SLAP LESIONS

Sports Rounds

Jan. 26, 2005

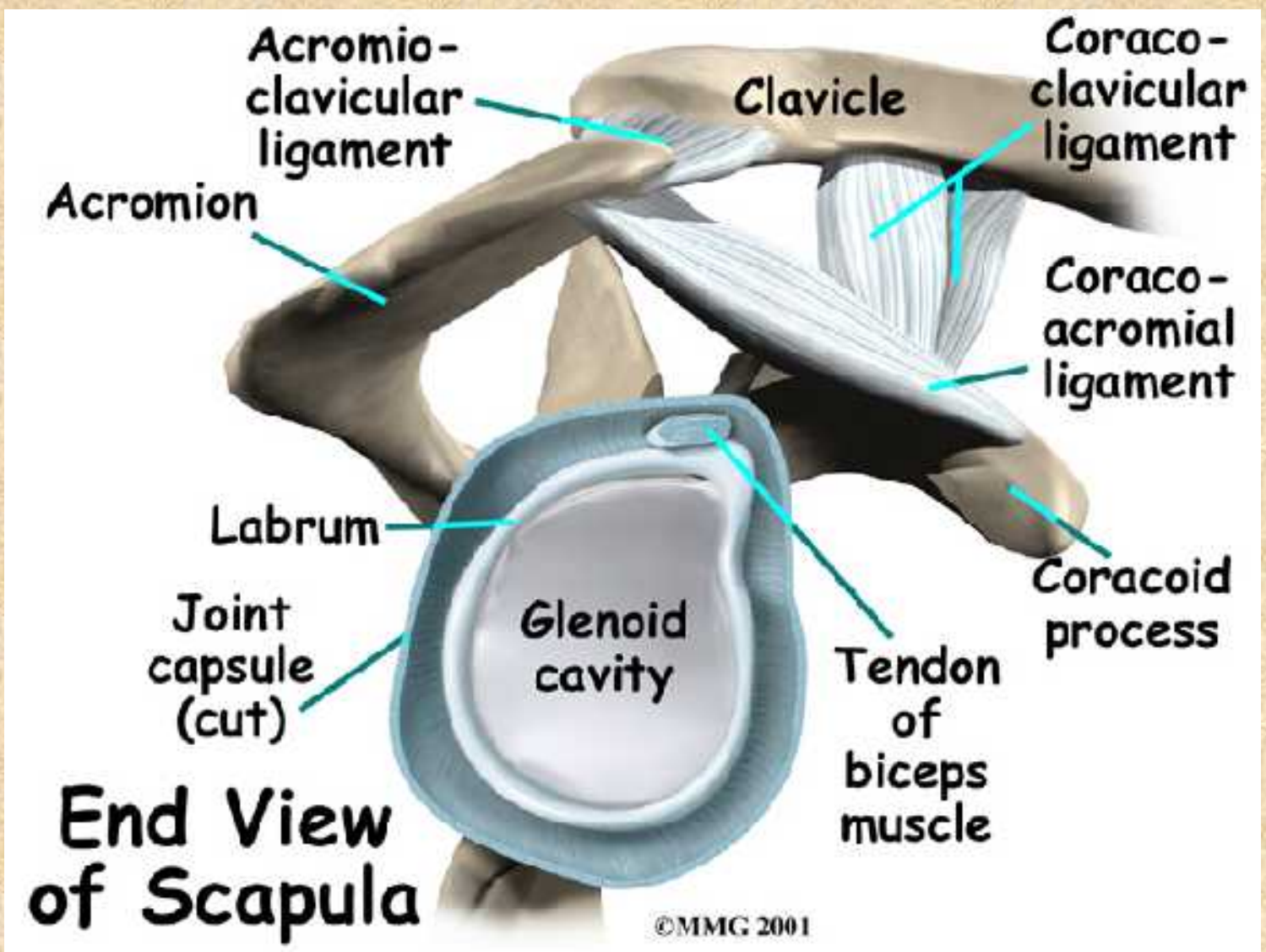
Outline

- Anatomy of the Glenoid Labrum
- Function of the Labrum
- Definition of SLAP lesions
- Classification of SLAP lesions
- Etiology of SLAP Lesions
- Diagnosis
- Management

Anatomy of the Glenoid Labrum

- Labrum, Capsule, Biceps tendon and Subscapularis muscle are derived from the same embryological cells.
- Labrum is a fibrocartilaginous tissue with sparse elastin fibers.
- Acts as a transition between the hyaline cartilage of the glenoid and the fibrous joint capsule. Inferiorly, the labrum blends with the articular cartilage of the glenoid.
- Funtions as a stabilizing and load-sharing structure and serves as a site for ligamentous attachment.

Glenoid Labrum



Biceps Anchor

- Broad origin from the supraglenoid tubercle AND the superior labrum at the 12 o-clock position.

- Supraglenoid tubercle is 5 mm medial to the superior edge of the glenoid rim.

It has a variable origin, with some reports of 100% origin from the labrum alone.

Relation of Biceps & Labrum

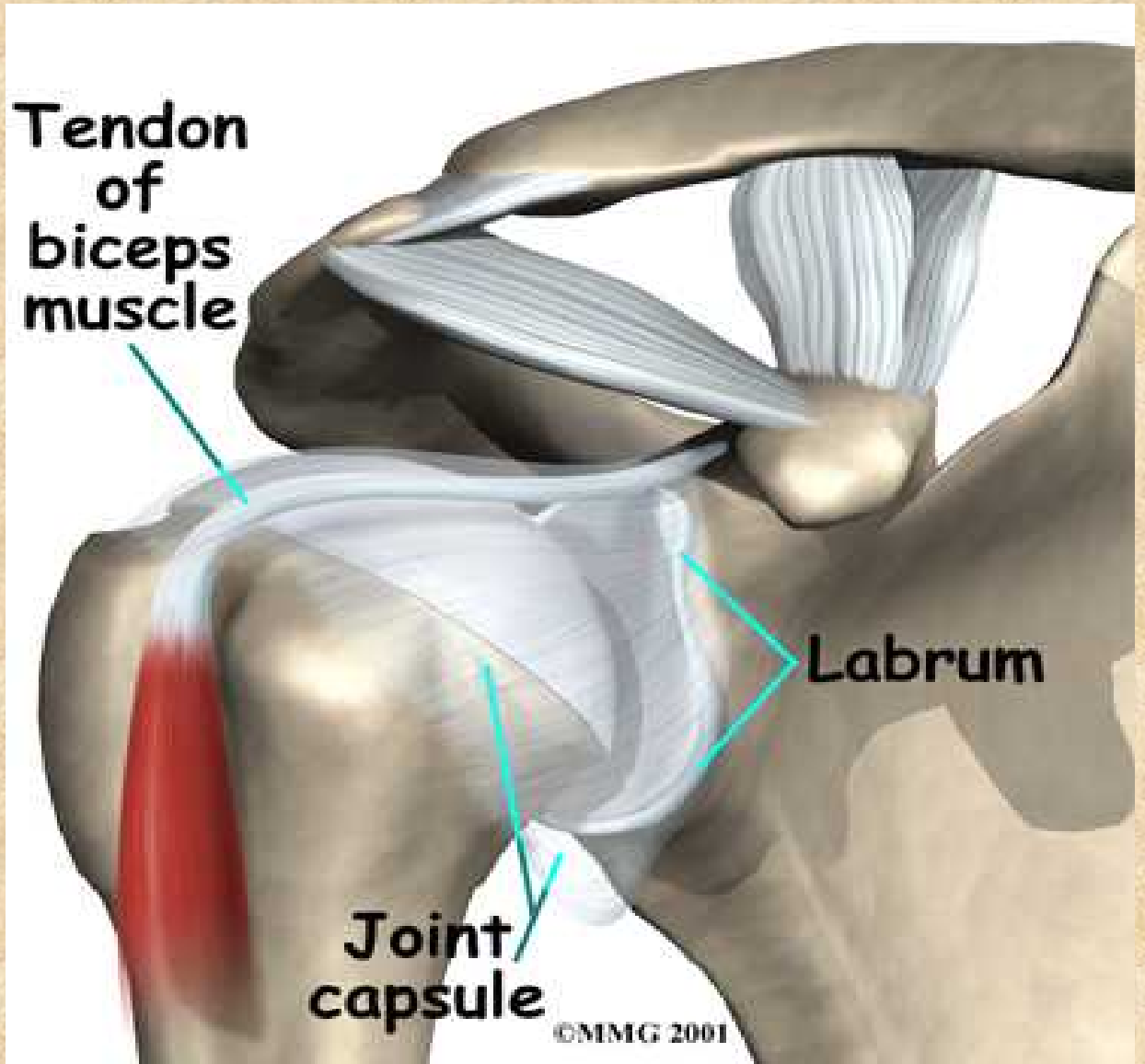


Figure 2: Courtesy of David B. Richards, MD

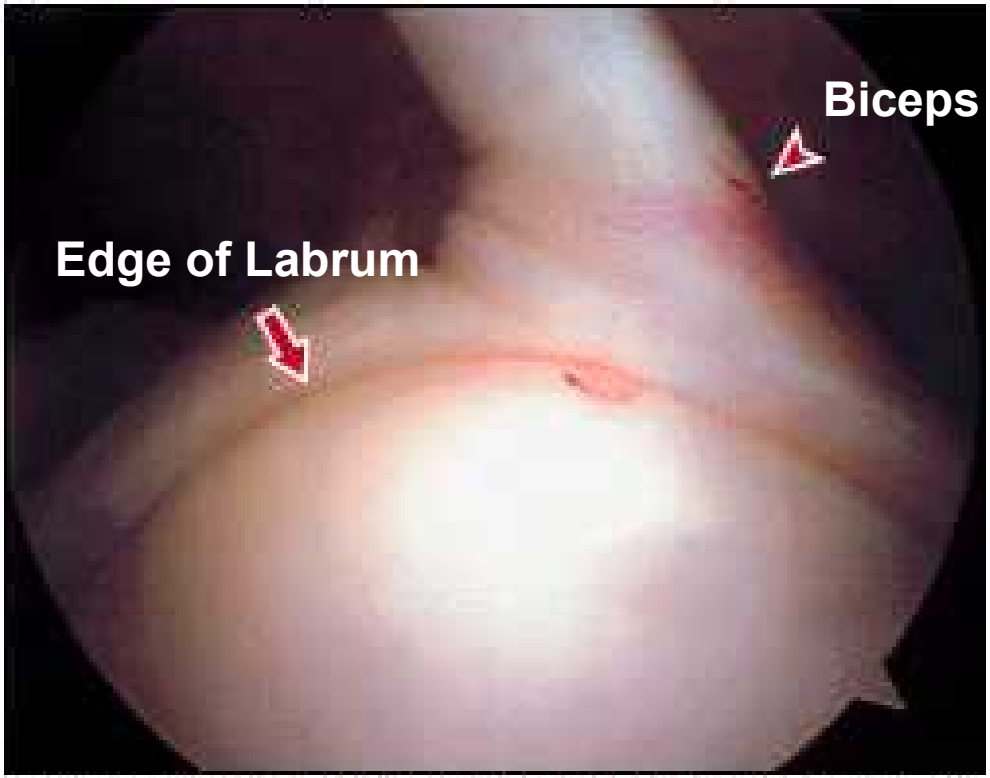


Figure 2. The attachment of the glenoid labrum (arrow) to the rim of the glenoid cavity is usually smooth and continuous, as shown in this arthroscopic view of the shoulder. The superior aspect of the glenoid labrum is the attachment site for the long-head tendon of the biceps muscle (arrowhead), which helps to stabilize the shoulder.

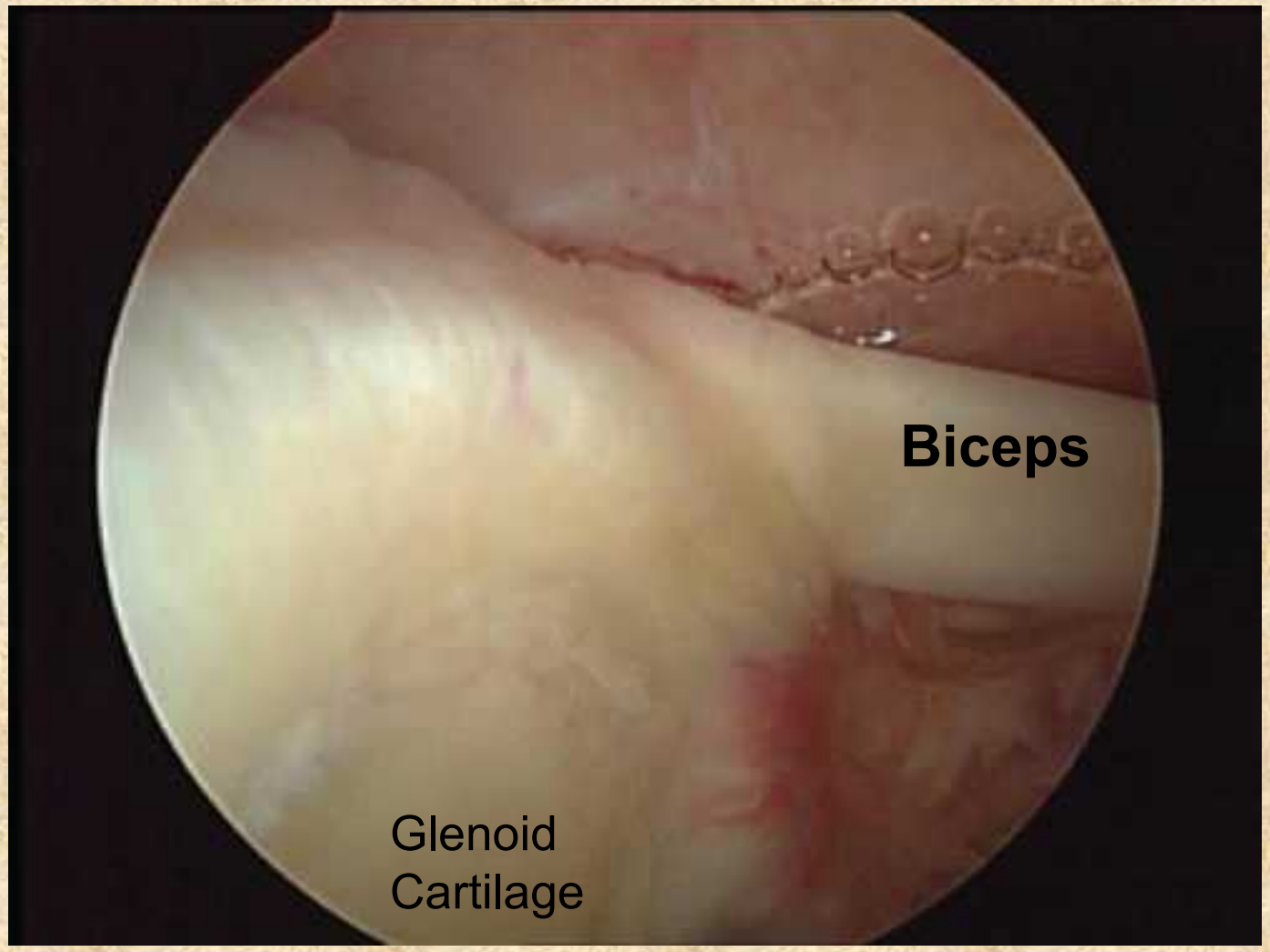
Function of the Labrum

- Site for Ligamentous attachment.
- Origin of long head of biceps tendon.
- Increases Glenohumeral contact by 25%, thereby contributing to the stability of the joint.

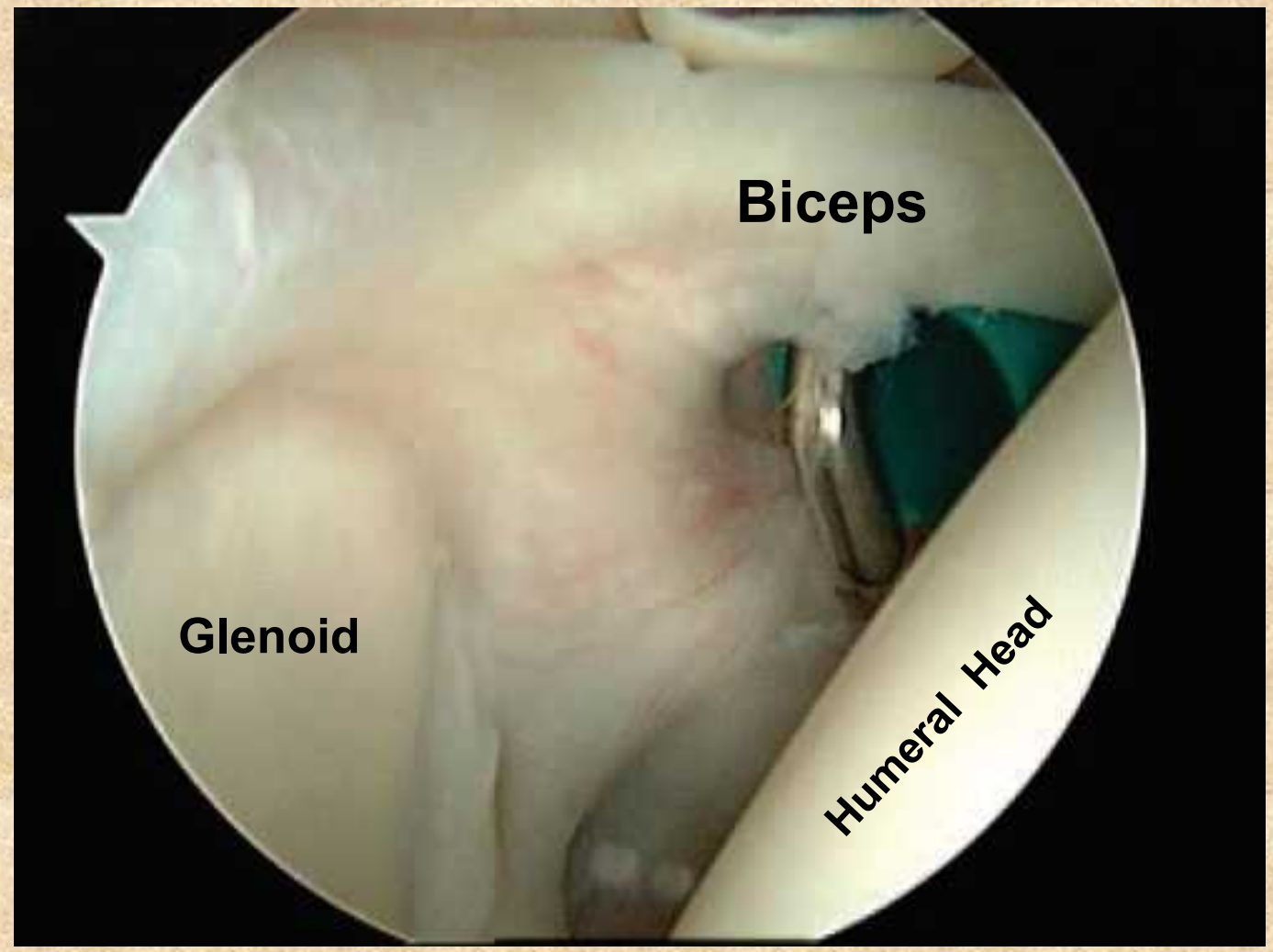
Normal Variations in Superior Labral Morphology

Mileski, Snyder, Davidson

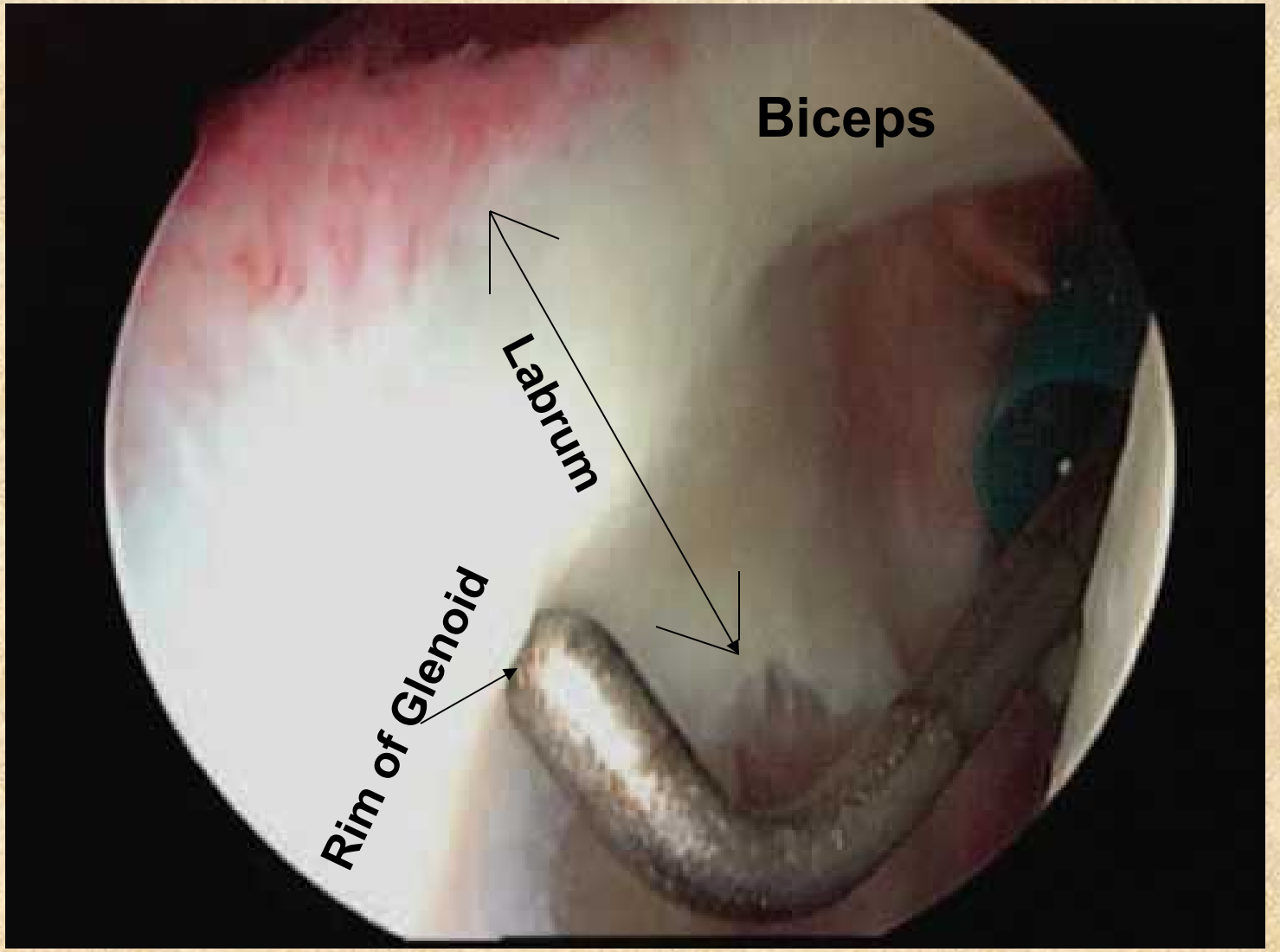
- Triangular Labrum
- “Bumper” Labrum
- Meniscoid Labrum
- Sub-labral Foramen
- Buford Complex



Triangular Labrum



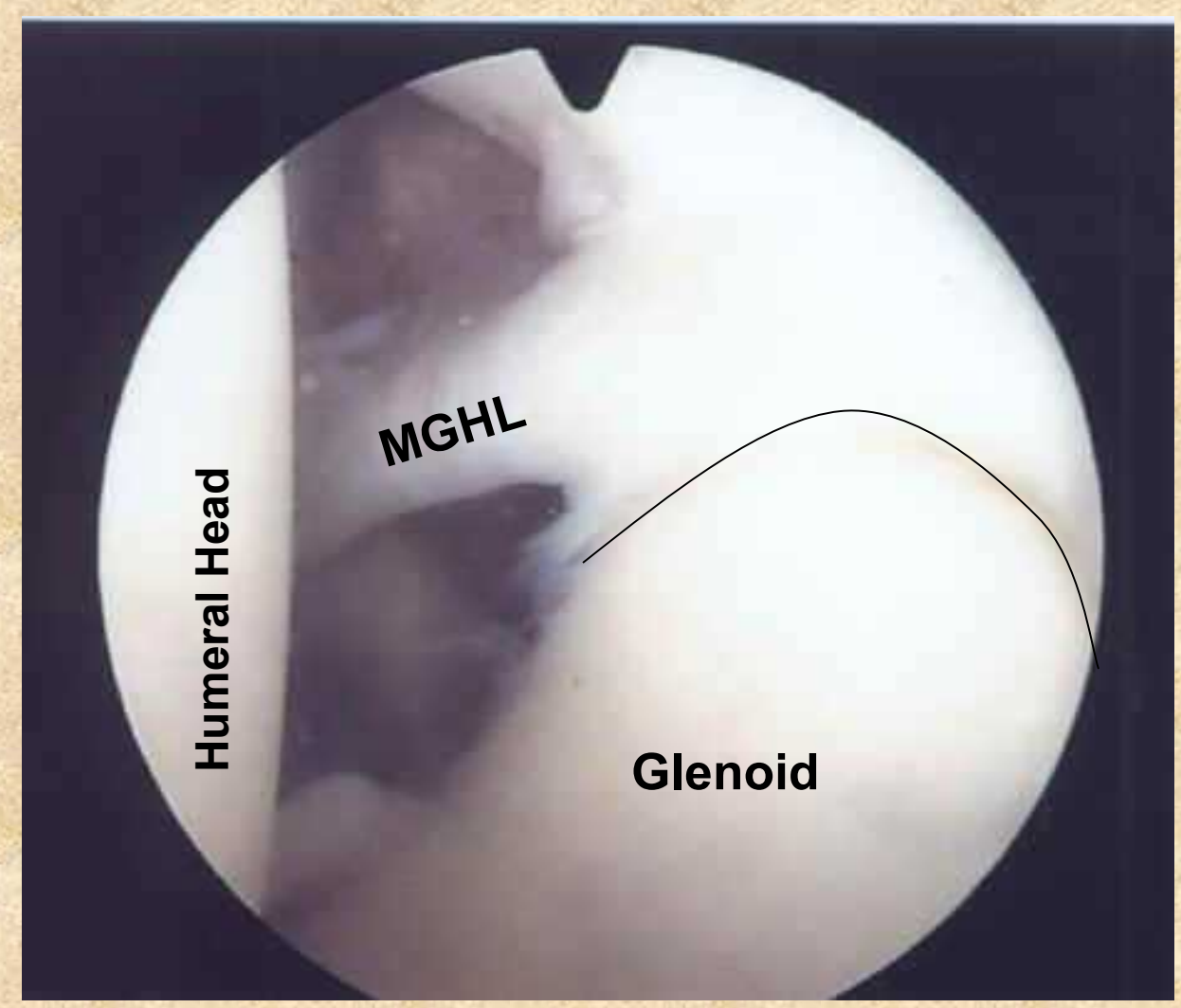
“Bumper” Labrum



Meniscoid Labrum

A Normal Variant found in 1.5% of shoulders.

Cord-like Middle Glenohumeral Ligament with apparently deficient labral tissue below it.

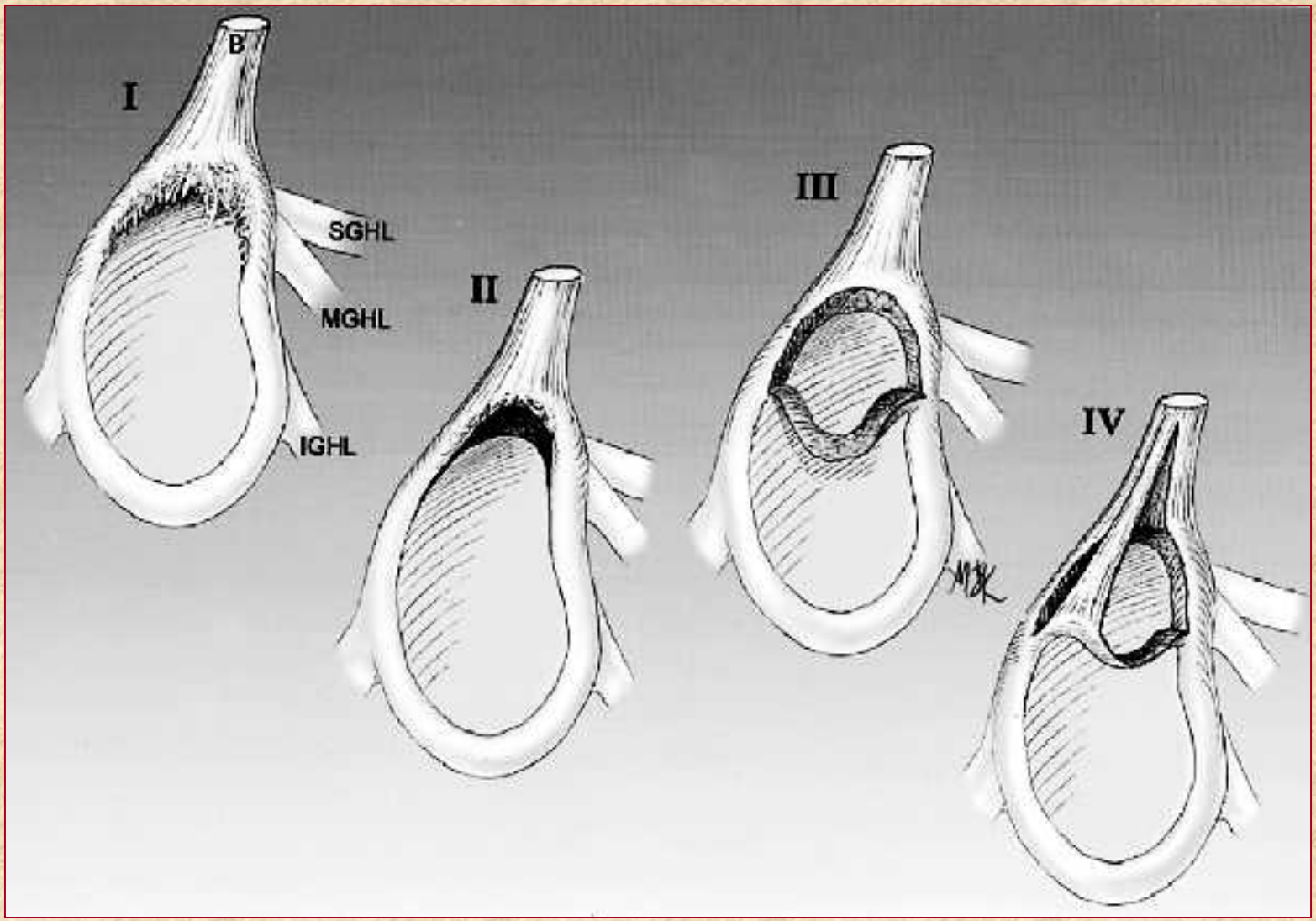


The Buford Complex

Definition of SLAP lesions

- Term SLAP coined by Snyder et al.
- **S**uperior **L**abrum **A**nterior and **P**osterior (to the biceps anchor)
- Refers to lesions of the *superior* labrum

Classification…..by Snyder



Additions to Snyder's 4 types

Type 5: SLAP tear that extends to the inferior aspect of the labrum.

Type 6: Superior Labral *flap.*

Type 7: SLAP tear that extends into the capsule.

Etiology of SLAP Lesions

- There is controversy regarding the actual mechanism/s resulting in SLAP lesions.

Theories include:

Primary shoulder instability leading to internal impingement of the labrum.

Traction injury from biceps during the deceleration phase of throwing.

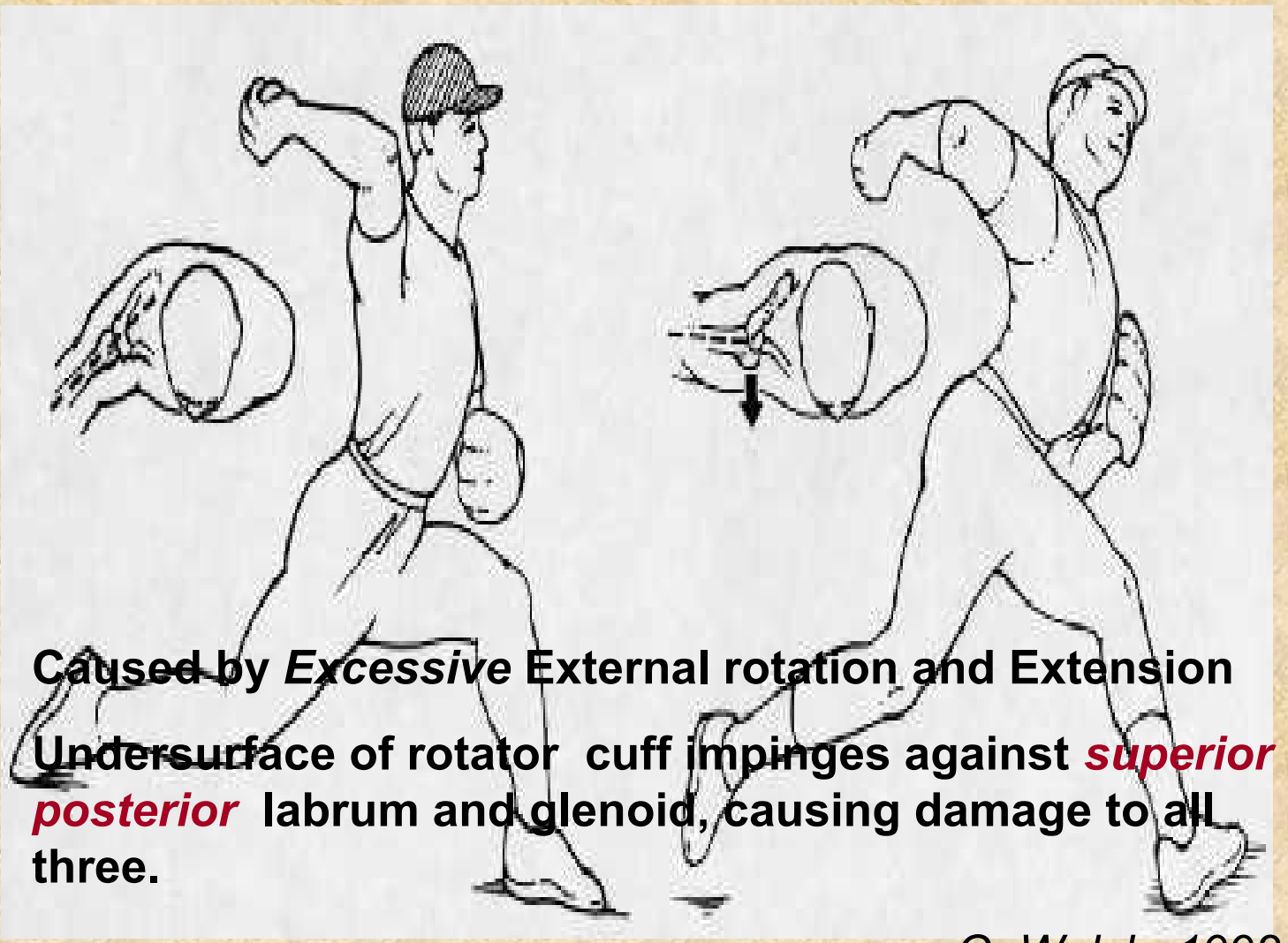
Traction/twisting injury from biceps during the late cocking phase of throwing (abduction and external rotation)

Compression injury from a FOOSH.

Etiology of SLAP Lesions

- Likely, each theory has it's own merit for a given SLAP pattern, as there are biomechanical or clinical studies supporting each one.

Internal Impingement



Caused by *Excessive* External rotation and Extension

Undersurface of rotator cuff impinges against *superior posterior* labrum and glenoid, causing damage to all three.

G. Walsh, 1992

Diagnosis is Difficult

- History and symptoms are generally vague and not specific.
- SLAP lesions are often associated with other pathology (instability, rotator cuff disease, tight posterior capsule…) that make physical exam non-specific.
- The many normal variants make MRI interpretation difficult.
- Assessing labral stability on MRI can be difficult.