HAGL / Reverse HAGL Lesions: How To Recognize, How To Fix – Step-By-Step

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DISCLOSURES

The following relationships exist:

1. Royalties and stock options
   - None

2. Consulting income
   - Smith & Nephew

3. Research and educational support
   - Arthrex
   - Mitek
   - Smith & Nephew

4. Other support
   - None
Shoulder Stability

- Maintained by dynamic and static stabilizers
  - Dynamic
    - Deltoid
    - Rotator Cuff
    - Biceps
  - Static
    - Glenohumeral articulation
    - Glenoid labrum
    - Joint capsule
    - Glenohumeral ligaments
Post-Traumatic Shoulder Instability

• Causes
  – Bankart lesion (most common)
  – Injury to capsule or GH ligaments
  – Combination of lesions
HAGL Lesions

- **Humeral Avulsion of Glenohumeral Ligaments**
  - Caused by traumatic injury
  - Avulsion of IGHL from humeral attachment
  - Mechanism is hyper-abduction and external rotation
  - Accounts for ↑ incidence of AIGHL lesions compared to PIGHL
HAGL Lesions

• Often seen in combination with other shoulder pathology
  – Labral tears
  – Hill Sachs lesions
  – RC tears
• Often underdiagnosed
• Careful history and P.E. important
• Imaging studies (MRI, MRA) important
History and Physical Exam

• HAGLs usually associated with subluxation/dislocation
• Specific injury not always apparent
• Often present with nonspecific complaints
  – Weakness
  – Pain
  – Poor function
• High index of suspicion required to diagnose (esp. after failed surgery)
• P.E. may yield + provocative instability signs
Imaging

• Instability series radiographs obtained
  – May show evidence of instability
  – Bony HAGL may be seen (rare)

• MRI/MRA modality of choice
  – Normal IGHL U-shaped
  – HAGL lesion may appear J-shaped (J sign)
Limitation of MRI in Diagnosing HAGL Lesions

MRI of HAGL Lesions: Four Arthroscopically Confirmed Cases of False-Positive Diagnosis

Melvin et al. AJR 2008

- Recognition of HAGLs difficult
- MRI characteristics variable
- Authors recommended reserving arthroscopy as diagnostic modality of choice
HAGL Literature

- Mainly case reports and very small series
- Incidence from 1% to 21% reported
  - Highlights difficulties in recognizing and accurately diagnosing HAGLs
- Combined lesions common
  - Bankart
  - Hill Sachs
Combined Lesions

Humeral and glenoid detachment of the anterior inferior glenohumeral ligament: A cause of anterior shoulder instability

Larry D. Field, MD, Desmond J. Bokor, MB, BS, FRACS, and Felix H. Savoie, III, MD, Jackson, Miss., and Sydney, Australia

Field et al, JSES 1997

- Reported 5 cases of Bankart lesions and HAGL lesions
  - Diagnosed during arthroscopy
  - Emphasizes importance of thorough arthroscopic evaluation
- Coined term “Floating AIGHL” due to detachment of ligament origin/insertion
- Open Bankart/HAGL repair carried out
Classification System

Humeral Avulsion of the Glenohumeral Ligaments

The HAGL Lesion

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AJSM, 2007

• “West Point” nomenclature developed
• AHAGL, ABHAGL etc.
Management of HAGL Lesions

• Non-surgical
  – May be successfully managed
  – More likely when isolated lesion and no recurrent instability episodes

• Surgical
  – Persistent pain/ dysfunction
  – Recurrent instability
    • Combined lesions more commonly present
  – Arthroscopic and open techniques described
Arthroscopic Repair

• Technique very important
  – Requires access to inferior humeral head
  – Protect axillary nerve

• Technique tips
  – Low anterior **AND** posterior portals
  – 70° scope may be helpful
  – Abduction/ ER of arm improves access to inferior head
Open HAGL Repair

- Some authors recommend as preferred technique
- May improve access to lesion in some cases
- Arciero and Mazzocca (Arthroscopy 2005)
  - 8 patients
  - Superior 50% of subscap preserved

L-shaped subscap release
Posterior HAGL Lesions

- Almost always arthroscopically managed
- Access usually less challenging
- Axillary nerve less vulnerable
Posterior HAGL
Combined Posterior HAGL Lesions

Identification and management of “floating” posterior inferior glenohumeral ligament lesions

Chris Pokabla, MD\textsuperscript{a}, E. Rhett Hobgood, MD\textsuperscript{a,b}, Larry D. Field, MD\textsuperscript{a,b,c,*}

JSES 2010

- Commonly combined with posterior Bankarts
- Case series of “Floating” posterior HAGL lesions
- Emphasizes importance of thorough arthroscopic assessment
“Floating” PIGHL
Summary

- HAGL lesions caused by traumatic glenohumeral instability
- Careful history/ P.E. and imaging studies valuable for accurate diagnosis
  - High index of suspicion for failed instability surgery
- Arthroscopic evaluation critical to diagnosis
- Arthroscopic and open repair techniques yield successful outcomes
Thank You