Non Arthroplasty Options for the Glenohumeral Joint

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Overview

- Etiology
- Treatment
- Outcomes
- Future Directions

Incidence

- Impingement
  - 33% (MRA) Guntern et al, 2003
- RCT
  - 35% with (6-7% without) Hsu et al, 2003
  - 4.5% (of 200 w Grade IV) Gartsman, 1997
- Instability

Don’t be fooled...

Central Glenoid Bare Area

What is Chondrolysis?

Massive articular cartilage destruction of the GH joint often associated with changes in the subchondral bone typically following a surgical insult

Etiology

Post-surgical
Post-traumatic
Local degenerative
AVN
OCD
Does Instability Surgery → Arthritis?

- 33/52 with Bankart Repair
- 15 year F/U
- Not associated w time to repair or # of dx’s

Radiographs  
<table>
<thead>
<tr>
<th></th>
<th>Bankart</th>
<th>Uninvolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>39%</td>
<td>58%</td>
</tr>
<tr>
<td>Minimal</td>
<td>42%</td>
<td>18%</td>
</tr>
<tr>
<td>Moderate</td>
<td>9%</td>
<td>6%</td>
</tr>
<tr>
<td>Severe</td>
<td>3%</td>
<td>0%</td>
</tr>
</tbody>
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Rosenberg et al, AJSM, 1995

Etiology

Articular Cartilage Thickness of the Humeral Head: An Anatomic Study

Orthopedics, 2008

Tenual Chondrocyoty of Chondromalacic Humeral Collette

Arthroscopy, 2006

My First Case  
2003

12 shoulders in 10 patients  
IAPP w .25% Marcaine  
Large IAPP  
At Rush, 52 patients to date
Local Anesthetics
In Vitro

Model
- Culture
- Bioreactor
- Human and Bovine

Chondrotoxicity
- 99% cell death/apoptosis
- Does and time dependent

- Chu et al, Arthroscopy 2006
- Dragoo et al, 2007
- Lo et al, 2007

Decision Making

Patient-Specific
- Age
- Symptoms
- Prior treatment
- Demand-Matching

Defect-Specific
- Location
- Size/Depth
- Containment
- Geometry

Avoid Linear Thinking!
(AKA “The Incidental Defect”)

Debridement

- Synovectomy
- Capsular release
- Loose Body
- Uni-Concave

Arthroscopic Debridement

Cameron et al, 2002
- N = 61
- Grade IV
- 88% w some pain relief for 28 mo
- Poor px: > 2 cm²

- 69 patients (2001-2007)
- 14 → TSR at 10 mo
- 55 patients at 31 mo (13-89 mo)
  - ASES 52→73
  - SST 6→9
  - VAS 4.8→2.7
  - 82% Satisfaction
18 patients (2001-2007)
- Arthroscopic Mfx HH or Glenoid
- 3 → TSR (Failed)
- 13 patients at 28 mo (12-89 mo)
  - Size 5 cm²
  - Improved VAS, SST and ASES
  - 92% Satisfaction

Kropl EJ et al, Arthroscopy 2007
- Age 19 → OA for GH instability
  - 1 year f/u → Return to full activity

Chapovsk F et al, Arthroscopy 2005
- Age 16 → OA for GH instability
  - 1 year f/u → No further instability

Johnson DL et al, JSES 1995
- Age 19 → OA for OCD of humeral head
  - 3 year f/u → Pain free arc of ABD, no crepitation

Case Report:
Antegrade Chondrocyte Repair of an Articular Defect in the Humeral Head
AJSM, 2009
- Romeo & Cole, 2002
- Sennet, 2004
- Warner & Minas, 2003

Osteochondral Allograft

Other Indications

Glenoid Management
Glenoid Management

Biologic Resurfacing

- SIS
- Meniscus
- Fascia Lata
- Periosteum
- Achilles
- Anterior Capsule

Patients (n= 30)
- LMT to glenoid
- HH hemiarthroplasty
- Age 42 years
- F/U 18 months
  - ASES = 69; SST = 7.8; VAS = 2.3
  - FF = 139
  - ER = 53
  - 2 conversions to TSA

2 Year F/U
HH Allograft/LM tx
Follow-Up

- 27 months (range, 24-44)
- Etiology
  - 16 IAPP
  - 2 Anchor
  - 2 Thermal
- Assessment
  - ASES
  - SST
  - SF-12

Results

- Pre-operative: 119°, 40°, L2
- Follow-up: 132°, 41°, T12

Treatment

- 7 HH/LM
- 2 HH Resurfacing/GraftJacket
- 2 ACI
- 1 HH Allograft plug
- 1 HH Microfracture
- 5 Capsular release

Results

- Pre-operative vs. Follow-up
- p<0.01, p<0.02, p<0.01
4 Year Follow Up

IAPP & Chondrolysis

- Young
- GH procedure
- 24 to 48 hour IAPP
- Rapid deterioration
- “Systemic” joint failure
- Difficult to “cure”

When all else fails...or they are just tired of having surgery

THANK YOU