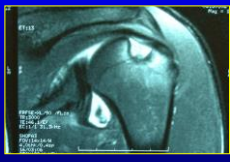


ICL 185 AAOS New Orleans, La.  
Mar. 10 , 2010

# The Failed Instability Patient: What went wrong?

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Professor, Orthopaedics  
University of Connecticut



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## Why do we have "failed" instability surgery?

- ◆ Recurrence
- ◆ Complications
- ◆ Wrong diagnosis:
  - ? Posterior
  - ? MDI
  - ? HAGL



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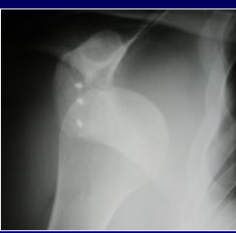
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## Recurrence

- ◆ **Patient Selection:**
  - significant bone loss
  - hyperlaxity
  - poor tissue
- ◆ **Technical:**
  - Non-anatomic repair
  - capsular laxity
- ◆ **Other:**
  - Collision athlete, < 20 yo
  - Traumatic recurrence



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### Recurrence: Patient Presentation

- ◆ Recurrent subluxation
- ◆ Recurrent dislocation
- ◆ Both

Questions??

- ? Trivial vs. major event
- ? Reduction required
- ? Xrays taken
- ? How long were you disabled
- ? Position of apprehension

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### History

- ◆ Trivial
  - capsular laxity
  - bone loss
- ◆ Major trauma
  - (requiring reduction)
  - disruption of repair
  - engaging Hill-Sachs
- ◆ ? Instability in sleep
- ? Bone loss; hyperlaxity




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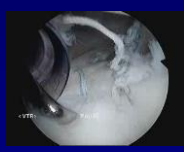
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### Exam

- ◆ ROM, "squeaking", crepitus
  - ↓ ROM- chondrolysis, too tight
  - hardware impingement
- ◆ Neurologic exam
  - axillary, musculocutaneous
- ◆ Rotator cuff
  - > 40 yo




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### Exam (Open Failures)

- ◆ Subscapularis Deficiency
- ◆ Lift-off
- ◆ belly press



Sachs et al AJSM 05  
Sisto AJSM 07

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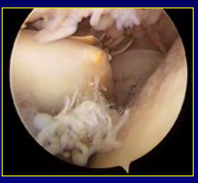
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### Problems with Open Surgery

- ◆ Iatrogenic Subscapularis rupture after Open Bankart
- ◆ 11/165 (7%)
- ◆ Loss of motion



Miller, Hawkins et al: presented at AOSSM 2002

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### Exam

- ◆ Sulcus
- ◆ Beighton score
- ◆ elbow hyperext
- ◆ thumb forearm
- ◆ Apprehension
- ◆ low angles abduction




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### Load shift

- ◆ Translation
- ◆ Edge crepitus
- ◆ Posterior jerk
- ◆ ? crepitus



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### Imaging: Radiography-Glenoid

- AP
- West Point



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### Clinical Features: ? Bone deficiency

- ◆ History
- multiple dislocations

#### Indication for CT Scan

- ◆ Physical exam
- marked apprehension
- guarding at less abduction/ER
- ◆ Plain radiographs: any bone loss



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### Recurrence after Arthroscopic Stabilization: Bone Loss

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**Revision cases:  
70-100%  
incidence of bone  
loss**

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### Exam under Anesthesia

- ♦ Load and shift
- ♦ "locking" of humeral head  
significant Hill-Sachs



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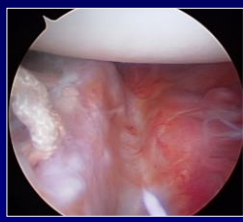
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### Arthroscopic Findings : Failures

- ♦ ALPSA
- ♦ Poor capsulolabral tissue
- ♦ Glenoid rim loss
- ♦ Hill Sachs engagement
- ♦ Fixation failure
- ♦ Pouch
- ♦ Capsular tear
- ♦ Hardware Complications
- ♦ Chondrolysis



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### Arthroscopic evaluation: Glenoid

- ◆ "Inverted pear"
- ◆ Scope: ASP

Burkhart, DeBeer  
Arthroscopy 2000



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### Arthroscopic evaluation: Humeral Head

- ◆ "engaging Hill-Sachs"



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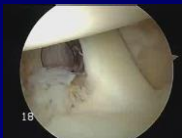
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### Arthroscopic Exam

- ◆ Quality of capsulolabral tissue



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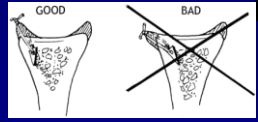
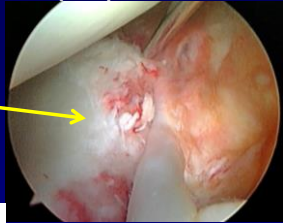
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### Fixation Failure or improper insertion

- Previous anchor/suture
- Medialized repair



Boileau JBJS 07

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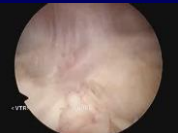
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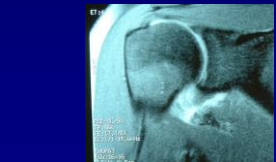
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### Previous "Arthroscopic Bankart/Capsulorrhahy



← HAGL  
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### Capsular redundancy/pouch



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### Asymmetric Repair: Open or arthroscopic anterior capsulorrhaphy

- ♦ tight anteriorly, superiorly: inferior instability
- restricted ER at side but + sulcus
- “Erlenmeyer Flask” phenomena



“Tight but loose”

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### “Instability Severity Index Score” 10 point score

- ♦ <20 y.o.
  - ♦ competitive/contact sports
  - ♦ hyperlaxity
  - ♦ Hill-Sachs on AP/ER radiograph
  - ♦ loss of sclerotic glenoid contour
- If > 6pts.: 70% recurrence with arthroscopic repair



Balg, Boileau JBJS Br 2007

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### Results of Arthroscopic Revision

#### Franceschi et al AJSM 08

- ♦ 10 patients
- ♦ 1 recurrence
- ♦ Follow-up: 48 mos.
- ♦ < 30% bone loss
- ♦ rotator interval in 7

#### Kim et al Arthroscopy 02

- ♦ 23 patients
- ♦ 15 excellent; 4 good
- ♦ 5 recurrences
- ♦ Mean f/u: 36 months

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### Results of Arthroscopic Revision

Creighton et al Arthroscopy 07

- ◆ 18 patients
- ◆ 3 recurrences
- ◆ 5 failures
- ◆ Follow-up: 29 mos.

Neri et al JSES 07

- ◆ 11 patients
- ◆ 3 recurrences
- ◆ g/ex results: 73%

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### Results of Arthroscopic Revision

▲ 16 shoulders

**No mention of any bone loss assessment**

▼ Avg. age 55 (15-65)

- ◆ Rowe: 83 pts.
- ◆ 9 excellent; 4 good; 3 fair
- ◆ +apprehension

Barnes et al AJSM 2009

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### Arthroscopic Revision after failed Open stabilization

- ◆ 22 patients (12 Latarjet; 4 Edin Hybenette; 3 open Bankart; 2 acromioclavicular)

**Results not as good as primary intervention**

- ◆ Re
- ◆ 22
- ◆ 12
- ◆ 13
- ◆ Good/excellent result: 85% Waich-Duplay  
67% Rowe

Boileau et al Arthroscopy 2009

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### Arthroscopic Bankart Revision: Requires “perfect” situation

- ◆ Overhead athlete
- ◆ Traumatic recurrence
- ◆ Deficiency of initial repair
- ◆ minimal bone loss
- ◆ Good tissue

*Additional Tension & Fixation*

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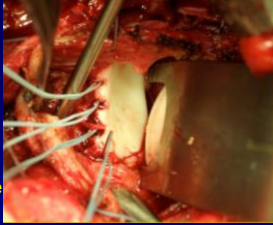
### Open Bankart Revision

#### Patient factors:

- ◆ Collision athlete
- ◆ Hyperlaxity

#### Pathoanatomic factors:

- ◆ Bone loss > 15%
- ◆ Poor capsulolabral tissue
- ◆ Capsular deficiency
- ◆ Exposed hardware
- ◆ Subscapularis deficiency



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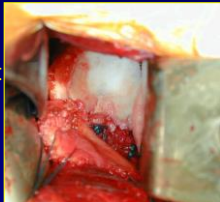
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### Revision Open Bankart for failed Arthroscopic stabilization

- ◆ 87% good excellent results
- ◆ Improper anchor placement
- ◆ pathologic rotator interval
- ◆ Inadequate immobilization



Sisto AJSM 07

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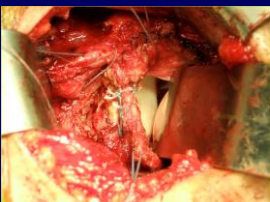
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### Revision Open Bankart for failed Arthroscopic stabilization

- ◆ 26 patients
- ◆ 11% recurrence
- ◆ Rowe: 82 pts.
- ◆ 88.5 % good/excellent
- ◆ Failures: engaging Hill-Sachs hyperlaxity 2+ sulcus



Cho AJSM 09

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### Open Revision for Failed Open Bankart

Levine et al AJSM 2000      Zabinski et al JSFS 1999

**Results not as good as primary intervention**

- ◆ Multiple surgeries      39% good/excellent

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### Hardware Complications

metal



Knots  
Biodegradable anchors



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### Failed Instability

- ◆ Stiffness
- ◆ capsular release
- ◆ Chondrolysis →
- ◆ Capsular necrosis



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### Case #1

- ◆ 32 yo engineer
- ◆ open Bankart 7 years prior
- ◆ Traumatic recurrence
- ◆ 1 dislocation; 1 subluxation
- ◆ PE: no sulcus
- ◆ Xrays/CT: no bone loss



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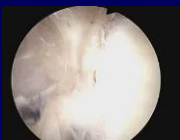
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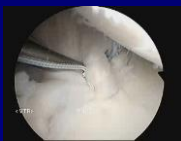
### Case #1

- ◆ Arthroscopic exam



Revision:

- ◆ Arthroscopic Bankart



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### Case #2

- ◆ 18 yo football player
- ◆ Failed arthroscopic stabilization
- ◆ PE
- ◆ 1+ sulcus
- ◆ 2+ load-shift
- ◆ Xrays: blunting of anteroinferior glenoid

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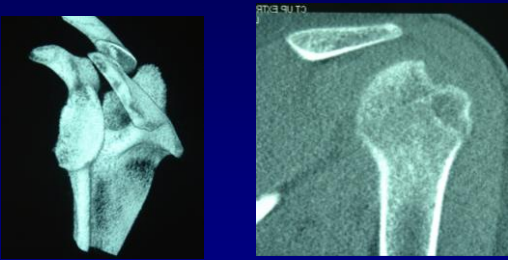
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### CT Scan: Combined lesion



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### Case #2

- ◆ EUA:  
"locked out"



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## Case 2

- ◆ Arthroscopic exam



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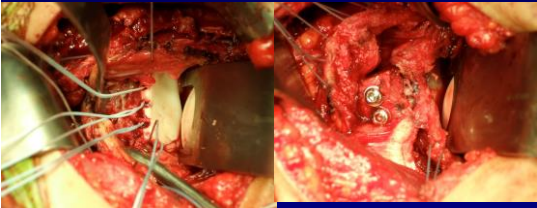
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## Case 2: Revision



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## Case # 3

- ◆ 20 yo collision athlete
- ◆ Failed arthroscopic repair
  
- ◆ PE
- ◆ Marked apprehension
- ◆ 2-3+ load-shift with crepitus

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Case #3

- ◆ CT scan



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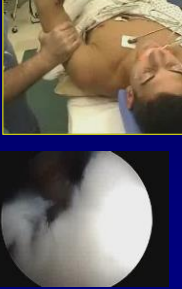
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Case #3

- ◆ EUA
- ◆ Arthroscopic exam



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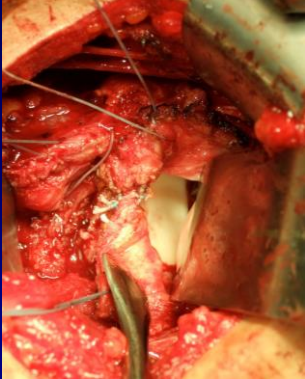
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Case # 3

Revision  
Open Bankart



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