Shoulder Instability: From A to C

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Diego Villacis, M.D.
Clinical Educator, Orthopaedic Surgery
NorthShore University HealthSystem
A teaching Affiliate of the University of Chicago

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TREATMENT DISTRIBUTION
(Ideally)

• Arthroscopic Bankart – 80%

• Open Bankart – 5%

• Open Latarjet – 15%
NATURAL HISTORY
ANTERIOR DISLOCATION
(West Point experience)

- 4,100 cadets
- Military/combative training, obstacle course
- 117 instability events/year
- 12-15 primary dislocations each year

Owens et al AJSM 2007
ACUTE OPERATIVE REPAIR

non-op: 92% recurrence

Operative: 14% @ 13 years

WOSI at final f/u 85% normal

PATHOLOGY

• Anteroinferior labral tear (Bankart) ~95%

• SLAP tear ~10%

• HAGL ~ 2-3%

• Glenoid rim avulsion ~20%

Taylor et al AJSM 1997
PATHOLOGY BIOMECHANICS

• Stretch of IGHL along with labral tear

• Repair of bankart lesion may be sufficient

OPERATE ON 1ST TIME DISLOCATORS?

Recurrent instability leads to cartilage damage

Best time for arthroscopic repair

Likely best outcome

Disclaimer: applies to young athlete
PRCT 10 YEAR FOLLOW-UP

• Non-op 75% unsatisfactory results

• Op: 85% excellent/good results

• Non-op converted to operative 63% excellent/good results

Jakobsen et al Arthroscopy 2007
SYSTEMATIC REVIEW

• RCTs of Level 1 and Level II evidence

• “Available evidence supports operative stabilization for primary anterior shoulder dislocation for primary acute shoulder dislocations in young active patients participating in highly demanding physical activities”

Godin et al Sports Health April 2010
WHY LET THEM DISLOCATE AGAIN?

- Bone loss (glenoid and humeral head)
- Cartilage defects
- Degradation of tissue tension (capsule)

BONE LOSS

- Defects rare after primary dislocation
- Change appropriate surgical options
- High recurrence with arthroscopy if large defect

References
RECURRENT INSTABILITY AT 25 YEARS

Moderate/several arthropathy

- 39% if recurrent instability (2 or more dislocation events)
- 18% if no further instability
- 26% after surgery to fix instability

Hovelius JSES 2009
RECURRENT INSTABILITY

- Key Factors
- Patient selection
- technique
RECURRENT RATES AFTER OR

- Van der Linde et al, AJSM 2011: 35%
- Voos et al AJSM 2010: 18%
- Castagna et al, AJSM 2012: 17%
- Castagna et al, Arthroscopy 2012: 21%
- Porcellini et al JBJS 2009: 13%

Age <22, mall, collision/contact sport
COLLISION ATHLETE Recurrence

- Ide AJSM 2004
  - Contact=9%  Non=6.5%
- Mazzocca AJSM 2005
  - 11%
- Cho Arthroscopy 2006
  - scope=25%  open=12%
OPEN VS ARTHROSCOPIC

RCR ~ 160pts

• WOSI: no diff
• ASES: no diff
• Recurrence
  • Scope=23%  open=11%

Male under 25y/o; associated Hill-Sachs

Mohtadi et al JBJS 2014
CRITICAL BONE LOSS

Arthroscopic repair

- Increased recurrence >20%

- Worse outcome >13.5%
  - WOSI, SANE score

Shaha, Bottoni, Tokish et al AJSM 2015
HAVE TO LOOK TO SEE

• Multiple d/l
• Dislocations when sleeping
• Seizure
• Revision surgery

• IMAGING (3-D CT scan)
OPEN BANKART

• Patient
  • Collision athlete
  • Hyperlaxity

• Anatomy
  • Bone loss 10-20%
  • Poor capsulolabral tissue
OPEN LATARJET

- Significant complication risk: as high as 30%
- Nerve injury
- Infection
- Coracoid nonunion/fracture
- Hardware migration
- Risk of OA

Griesser et al JSES, Shah et al JBJS 2012
# OPEN BANKART TRIED

AND TRUE

<table>
<thead>
<tr>
<th>Reference</th>
<th>Number of Patients</th>
<th>Description</th>
<th>Recurrence Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rowe et al. JBJS 1978</td>
<td>161 patients</td>
<td>Bone defects: glenoid: 77%, Hill-Sachs: 78%</td>
<td>5 recurrences 97% satisfied</td>
</tr>
<tr>
<td>Lenter et al. JBJS 2007</td>
<td>meta-analysis Open vs. Arthroscopic</td>
<td>greater return to work</td>
<td>less recurrence</td>
</tr>
<tr>
<td>Pagnani et al. AJSM 2008</td>
<td>103 patients</td>
<td>85% contact 85% Hill-Sachs 14% glenoid</td>
<td>2 recurrences</td>
</tr>
<tr>
<td>Rhee et al. AJSM 2006</td>
<td>46 patients</td>
<td>collision athletes</td>
<td>recurrence: open: 11%, scope: 25%</td>
</tr>
<tr>
<td>Mohtadi et al. JBJS 2014</td>
<td>RCT Open (79) vs. Arthroscopic (83)</td>
<td>WOSI: no diff. ASES: no diff.</td>
<td>recurrence: Open: 11% Scope: 23%</td>
</tr>
</tbody>
</table>
INDICATIONS

- Collision athlete <20
- 10-20% bone loss
- Poor tissue
- Recurrent instability
- revision
OPEN BANKKART RESULTS

• 103 pts
• 84% with hill sach
• 14% glenoid bone loss

• 2 recurrences

Pagnani AJSM 2008
20 YEAR FOLLOWUP

- 47 pts
- Recurrence 17% (5 d/l and 2 sublux)
- 95% satisfaction
- 2 revisions

Moroder et al JBJS 2015
BONE DEFECTS

• Glenoid 73-89%
• Humerual head: 82-100%
• Bipolar

• Critical?
  • Glenoid: 20-25%
  • Humeral Head 25%

Burkhart Arthroscopy 2000; Itoi et al JBJS 2000; Greis JSES 2002; Bolleau JBJS 2006
WHEN MUST THIS BE ADDRESSED?

• Bone lesions can reduce stability

• How big is big?
GLENOID TRACK

- Contact area between glenoid and HH
- ~85% of the glenoid width starting anterior

Yamamoto et al JSES; Omori et al AJSM 2014; Digiacoimo et al arthroscopy 2014
CT WITH 3-D RECON

• Best way to measure diameter
• Measure defect
ARTHROSCOPIC OPTIONS

Remplissage

- No glenoid bone loss or mild <15%
- Engaging HS
- Concern for loss or motion or posterior cuff pain

References
CORACOID TRANSFER: LATARJET

• >20% bone loss
• Engaging HS and bone loss
ILLIAC CREST

• >30% bone loss on glenoid

References
DISTAL TIBIA GRAFT

- No graft harvest morbidity

- But no sling effect on conjoint

HUMERAL HEAD DEFECT

- >30%

- Matched allograft

- Surface arthroplasty
CONCLUSION

• Consider surgery for 1st time dislocators
CONCLUSION

• Don’t forget open repair, tried and true
CONCLUSION

• Don’t forget to look for bone loss

• Latarjet is the gold standard
Thank You