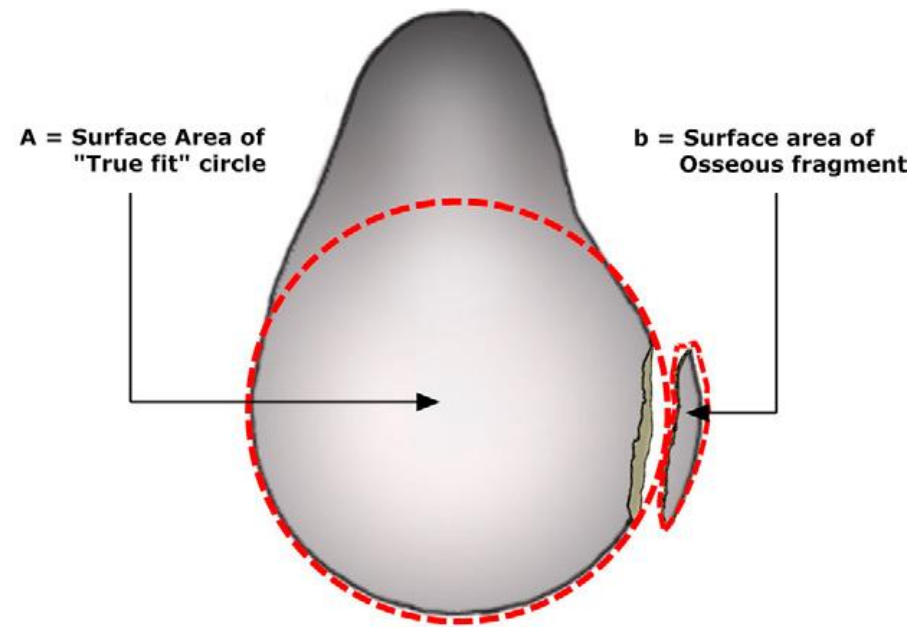


Calculating glenoid bone loss



$$\text{Percent Bone Loss} = \frac{(B - A)}{2 \times B} \times 100\%$$

Calculating glenoid bone loss



$$\text{Percent Bone Loss} = \frac{b}{A} \times 100\%$$

Chronic glenoid bone loss



Long-term Outcome of Acute Versus Chronic Bony Bankart Lesions Managed Arthroscopically

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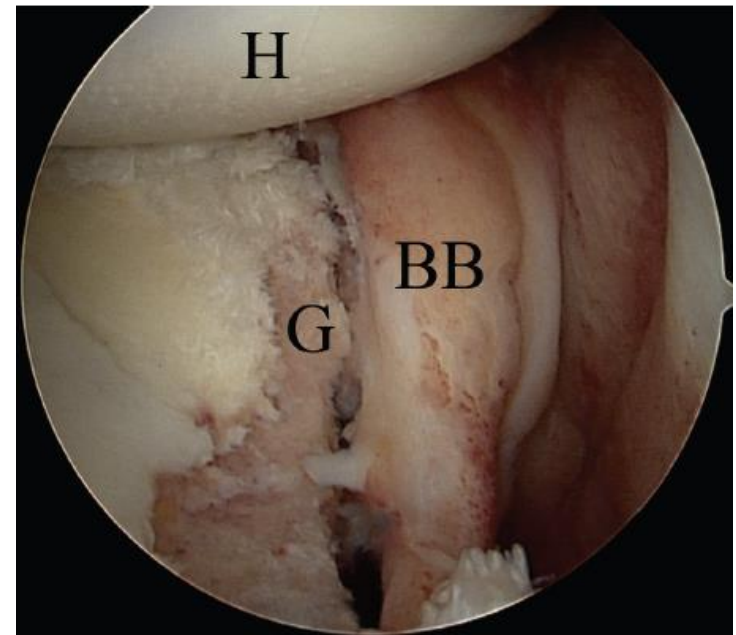
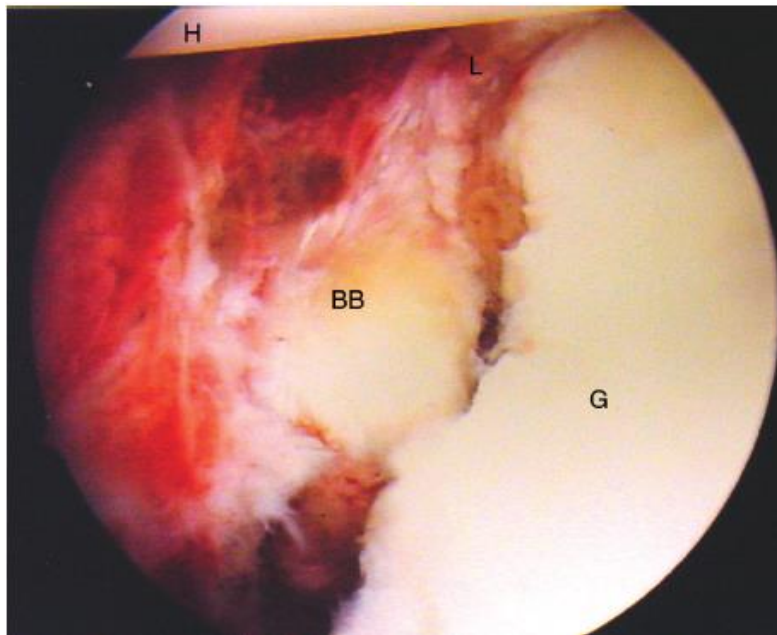


TABLE 4
Preoperative and Postoperative Rowe Scores

Group A: Acute	Preoperative	Postoperative
Mean	59.1	92
Standard deviation	19.9	13.7
Median	60	95
Range	25-100	40-100
Group B: Chronic	Preoperative	Postoperative
Mean	43.5	61.0
Standard deviation	14.9	19.2
Median	42.5	70
Range	15-70	30-95

Function

Group A - Acute

27 of 32 (84.4%) returned to sports

25 (78.1%) at the same level of performance

2 (6.3%) at a lower level.

Group B - Chronic

7 of 10 (70%) returned to sports

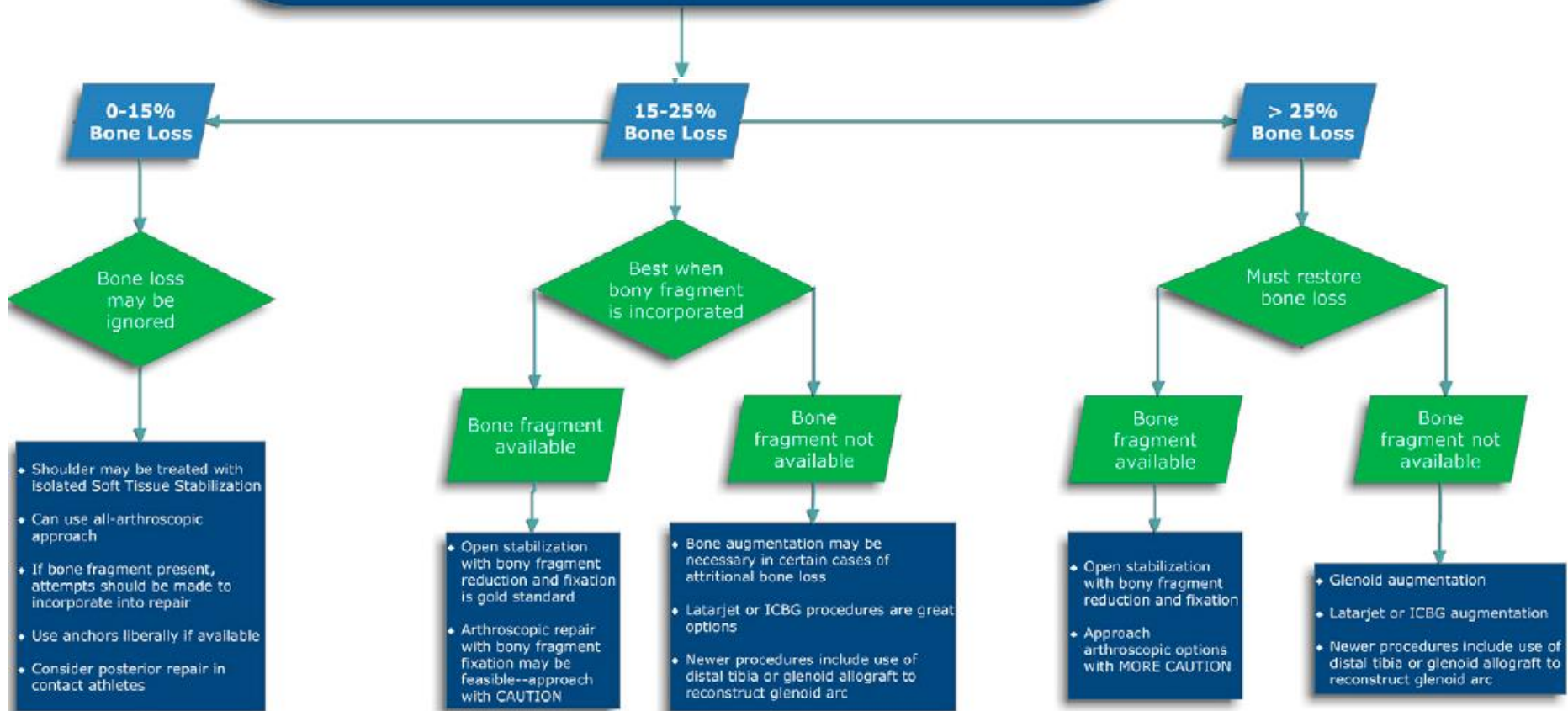
4 (40%) at the same level of performance

3 (30%) at a lower level.

Recurrent Dislocation

1 in each group

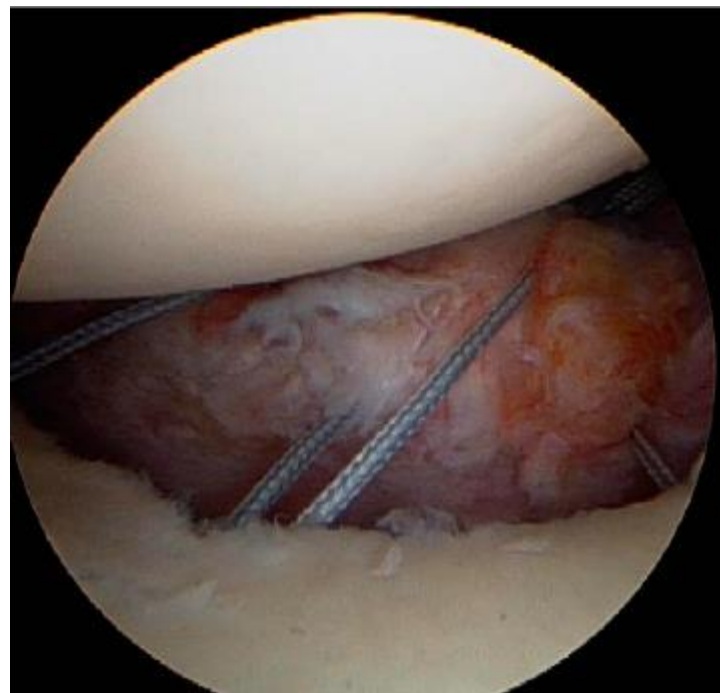
Quantify glenoid bone loss via CT and/or Arthroscopy



**0-15%
Bone Loss**

Bone loss
may be
ignored

- Shoulder may be treated with Isolated Soft Tissue Stabilization
- Can use all-arthroscopic approach
- If bone fragment present, attempts should be made to incorporate into repair
- Use anchors liberally if available
- Consider posterior repair in contact athletes



15-25%
Bone Loss

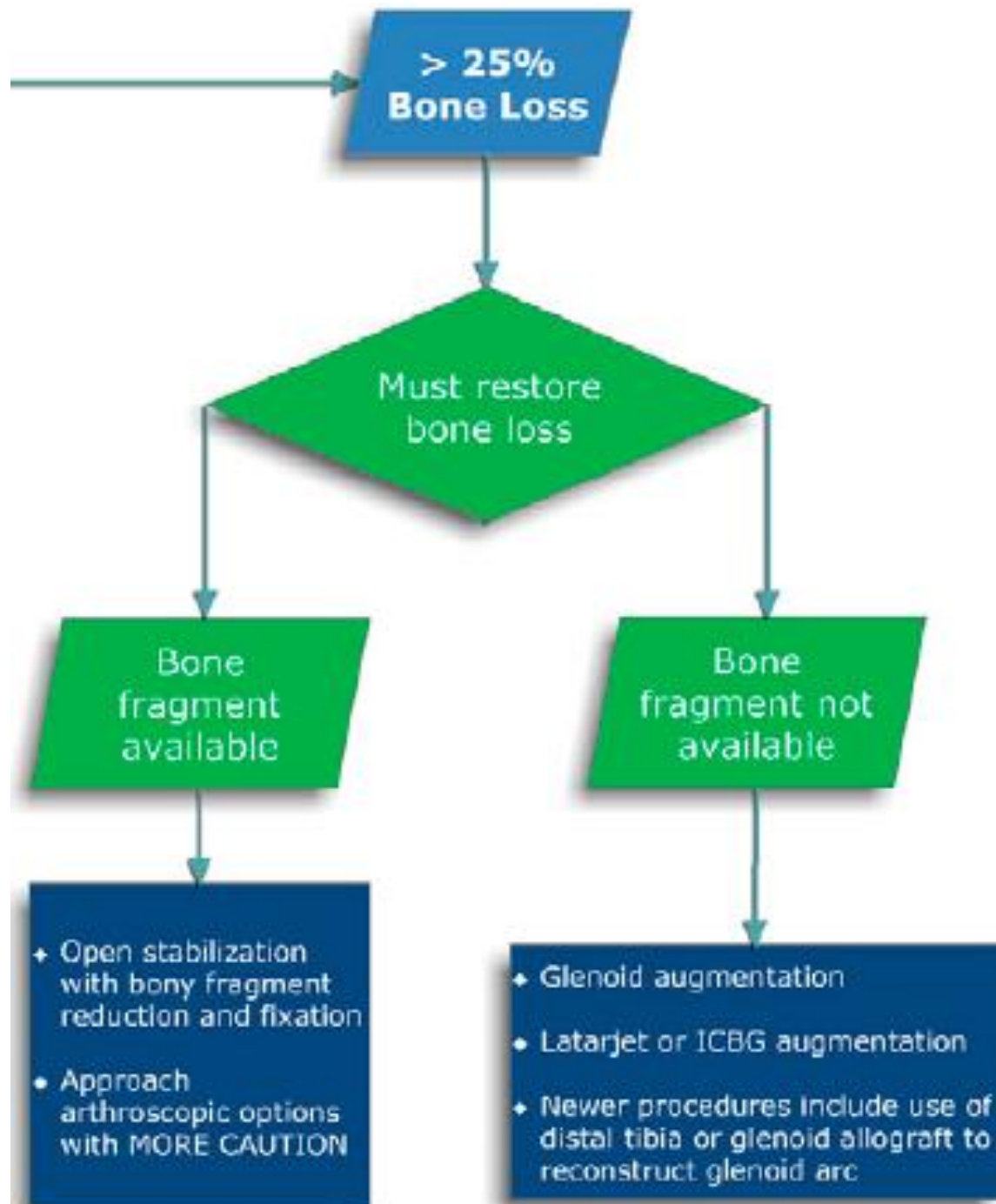
Best when
bony fragment
is incorporated

Bone fragment
available

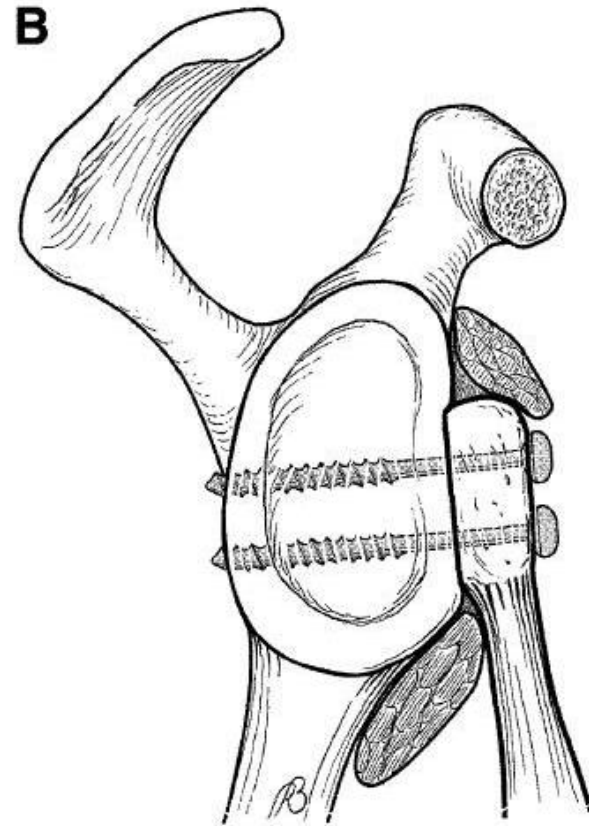
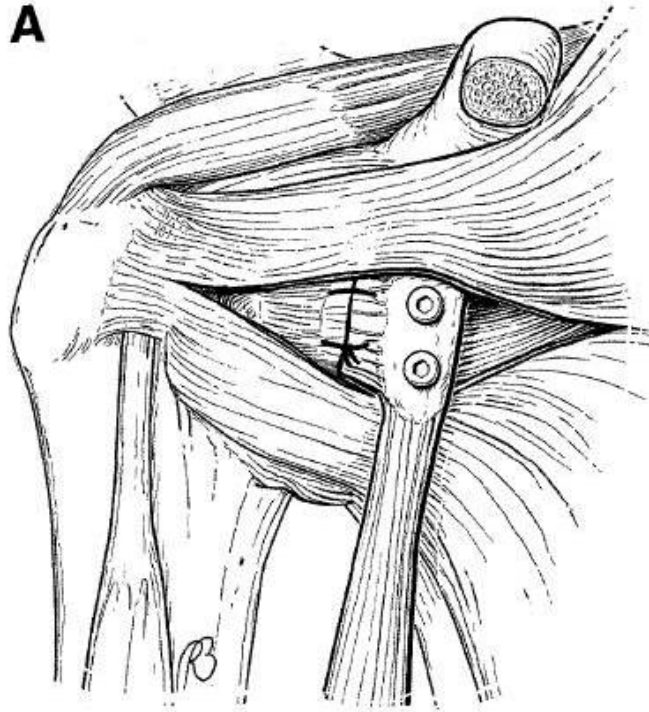
- Open stabilization with bony fragment reduction and fixation is gold standard
- Arthroscopic repair with bony fragment fixation may be feasible--approach with CAUTION

Bone
fragment not
available

- Bone augmentation may be necessary in certain cases of attritional bone loss
- Latarjet or ICBG procedures are great options
- Newer procedures include use of distal tibia or glenoid allograft to reconstruct glenoid arc

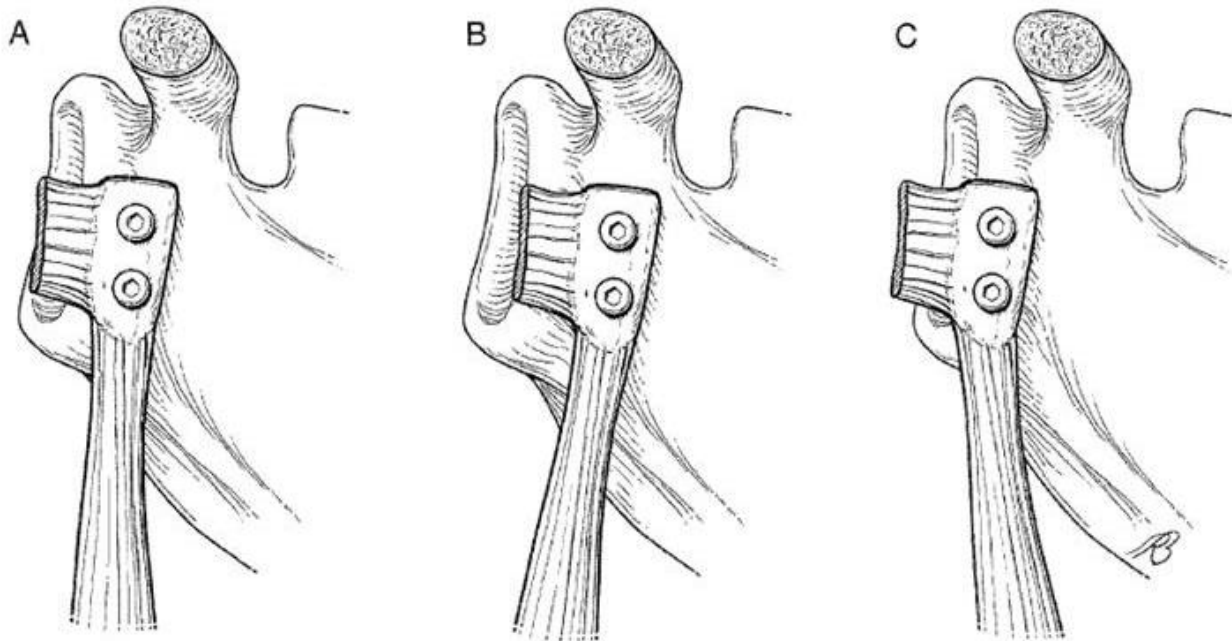


Latarjet procedure



Latarjet procedure

- Flush is best position of coracoid
- Medial is suboptimal
- Lateral overhang can lead to OA

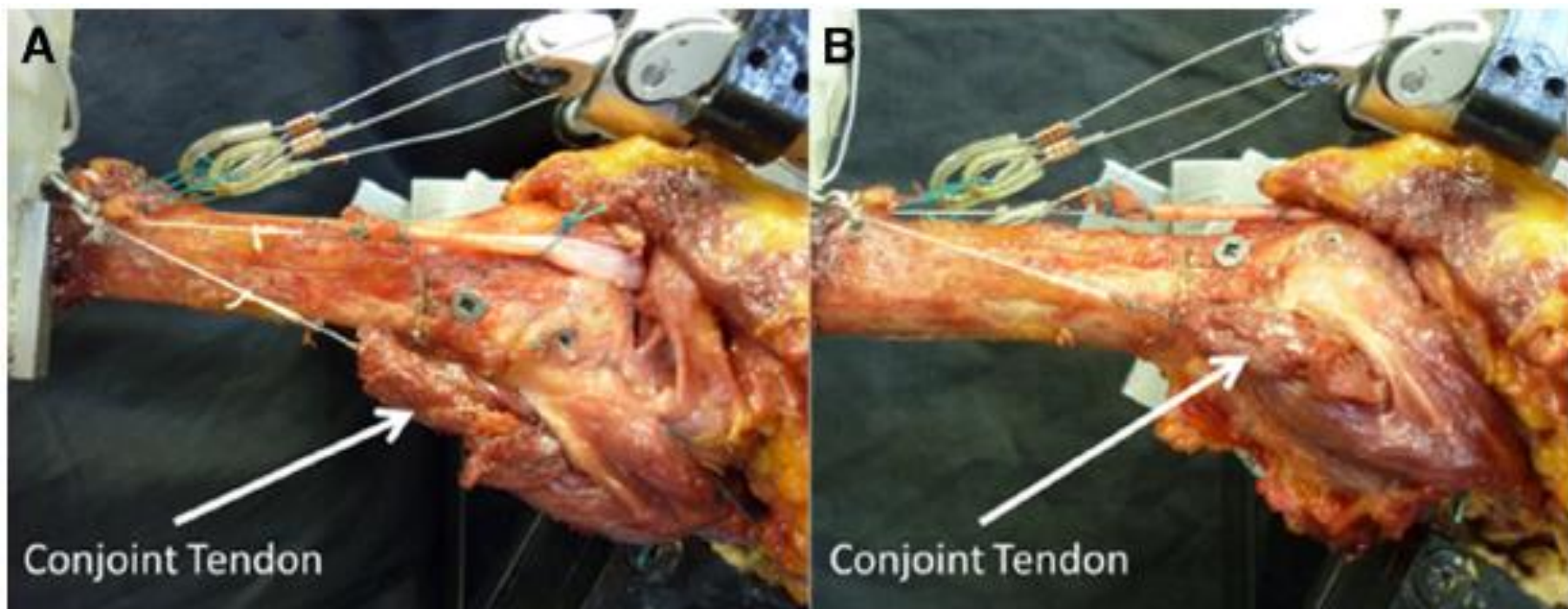


Sling effect of Latarjet



Does the dynamic sling effect of the Latarjet procedure improve shoulder stability? A biomechanical evaluation

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Kenneth J. Faber, MD, MHPE, FRCSC^{a,b}, Louis M. Ferreira, PhD^{a,b,c},
James A. Johnson, PhD^{a,b,c,d}, George S. Athwal, MD, FRCSC^{a,b,*}



Other options

- Osteochondral allograft
 - Distal tibia
 - glenoid



The Outcomes and Surgical Techniques of the Latarjet Procedure

Sanjeev Bhatia, M.D., Rachel M. Frank, M.D., Neil S. Ghodadra, M.D.,
Andrew R. Hsu, M.D., Anthony A. Romeo, M.D., Bernard R. Bach Jr., M.D.,
Pascal Boileau, M.D., and Matthew T. Provencher, M.D.

- 10 Studies
- Redislocation rate 0-8%
- 90% Good to excellent results

Summary

- Index of suspicion for glenoid fracture after dislocation
- Assess magnitude of glenoid injury
- Acute – good results with primary repair
- Chronic – bone augmentation procedure may be necessary

Thank You



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