Open Capsular Repair without Bone Block
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Likely Failures after Arthroscopic Stabilization:
- Contact athlete.
- Bony defect in humeral head or glenoid.
- Atraumatic instability.
- Capsular deficiency (e.g., s/p thermal capsulorraphy)
- HAGL lesion.
- Rupture of subscapularis in association with primary dislocation.

Causes of Open Failure:
Primary reason for failure in each series:
- Excess capsular laxity, NOT bony defect.

Causes of Arthroscopic Failure:
- Engaging or large Hill-Sachs.
- Glenoid defect.
- Contact athletics.
- Capsular laxity.
- Enlarged rotator interval.
- Lack of inferior anchor (Nothing below 4- or 8 o'clock).
- Inadequate post-op immobilization.

Why Revise Open?
Arthroscopic cuff repair=Open cuff repair.
Arthroscopic stabilization=/=Open stabilization

Advantages of Open Techniques:
- Can free capsule from subscapularis to precisely tension capsule without adherence.
- Can better visualize and tension rotator interval.
- Open RI closure is NOT the same as arthroscopic.
- Can double thickness of repair by overlapping capsule.
- Can optimally position arm for repair.
- Can address bony lesions.

Surgical Outcomes of Primary Open Stabilization:
- Wirth & Rockwood (JBJS, 1996)
  - 3% failure
- Gill (JBJS, 1997)
  - 3/60 failed (5%)
- West Point (Uhorchak, AJSM, 2000)
  - High failure rate in cadets (22%) Why? Ask Bob--Next speaker :)
**Concerns: Subscapularis Function after Open Stabilization**

Sachs et al, *AJSM*, 2005:
23% had an “incompetent subscapularis” with clinical testing. (Positive lift-off test)
Only one case documented by MRI.

Scheibel et al, *AJSM*, 2006:
No complete ruptures noted on MRI.
Instead, a degree of atrophy was noted in superior portion of tendon that was largely compensated by hypertrophy of inferior portion.

Reportable case prior to these 2 papers.
Rowe et al, *JBJS*, 1984

**Concerns: Shoulder Strength After Open Versus Arthroscopic Stabilization**

Hiemstra et al, *AJSM*, 2008:
No side-to-side isokinetic strength deficits between open and arthroscopic stabilization at 1 year after surgery.

Rhee et al, *AJSM*, 2007:
Muscle strength equal between open and scope groups at 12 months.
Open group recovered more slowly than scope group.

**Open vs Scope EBM: Meta-Analyses**

Freedman, *AJSM*, 2004:
Recurrence: Open 10%, Scope 20%

Mohtadi, *Arthroscopy*, 2005:
“Open repair has a more favorable outcome with respect to recurrence and return to activity.”

Lenters, Matsen, *JBJS*, 2007:
“Arthroscopic not as effective as open in preventing recurrent instability or enabling patients to return to work.”

**Open vs Scope Randomized Trials**

Fabbriciani et al (*Arthroscopy*, 2004):
Bottoni et al, *AJSM*, 2006:
Arthroscopic cases carefully selected to optimize outcome.

**At Risk: Contact Athletes**

**Arthroscopic Outcomes in Contact Athletes: Disappointing**

Burkhart & DeBeer, (*Arthroscopy*, 2000)
101 Contact Athletes
14/101 failed (14%)
89% with “bony defects” (8/9)
7% without bony defect (6/92)

Survey of NFL & NHL (Montgomery)
NFL: 12% failure (3/26)
NHL: 45% failure (6/11)
Mazzocca & Romeo (AOSSM, 2002)  
15% failure in collision athletes

26% recurrence in contact athletes.

**Open Outcomes in Contact Athletes:**

*Our Experience* (Pagnani & Dome, JBJS, 2002):
- 58 American Football Players:
  - 3% recurrence rate (2 post-op subluxations, no dislocations).
  - 52/58 returned to sport. (Only 1 discontinued due to recurrence.)
  - Minimal ROM loss.

**At Risk: Bony Defects of Humeral Head/Glenoid**

High recurrence rates after **arthroscopic** Bankart repair in patients with bony defects.  
Recent recommendations of Latarjet procedure for all bony defects.

Going from point A to point C.

What about point B???

Why were bone-block procedures abandoned in the 70s-80s in North America?

**Latarjet Complications**

**Results of Open Stabilization WITHOUT Bone Block:**

*Rowe et al (JBJS, 1978):*
- Glenoid lesions: 2% recurrence rate
- 5% recurrence with moderate or large H-S.

*Bigliani et al (AJSM, 1998):*
- 12% recurrence with glenoid lesions.

*Gill et al (JBJS, 1997)*
- Large H-S doubled recurrence: 3%→6%.

*Pagnani, AJSM, 2008*
- 119 consecutive patients with recurrent instability.
- 87 had Hill-Sachs lesions. (84%)
- 14 patients had glenoid rim deficiency. 4 were >20% defects.

**Recurrence Rates:**

- Hill-Sachs lesions: 2% (2/87)
- Large Hill-Sachs: 11% (1/9)
- “Engaging” Hills-Sachs: 4% (1/28)
- Glenoid deficiency: None

**ROM Loss**

- Large (>20%) defects of the glenoid: Mean loss of 7 degrees of ER.
- Large Defects of Humeral Head: Mean ER loss of 4 degrees

Our results suggest that bone-block or grafting procedures do not appear to be necessary in the majority of patients with bone loss.

Our findings also suggest an inherent difference between open and arthroscopic capsular repair.

There is a French term for the inability to admit this ………….. Latarjet
At Risk: Excess Capsular Laxity

Surgical Technique:
Scope in beach-chair. Place arm-board at side of bed. Align with arm.
Folded sheets taped to arm-board. Facilitates reduction during repair.
Incision along anterior axillary crease.
Identify cephalic vein.
Develop deltopectoral interval.
Clavipectoral fascia.
Conjoined tendon. M-cutaneous N.
Self-retaining retractors “Hands free” Arm position is key.
Subscapularis takedown (except in throwers).
Close rotator interval.
Horizontal capsulotomy.
Expose Bankart lesion.
Prepare glenoid neck to bleeding bone. Rowe: failure to do so associated with recurrence.
Place suture anchors.
Use inferior capsular flap to repair Bankart lesion. Keep head reduced!
Use superior flap to double thickness of capsule and eliminate excess capsular laxity. Keep head reduced!
Reattach subscapularis.

Special Situations:
Capsular Laxity, +/- Bankart Lesion
Tension capsule with “T-plasty” capsulorrhaphy.
Easier (& more anatomic) to base “T” laterally.

Glenoid Bony Defect
Consider bone graft/bone block if more than 1/3 of glenoid is deficient-only in revision situation in our practice.

Bristow/Latarjet Procedures
Up to 50% coracoid non-union rate. (Hovelius, AOS, 1983)
Low recurrence (0-14%).
Motion loss, high re-operation rate (15%), arthritis.
Screw problems, revision difficult.

Summary:
“Less invasive” not always better.
Despite advances in technology, some inherent advantages of open techniques.
Rotator interval closure. Free capsule from subscapularis. Double capsular thickness.
Optimally position arm and tension repair. Address bony lesions.
Avoid bony procedures if at all possible:
“Up to 50% coracoid non-union rate.
Motion loss, high re-operation rate (15%),
Arthritis. Screw problems, revision difficult.
REFERENCES:
Bottoni CR, Smith EL, Berkowitz M, Towle RB and Moore JH. Arthroscopic Versus Open Shoulder Stabilization for Recurrent Anterior Instability: A Prospective Randomized Clinical Trial. Am. J. Sports Med. 2006; 34; 1730