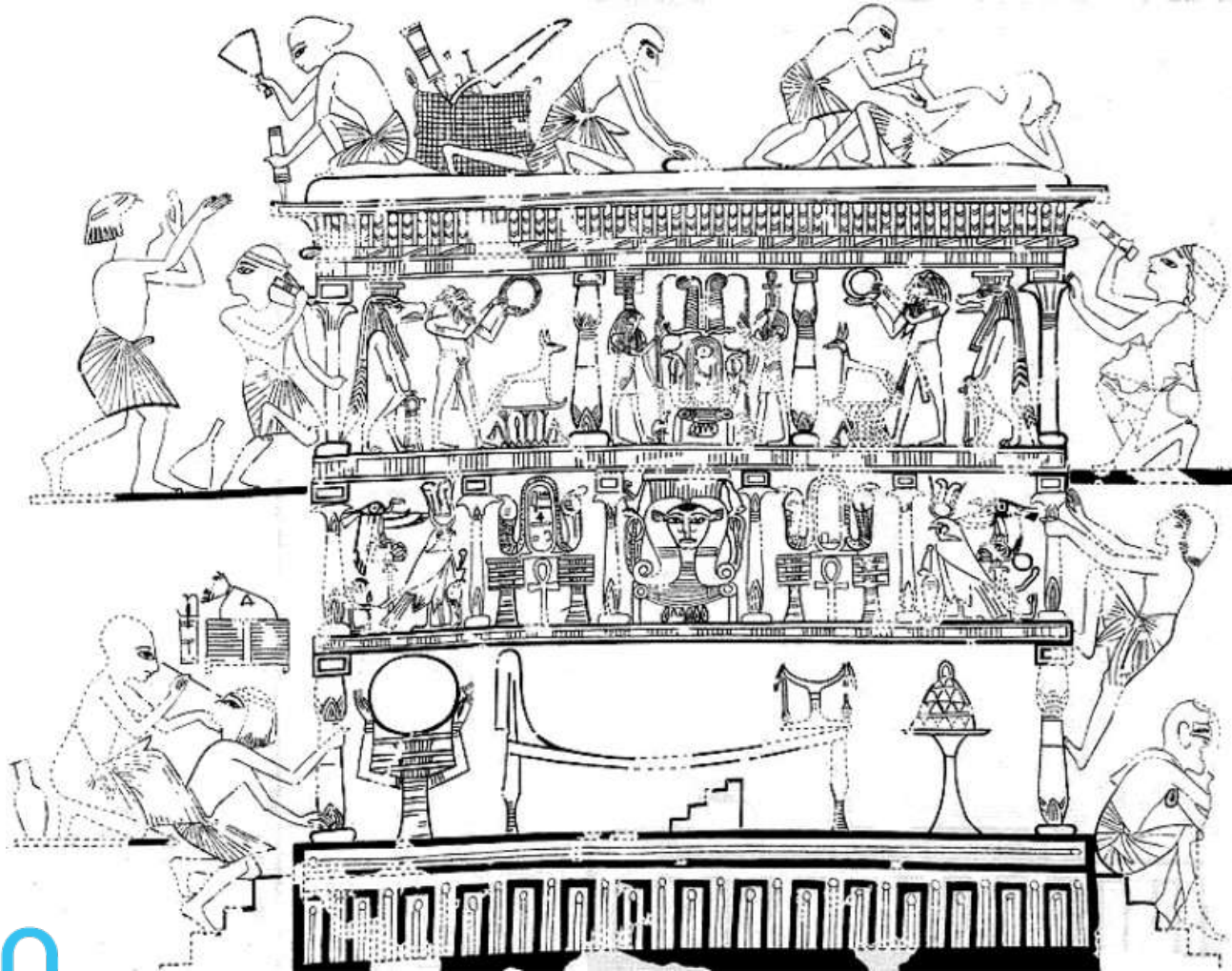
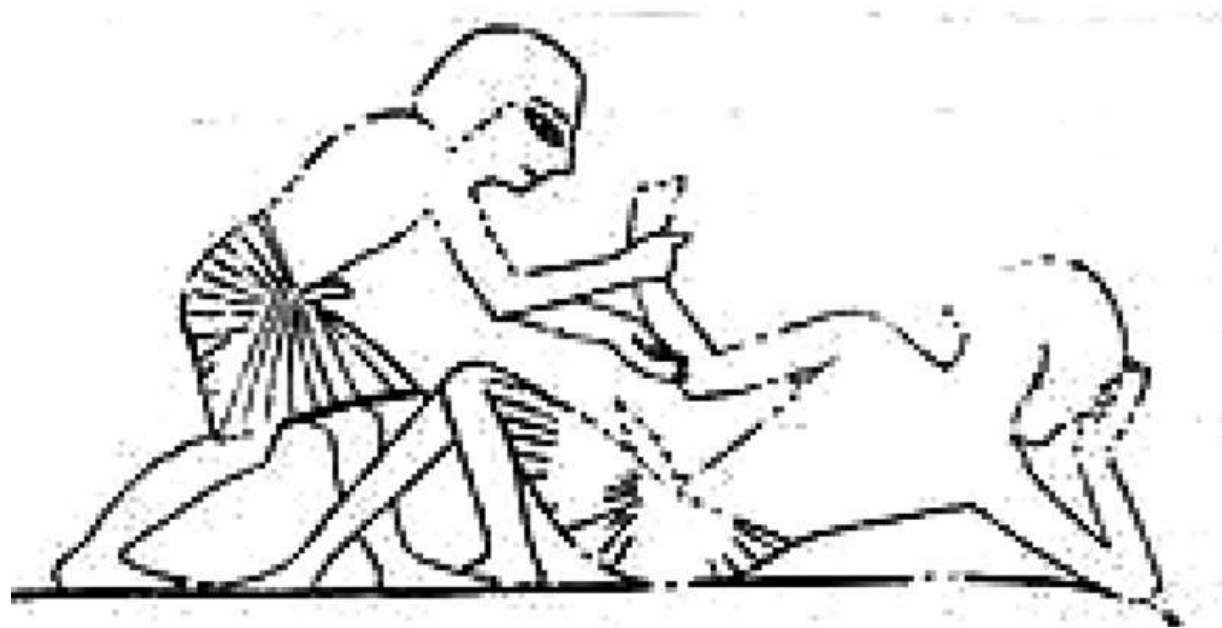




GOOD EVENING !!

“TOMB OF IPWY”





RECURRENT SHOULDER DISLOCATIONS/ SHOULDER INSTABILITY — CURRENT TRENDS

By
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MBBS, MS Orthopedics
Senior Resident
SIMS Karnataka

ANATOMY AND STABILIZING FACTORS

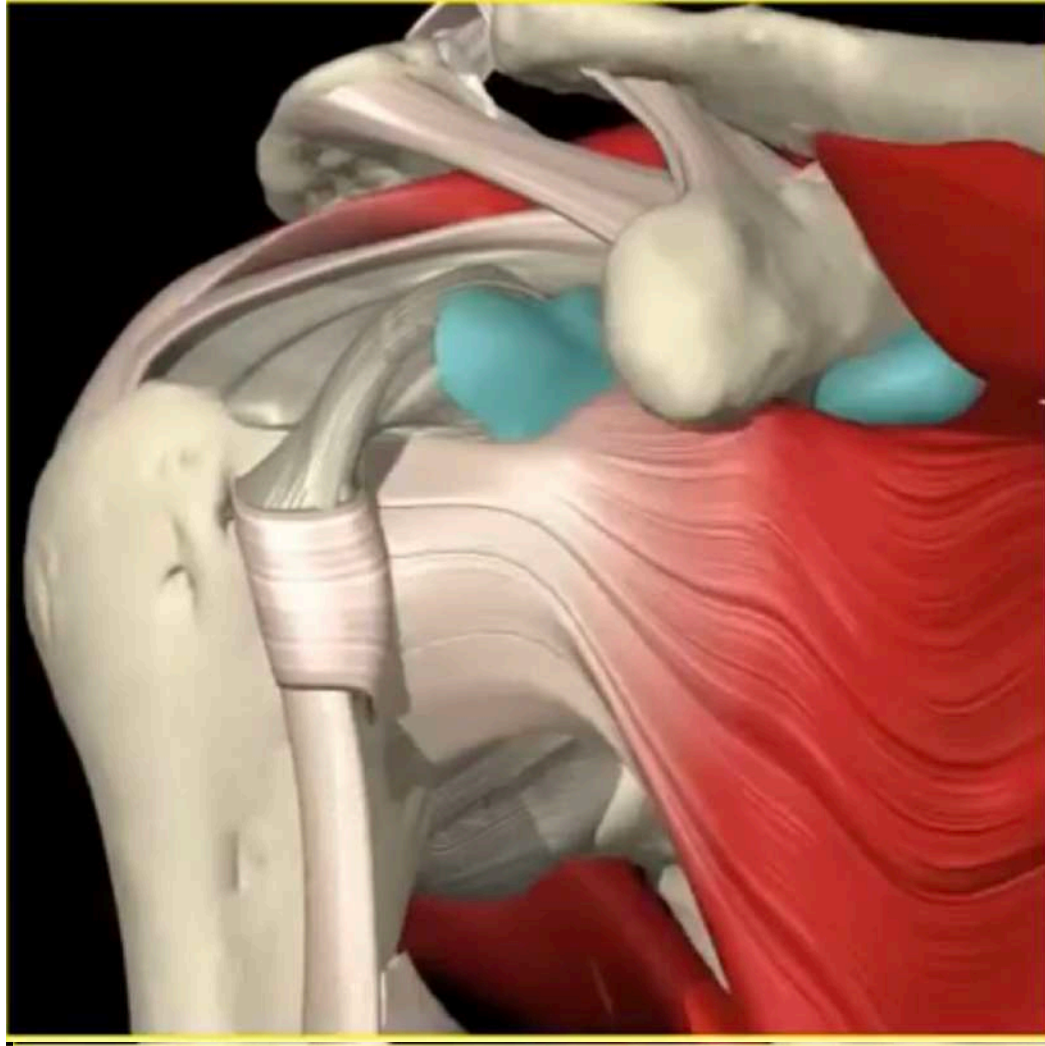
ANATOMY

MOBILITY > STABILITY

**HUMERAL HEAD 4 TIMES BIGGER
THAN GLENOID CAVITY**



STABILIZERS



STABILIZERS

STATIC	DYNAMIC
GLENOID CONCAVITY	ROTATOR CUFF
LIGAMENTS	SCAPULAR MUSCLES
LABRUM	DELTOID
BICEPS	

X- FACTORS !!

- VOLITION
- PROPRIOCEPTION

MAIN ANTERIOR STABILIZER OF SHOULDER IN MID RANGE OF ABDUCTION-EXTERNAL ROTATION ? (**FNB 2017**)

IGHL

MGHL

SGHL

ANTERIOR CAPSULE

GLENOHUMERAL LIGAMENTS

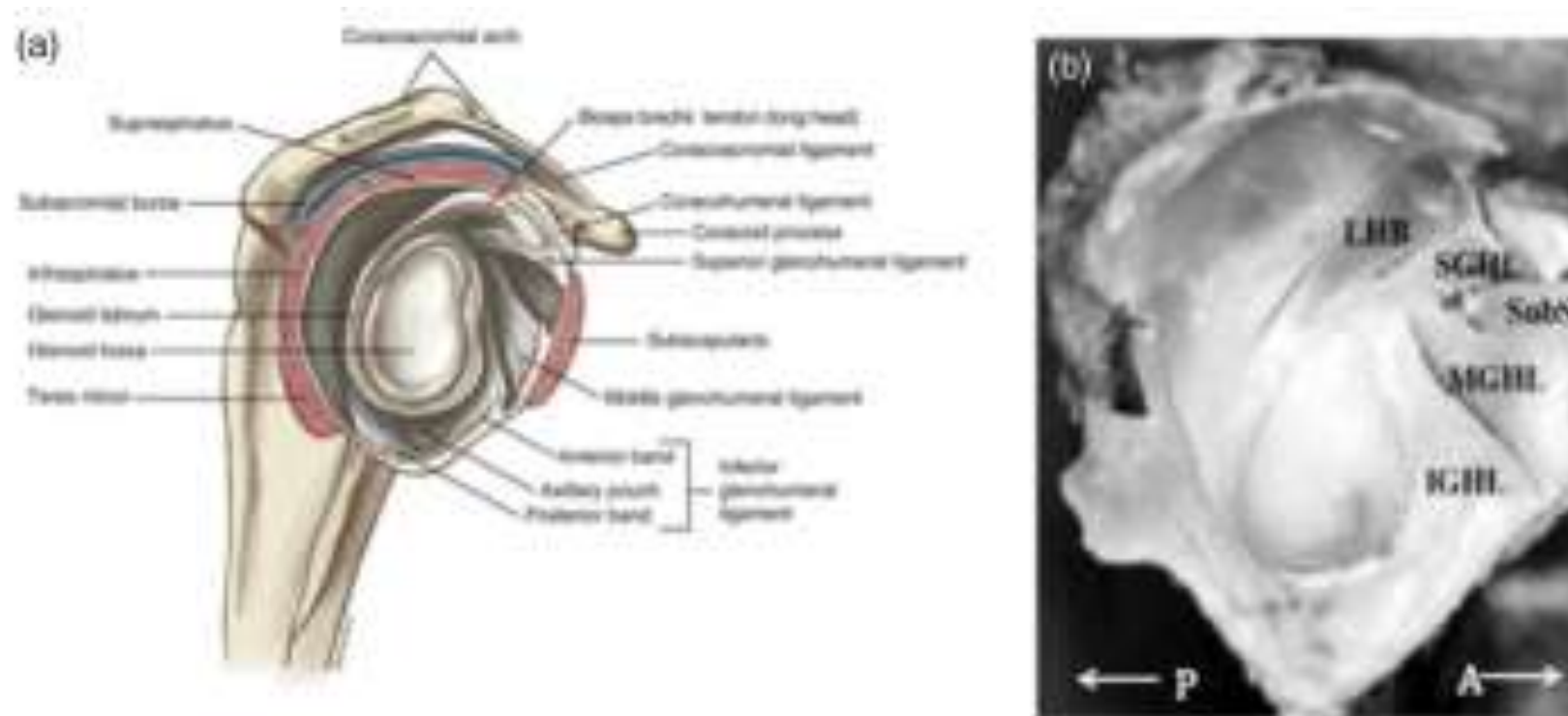


FIGURE 1 The glenohumeral ligaments. (a) A sagittal anatomic illustration demonstrating the superior, middle and inferior glenohumeral ligaments and the rotator interval. The humerus has been removed to expose the capsular ligaments and the glenoid fossa. (Image reproduced with permission from Neuman (2010)). (b) Cadaveric specimen (right shoulder) showing the glenohumeral ligaments. LHB, long head of the biceps; SGHL, superior glenohumeral ligament; SubS, subscapularis; MGHL, middle glenohumeral ligament; IGH, inferior glenohumeral ligament. (Image reproduced with permission from Ido, Maeda, and Takagi (2004)) [Color figure can be viewed at wikryonlineibrary.com]

GLENOHUMERAL LIGAMENTS

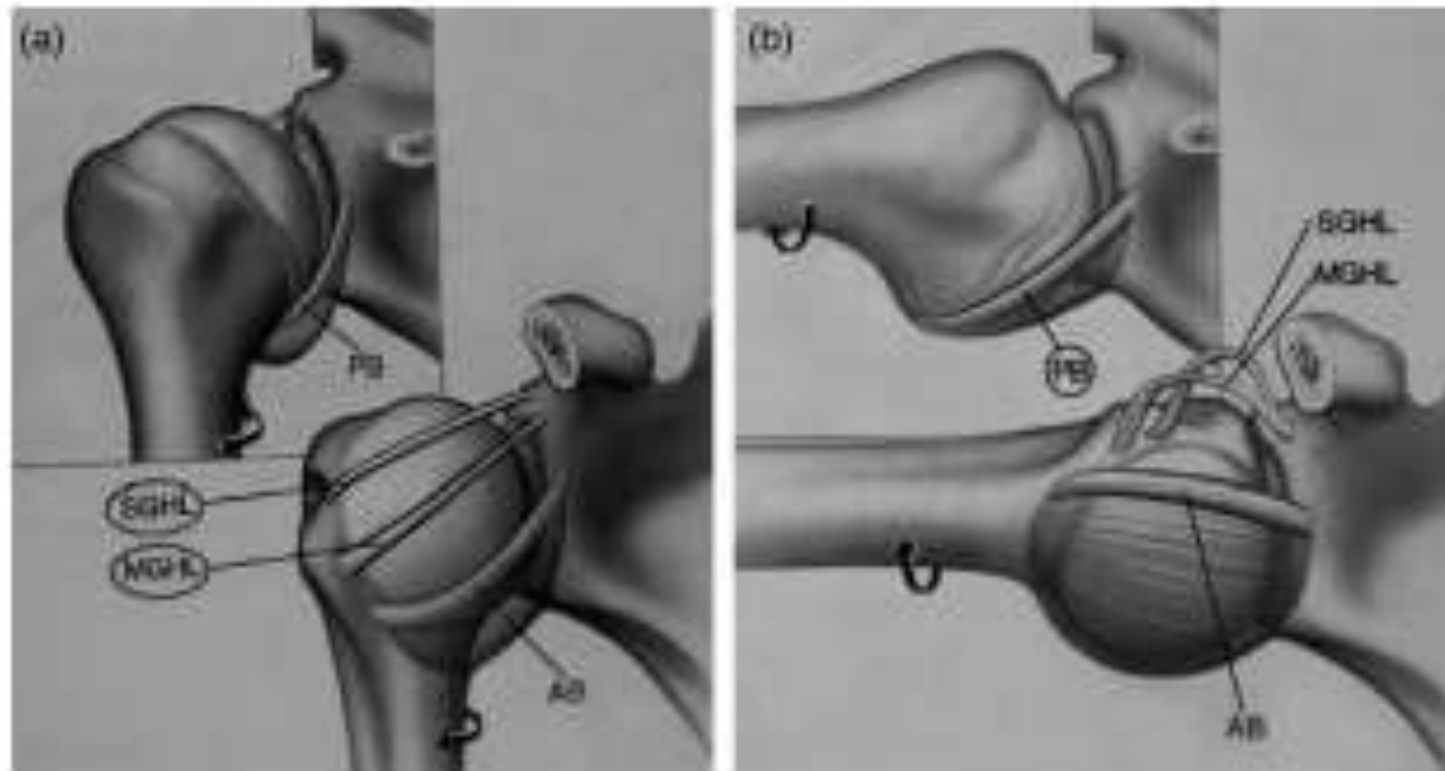
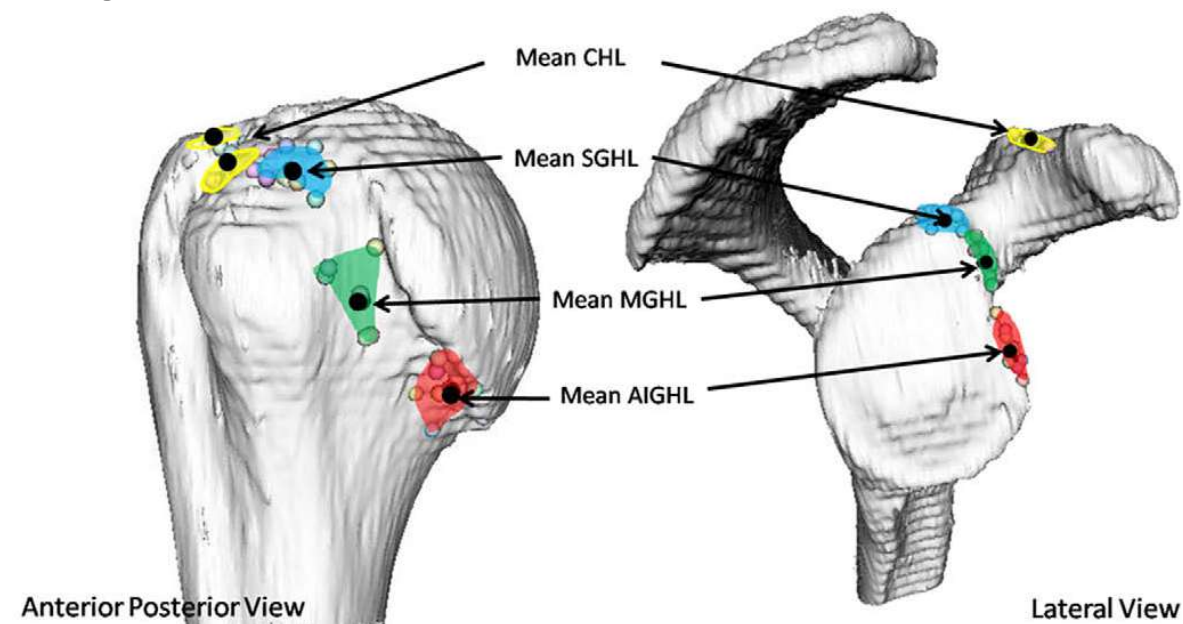


FIGURE 4 The glenohumeral ligaments provide static restraint in different functional positions. (a) With the shoulder in adduction and external rotation, the superior glenohumeral ligament (SGHL) and the middle glenohumeral ligament (MGHL) are taut, whereas the anterior band (AB) and posterior band (PB) of the inferior glenohumeral ligament complex are lax. (b) With the shoulder in abduction and external rotation, the AB of the inferior glenohumeral ligament tightens and the SGHL and MGHL become lax. (Reprinted with permission from Warren et al. (1999))

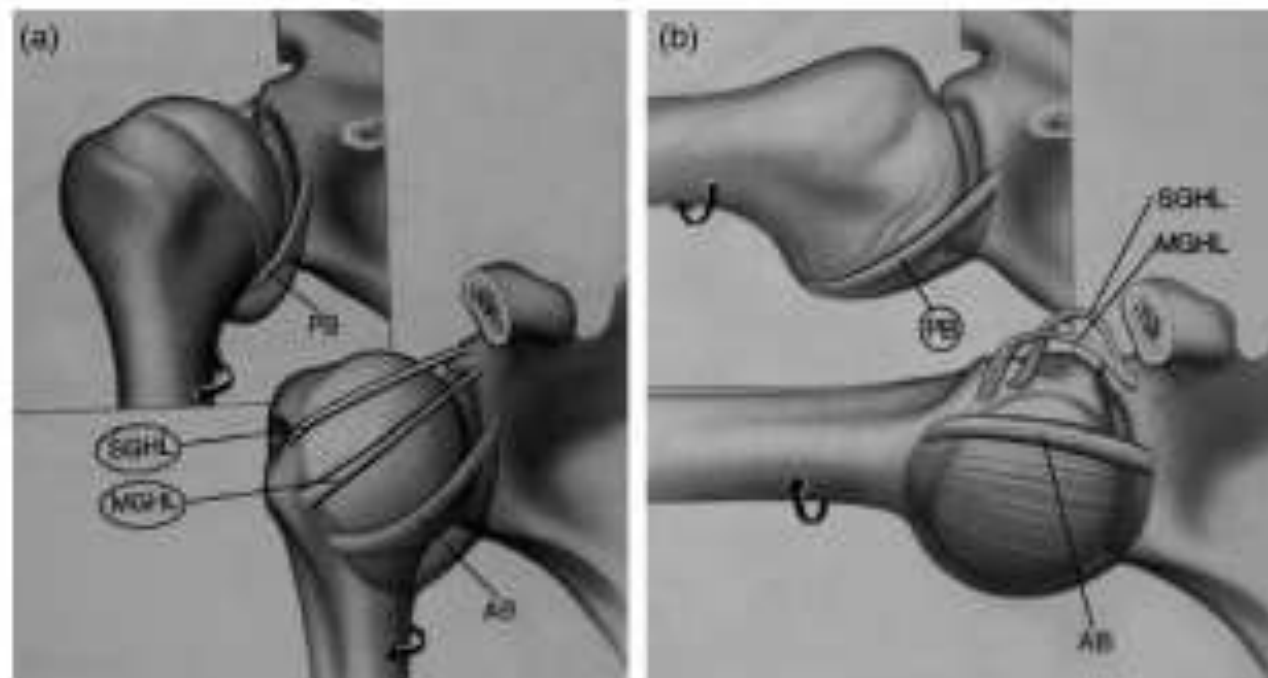
SUPERIOR GLENOHUMERAL LIGAMENTS

- The SGHL is a component of the rotator interval and macroscopically forms a U-shaped anterior suspension around the LHB tendon
- SGHL arises from the upper pole of the glenoid cavity or from the supraglenoid tubercle, just anterior to the origin of the tendon of the long head of the biceps brachii, serving as an internal pulley at the floor of the rotator interval

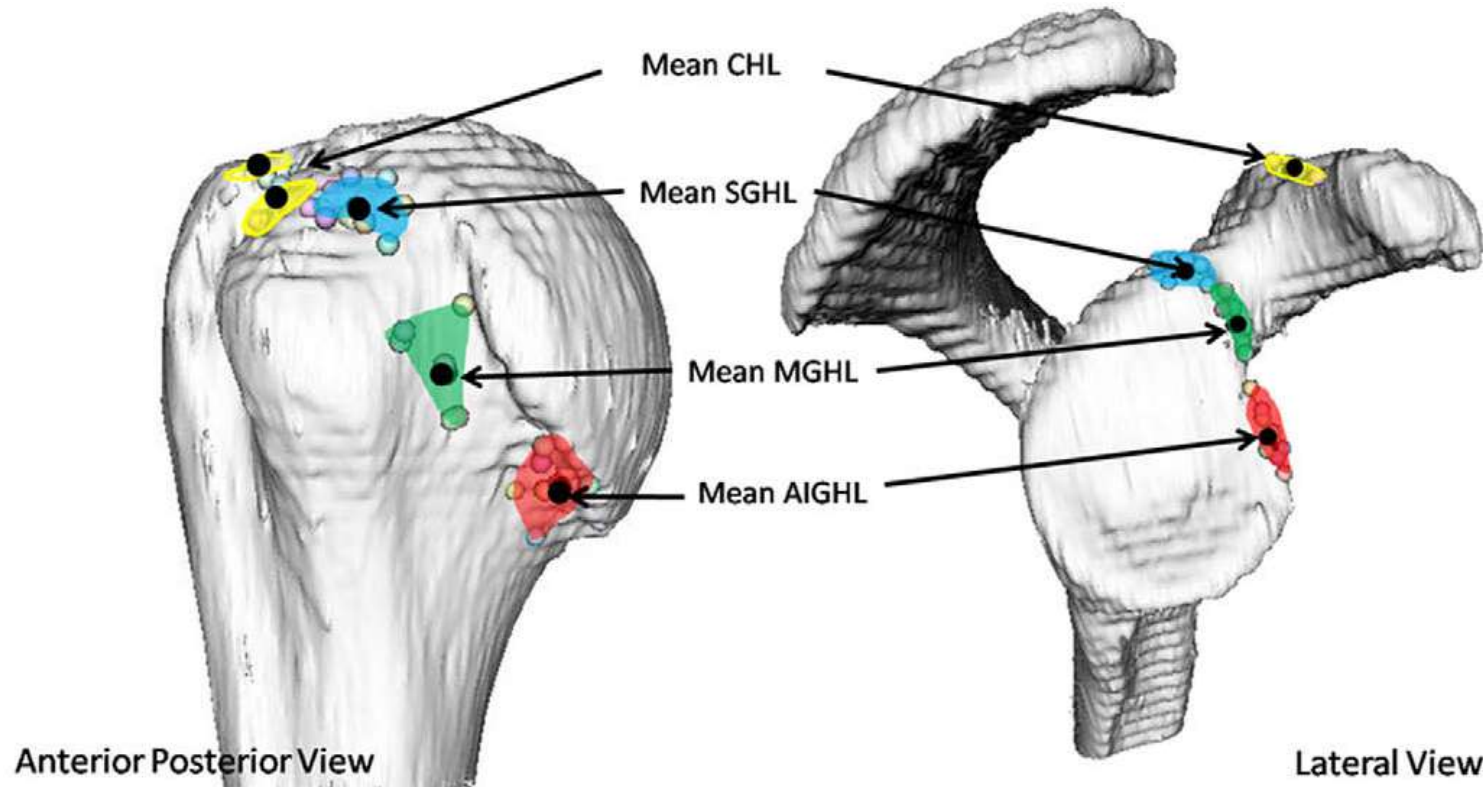


SGHL

- The SGHL resists inferior translation with the adducted arm in neutral rotation. Along with the coracohumeral ligament (CHL), it limits external rotation of the adducted shoulder (**Warner et al., 1992**).
- Additionally, both structures limit posterior translation when the arm is forward flexed, adducted and internally rotated. The SGHL and CHL are believed to prevent anterior-superior migration of the humeral head (**Johnson, 2006**).



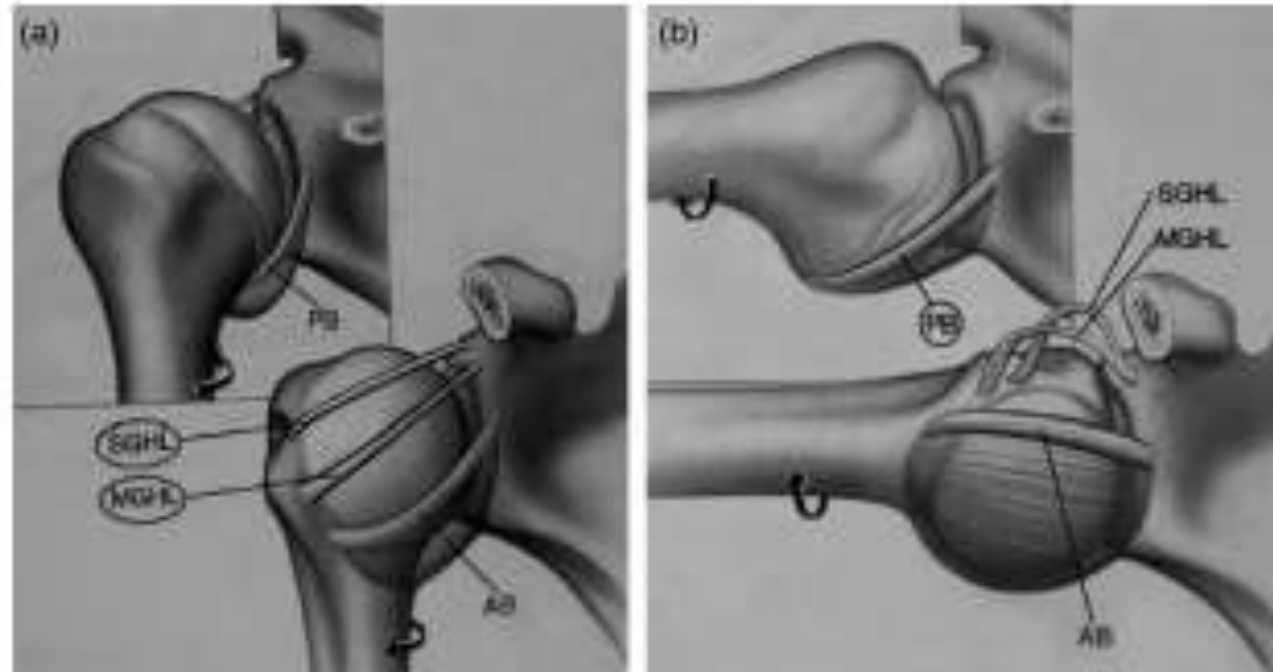
MIDDLE GLENOHUMERAL LIGAMENT



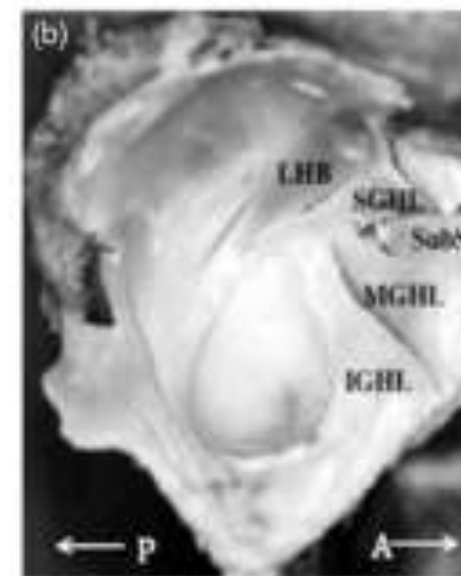
- The MGHL typically originates just inferior to the SGHL at the supraglenoid tubercle or at the same level from the glenoid neck and inserts into the humerus just medial to the lesser tuberosity, crossing over and occasionally blending into the subscapularis tendon at an oblique angle

MGHL

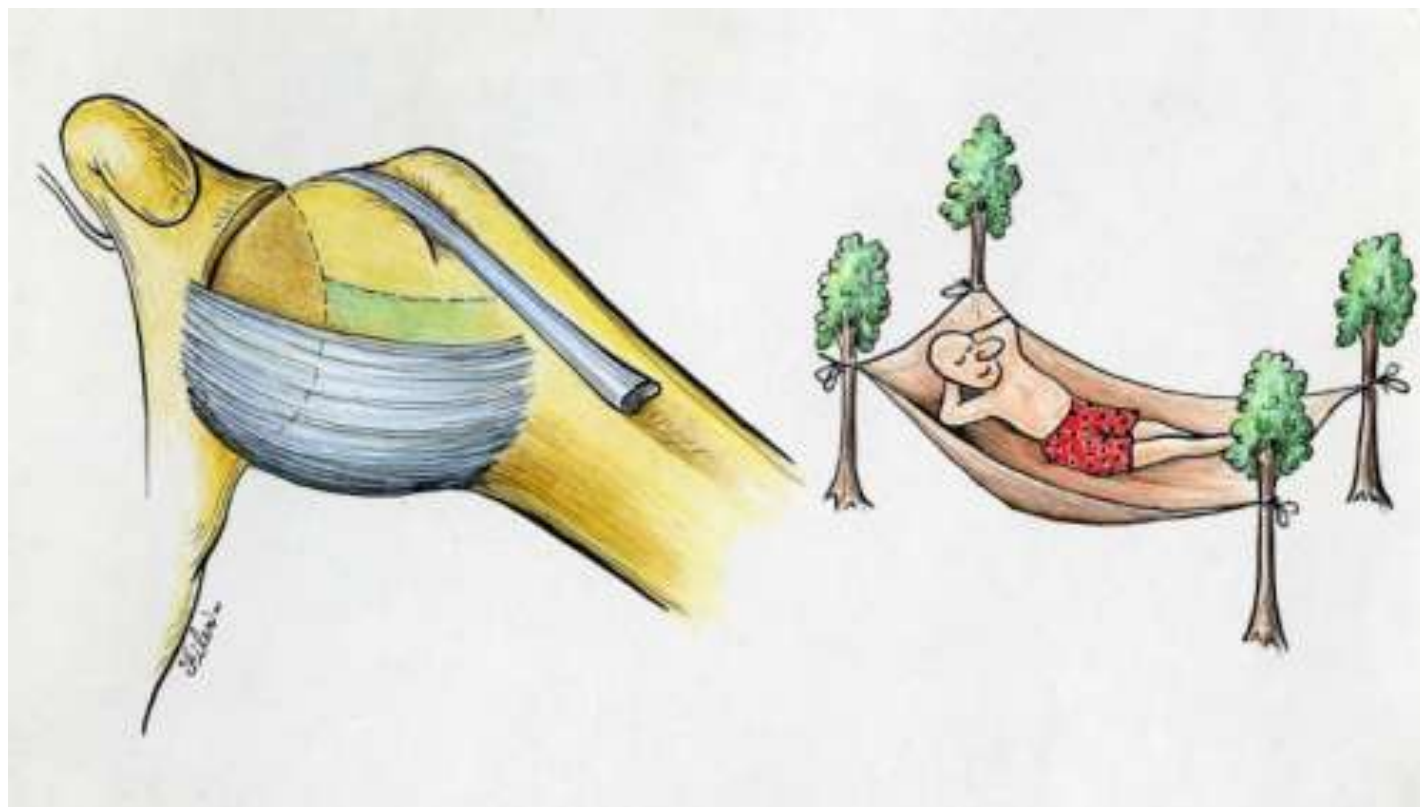
- The MGHL, an anterior stabilizer, acts as a secondary restraint to inferior translations of the glenohumeral joint with the arm in the ***abducted and externally rotated position*** (Pradhan et al., 2001). It also serves as a restraint to anterior translation having its maximal effect ***with the arm abducted 45 deg.***
- Using a robotic and universal force moment sensor testing system, Debski and colleagues reported that the MGHL carried force only during anterior loading at 30deg, 60deg, and 90deg abduction with the maximum force of ***34 N being achieved at mid range abduction*** (Debski, Wong, Woo, Fu, & Warner, 1999; Debski, Wong, Woo, Sakane)



- The IGHL is the thickest of the GHL's, present in 72–93% of individuals (Ide et al., 2004). The ligament attaches to the anterior, inferior and posterior margins of the glenoid labrum and passes laterally to the inferior aspect of the anatomical neck of the humerus (Ide et al., 2004). The ligament can be divided into three distinct **portions—the anterior band, the posterior band and an interposed axillary pouch (O'Brien et al., 1990)**.
- Together, these components make up what has been referred to as a **hammock-like structure** that offers anterior, posterior and inferior stability to the abducted glenohumeral joint

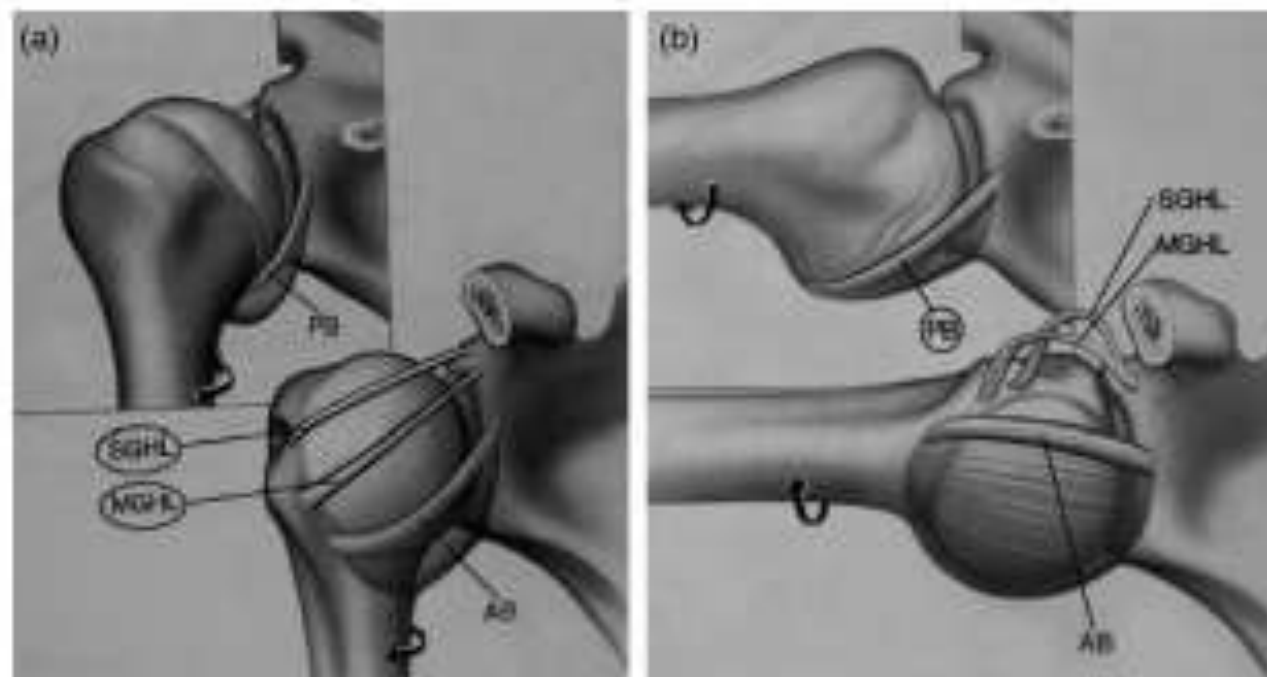


IGHL HAMMOCK



INFERIOR GLENOHUMERAL LIGAMENTS

- The IGHL functions as the primary restraint to anterior, posterior and inferior glenohumeral translation between 45 deg and 90 deg abduction (**Warner, 1992**).
- As the arm is abducted and externally rotated, the anterior band of the IGHL tightens, resisting anterior translation. With internal rotation of the abducted arm, the posterior band becomes taut and posterior translation is resisted



MAIN ANTERIOR STABILIZER OF SHOULDER IN MID RANGE OF ABDUCTION-EXTERNAL ROTATION ? (**FNB 2017**)

IGHL

MGHL

SGHL

ANTERIOR CAPSULE

MAIN STABILIZER OF SHOULDER AGAINST ANTERIOR DISLOCATION
AT ABOVE 45 DEGREES OF ABDUCTION IS ? (**FNB 2017**)

IGHL

MGHL

SUBSCAPULARIS

ANTERIOR CAPSULE

STABILIZERS

SGHL	MAIN STABILIZER AGAINST INFERIOR SUBLUXATION IN ADDUCTED SHOULDER
MGHL	MAIN STABILIZER AGAINST ANTERIOR DISLOCATION IN MID RANGE ABDUCTION AND EXTERNAL ROTATION
IGHL	MAIN STABILIZER AGAINST ANTERIOR DISLOCATION IN >45 DEGREES ABDUCTION EXTERNAL ROTATION

MAIN STABILIZER OF SHOULDER AGAINST ANTERIOR DISLOCATION AT ABOVE 45 DEGREES OF ABDUCTION IS ? (**FNB 2017**)

IGHL

MGHL

SUBSCAPULARIS

ANTERIOR CAPSULE

WHY RECURRENCE ?

< 30 YEARS

CONTACT SPORTS

HYPER LAXITY

ANTERIOR INSTABILITY >

POSTERIOR INSTABILITY

SHOULDER JOINT MAINLY HAVE SOFT TISSUE
STABILIZERS LIKE
GHL, LABRUM, CAPSULE ETC



INDEX
DISLOCATION

SOFT TISSUE DOES NOT HEAL
LESIONS



RECURRENT DISLOCATIONS

LABRAL LESIONS IN SHOULDER INSTABILITY

ALL ARE LESIONS CAUSING RECURRENT SHOULDER DISLOCATIONS EXCEPT ?

BANKART LESION

KIM LESION

REVERSE HILL SACHS LESION

BUFORD COMPLEX

LABRAL VARIANTS

- SUBLABRAL FORAMEN
- SUBLABRAL RECESS
- BUFORD COMPLEX



Sublabral
foramen



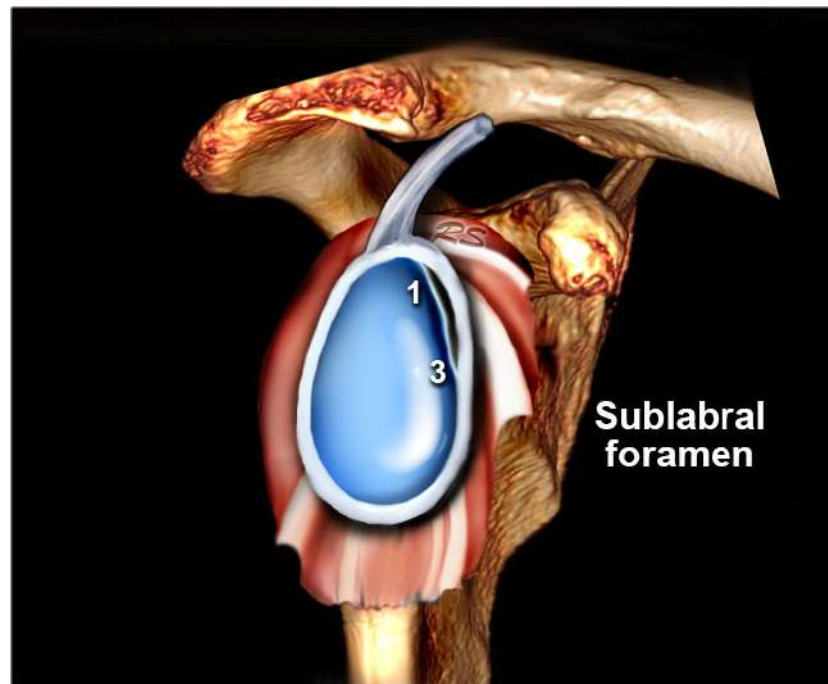
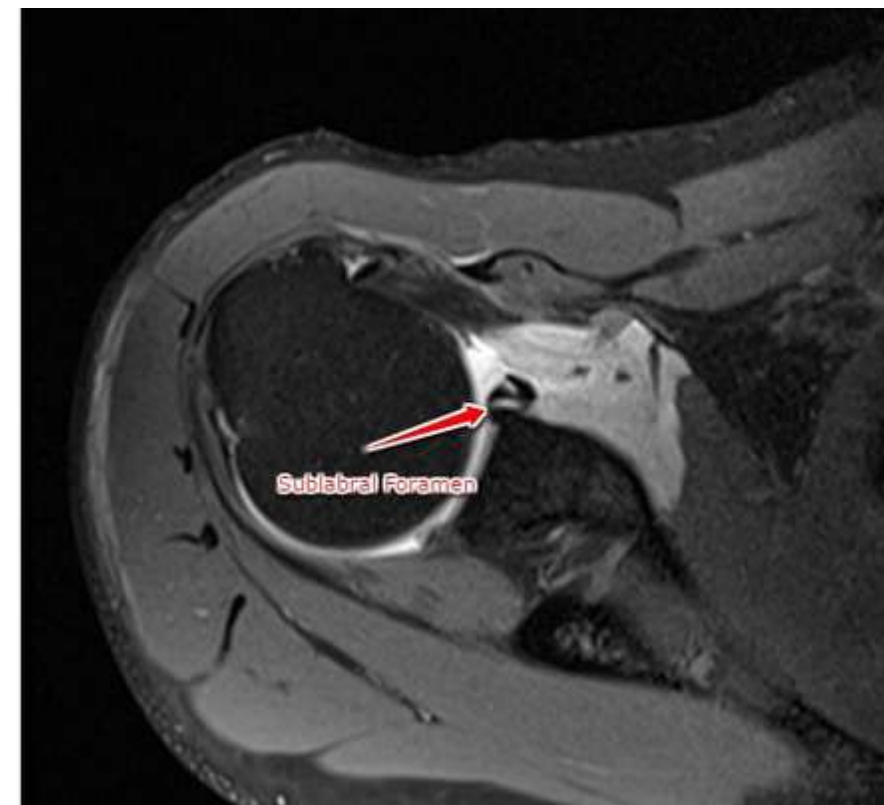
Sublabral
recess



Buford
complex

SUBLABRAL FORAMEN

- ALSO CALLED SUBLABRAL HOLE
- UNATTACHED ANTEROSUPERIOR LABRUM AT 1-3 O'CLOCK POSITION
- SEEN IN 11% INDIVIDUALS



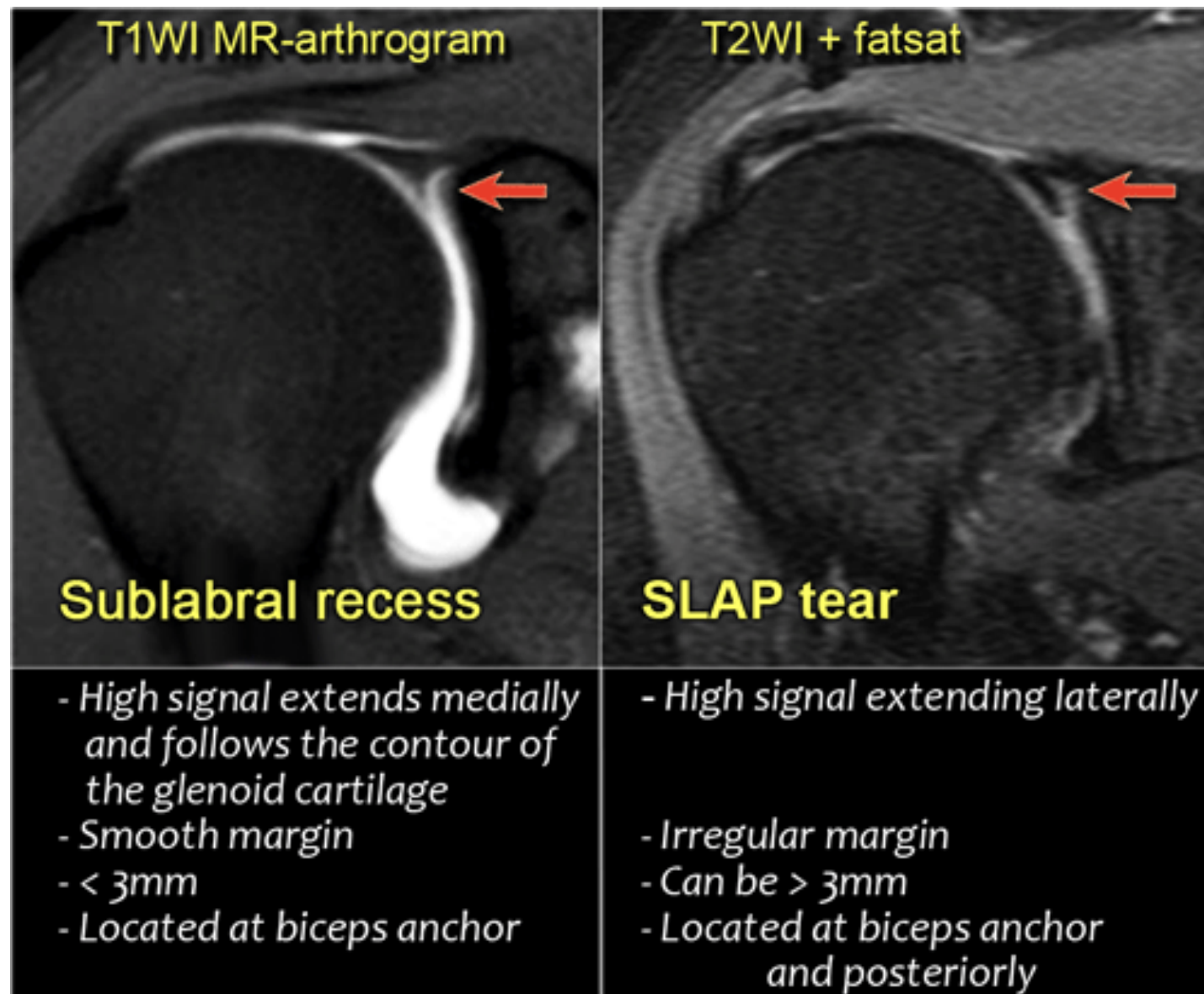
SUBLABRAL RECESS

- LOCATED AT 12'O CLOCK POSITION – SITE OF ATTACHMENT OF BICEPS TENDON
- DOES NOT EXTEND DISTALLY TO 1-3 O'CLOCK POSITION
- CONFUSED WITH SLAP TEARS



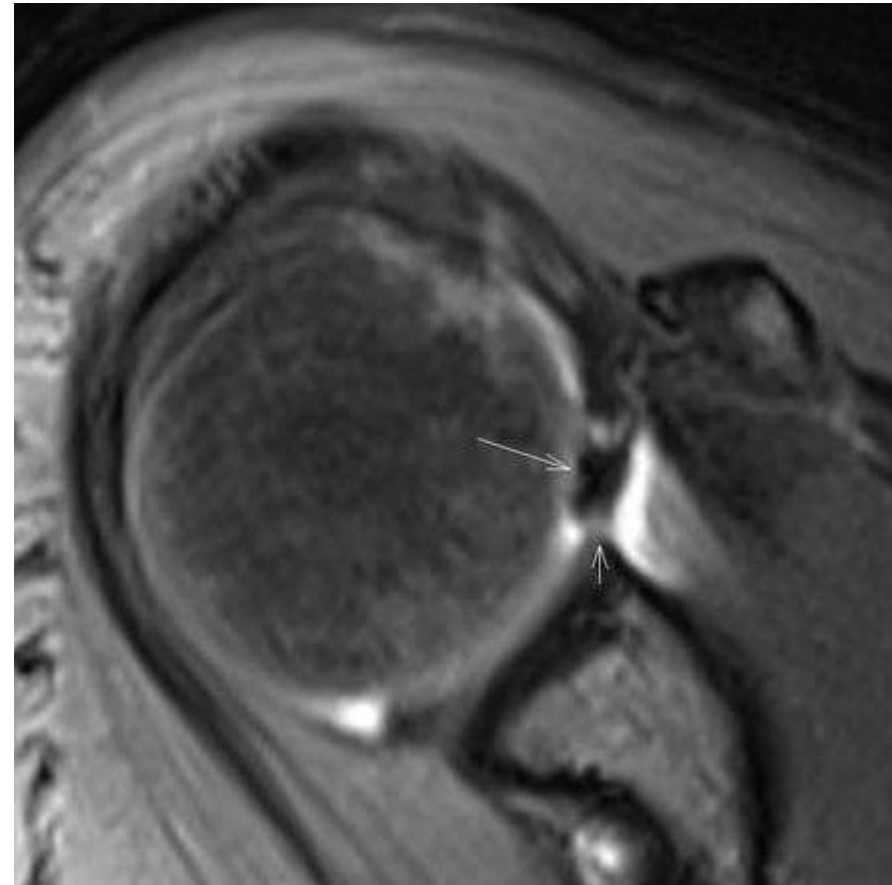
Sublabral
recess





BUFORD COMPLEX

- CHARACTERIZED BY ABSENCE OF LABRUM IN THE 1-3 O'CLOCK POSITION
- SUBLABRAL HOLE
- CORD LIKE MGHL
- SEEN IN APPROXIMATELY 1.5% OF INDIVIDUALS



TRUE ABOUT BUFORD COMPLEX IS ALL BUT ? (FNB PATTERN 2017)

THICKENED MEDIAL GLENOHUMERAL LIGAMENT

ABSENT LABRUM

ASSOCIATED WITH RECURRENT SHOULDER DISLOCATION

NORMAL VARIANT OF LABRUM

TRUE ABOUT BUFORD COMPLEX IS ALL BUT ? (FNB PATTERN 2017)

THICKENED MEDIAL GLENOHUMERAL LIGAMENT

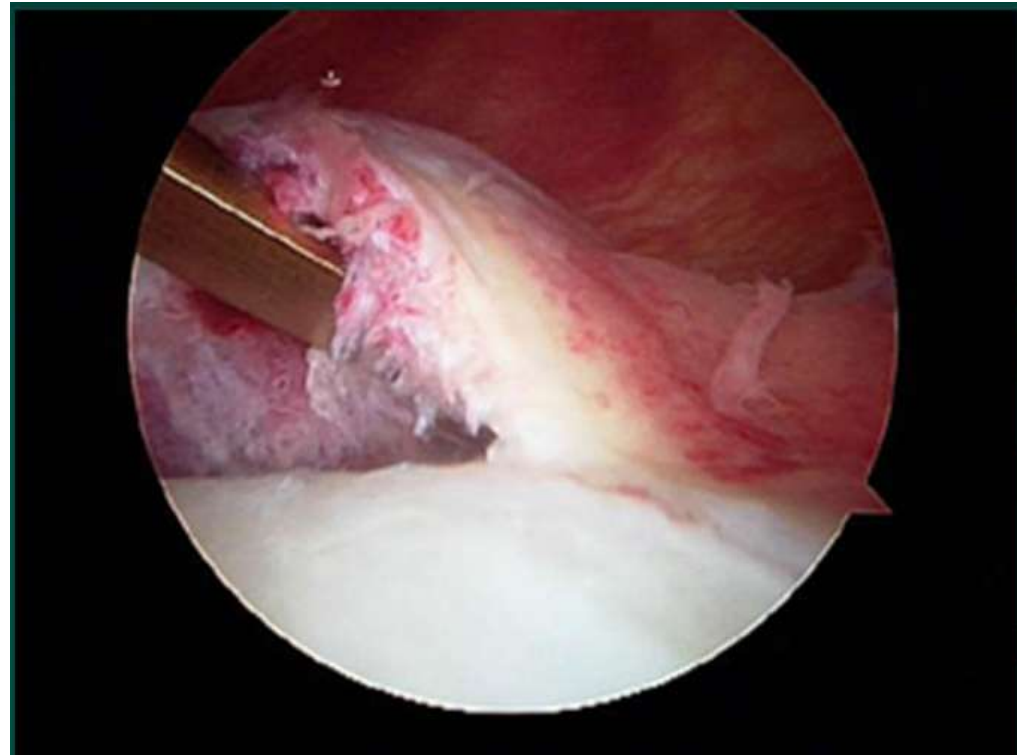
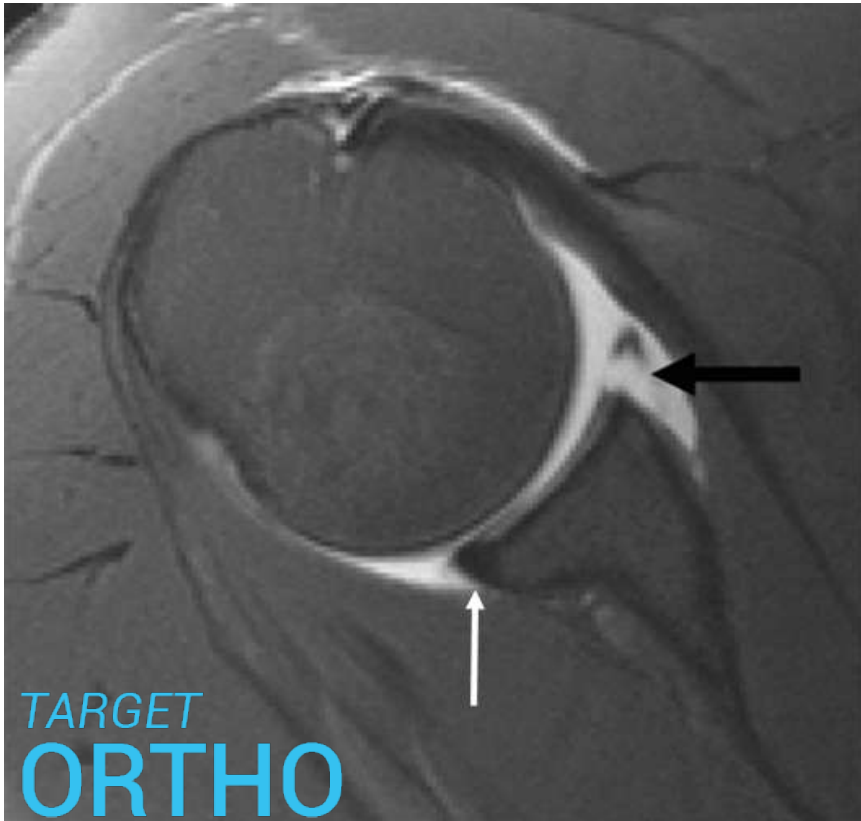
ABSENT LABRUM

ASSOCIATED WITH RECURRENT SHOULDER DISLOCATION

NORMAL VARIANT OF LABRUM

BANKART LESION

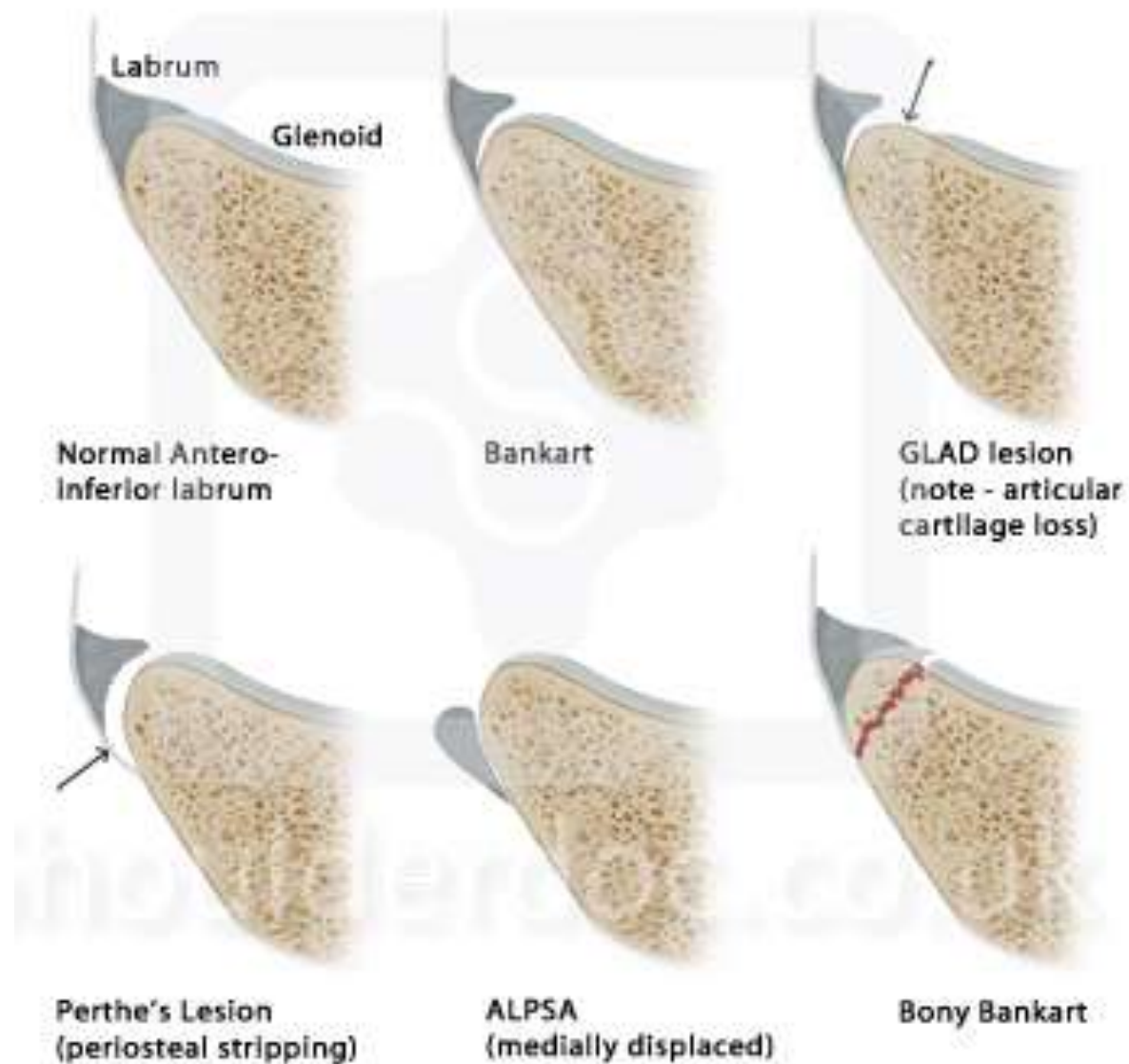
- AVULSION OF THE INFERIOR GLENOHUMERAL LIGAMENT AND LABRAL COMPLEX FROM THE GLENOID RIM WITH COMPLETE SCAPULAR PERIOSTEAL DISRUPTION



BONY BANKART LESION

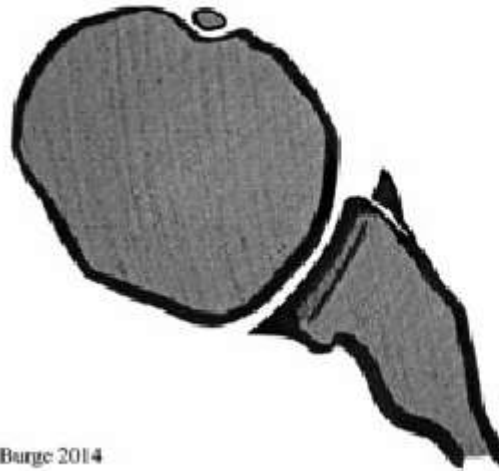
- DETACHMENT OF ANTERO-INFERIOR LABRUM WITH GLENOID RIM FRACTURE

ATYPICAL VARIANTS



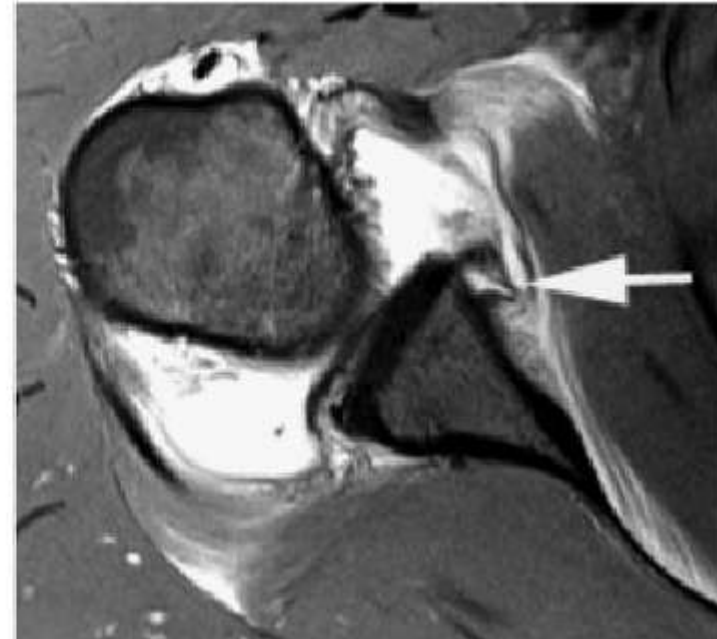
ALPSA

- ANTERIOR LABRO LIGAMENTOUS PERIOSTEAL SLEEVE AVULSION
- ANTEROINFERIOR LABRUM IS AVULSED WITH A PERIOSTEAL SLEEVE FROM THE GLENOID
- DESCRIBED BY NEVIASER



Burge 2014

a

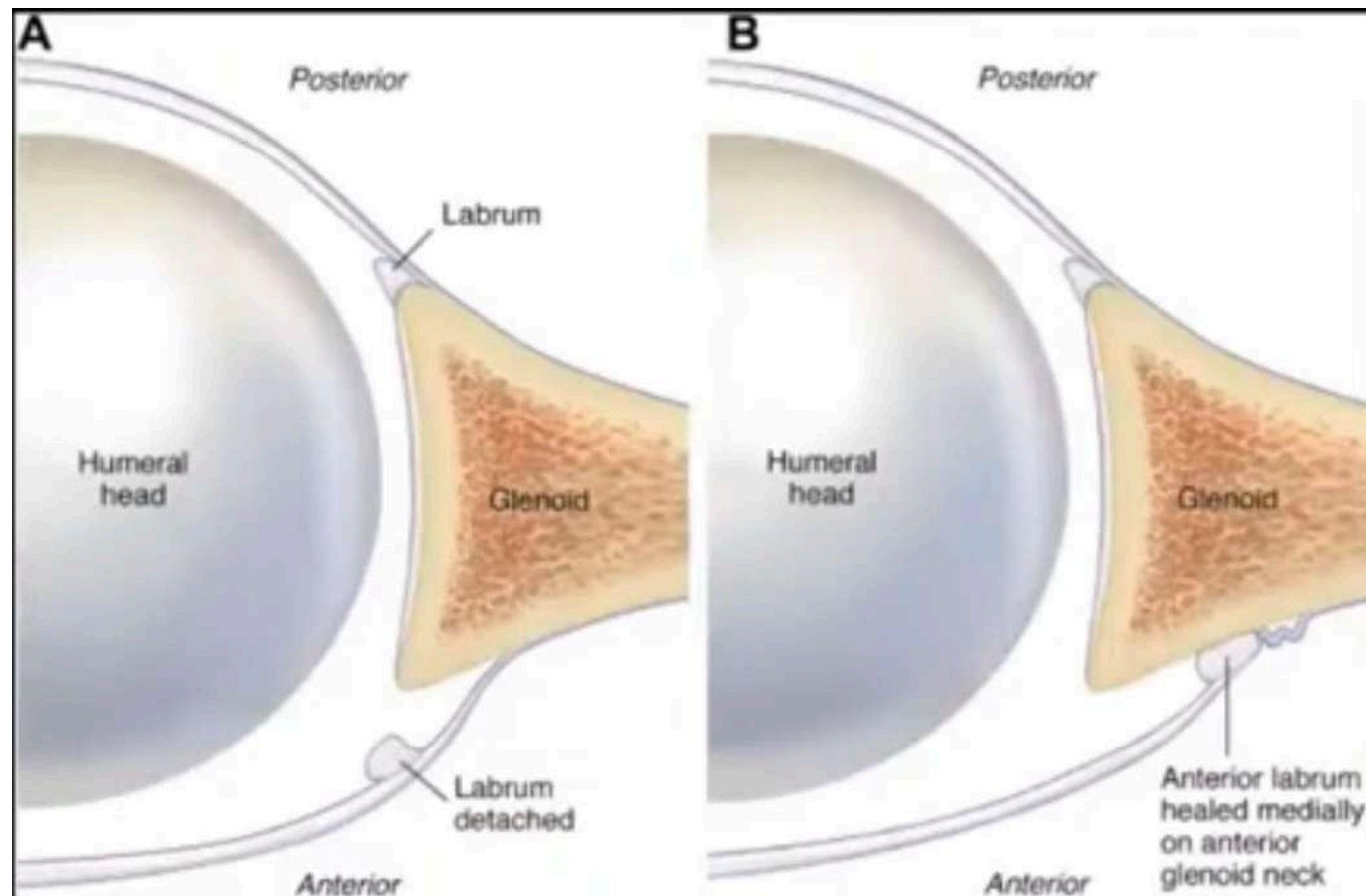


b

ALPSA

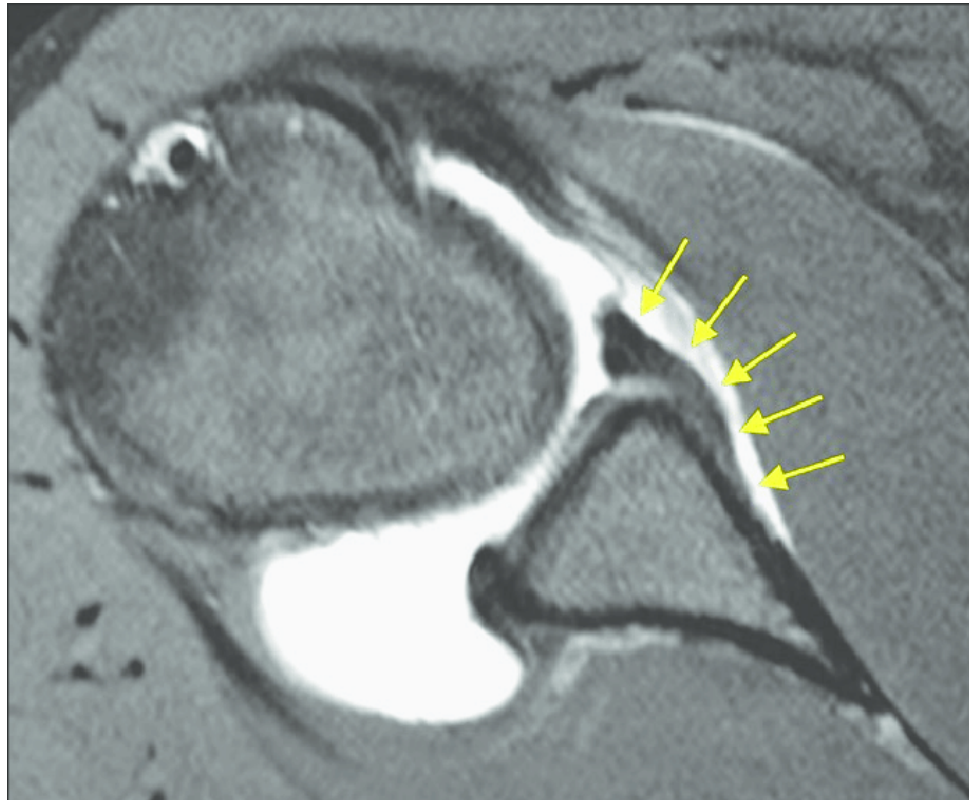
TORN LABROLIGAMENTOUS
PERIOSTEAL COMPLEX GETS –

INTERNALLY ROTATED
DISPLACED MEDIALLY
FALLS BEHIND THE GLENOID



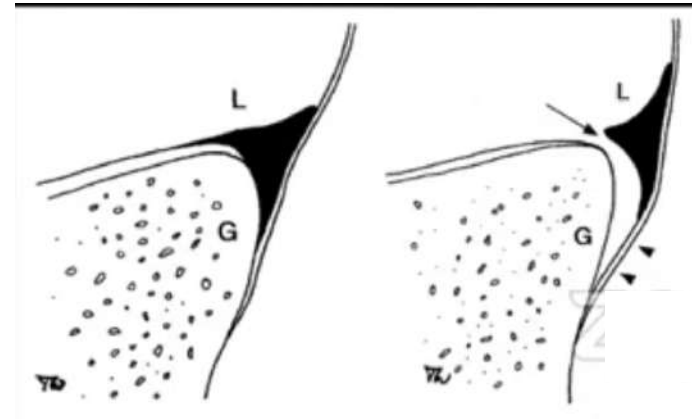
PERTHES LESION

- AVULSION OF THE ANTEROINFERIOR LABRUM WITH A MEDIALLY STRIPPED BUT INTACT PERIOSTEUM



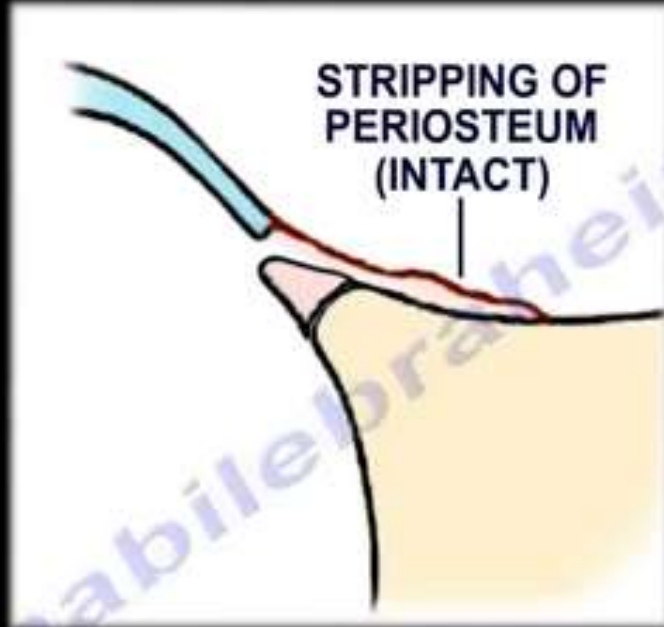
PERTHES LESION

- LABRUM IS DETACHED FROM THE GLENOID SURFACE BUT IS NOT DISPLACED
- THE LABRUM STAYS WELL ANCHORED TO THE PERIOSTEUM WHICH REMAINS CONTINUOUS AND IS ONLY MINIMALLY MEDIALLY STRIPPED



PERTHES VS ALPSA

PERTHES LESION



Non displaced
Avulsed anterior
Inferior labrum
With medial stripping
Intact scapular
periosteum

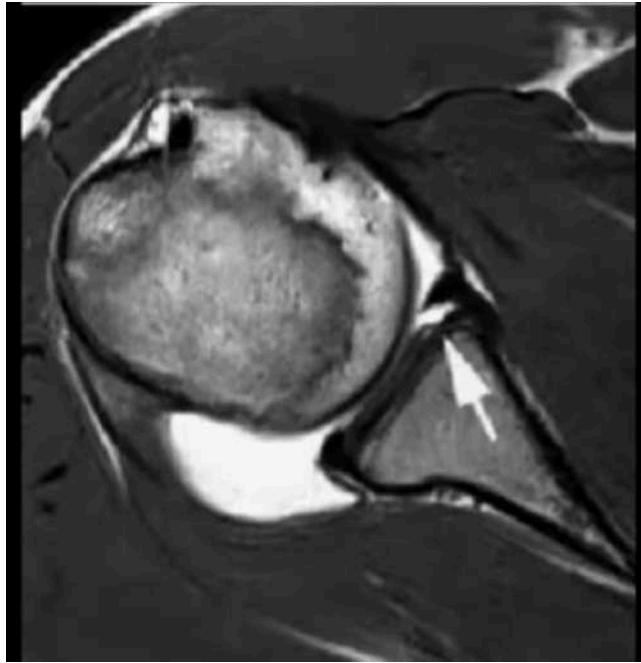
ALPSA LESION



Labrum is displaced
By IGHL
Labrum is rolled up
like sleeve
Intact anterior scapular
periosteum

GLAD LESION

- RARE
- DESCRIBED BY NEVIASER
- SUPERFICIAL ANTERIOR INFERIOR LABRAL TEAR WITH AN ASSOCIATED ANTERIOR INFERIOR ARTICULAR CARTILAGE INJURY



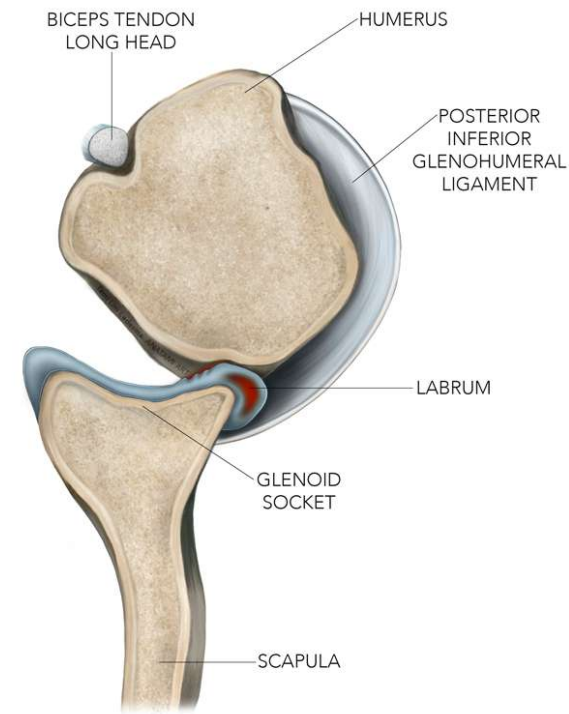
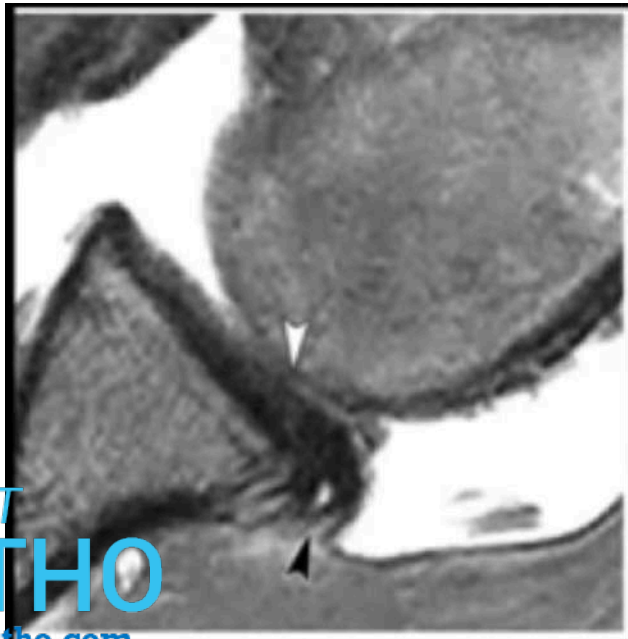
SLAP LESIONS

- SYNDER TYPE 1-4
- MAFFET SUBCLASSIFICATION TYPE 5-10

ATYPICAL POSTERIOR LABRUM

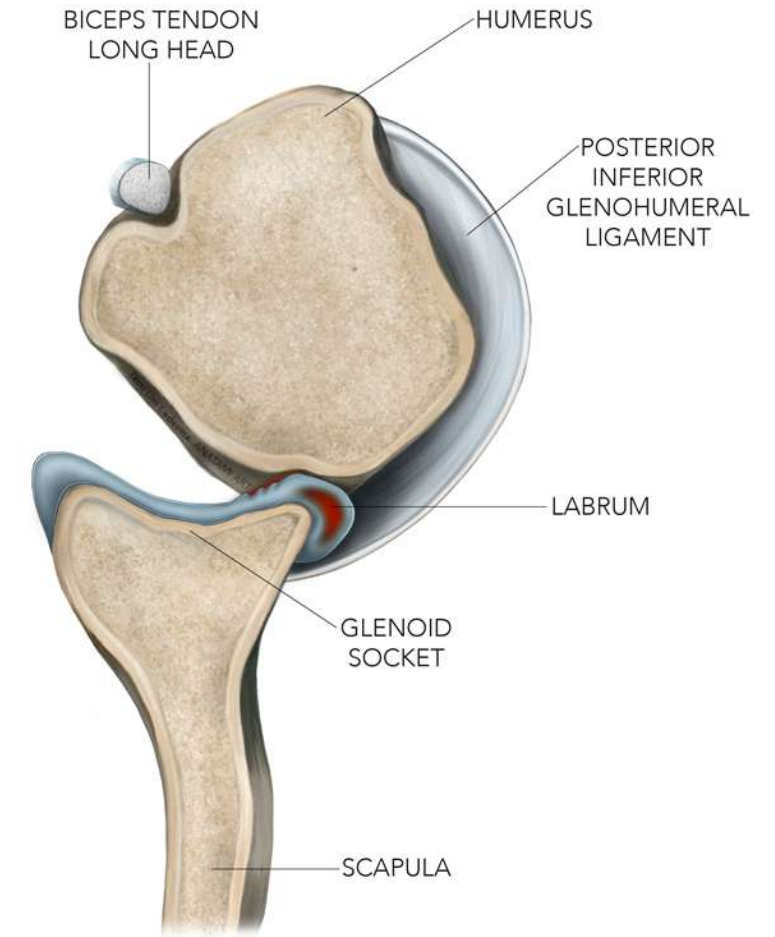
KIM LESION

- INCOMPLETE DETACHMENT OF THE POSTEROINFERIOR LABRUM FROM THE GLENOID, WITH A SEPARATE SUPERFICIAL TEAR BETWEEN THE POSTEROINFERIOR LABRUM AND THE ARTICULAR CARTILAGE (A MARGINAL CRACK)
- It is concealed by an intact superficial labrum , In essence it is a superficial tear between the glenoid articular cartilage and the posterior and inferior part of the labrum , usually only present in the 6-9 o'clock positions of the glenoid



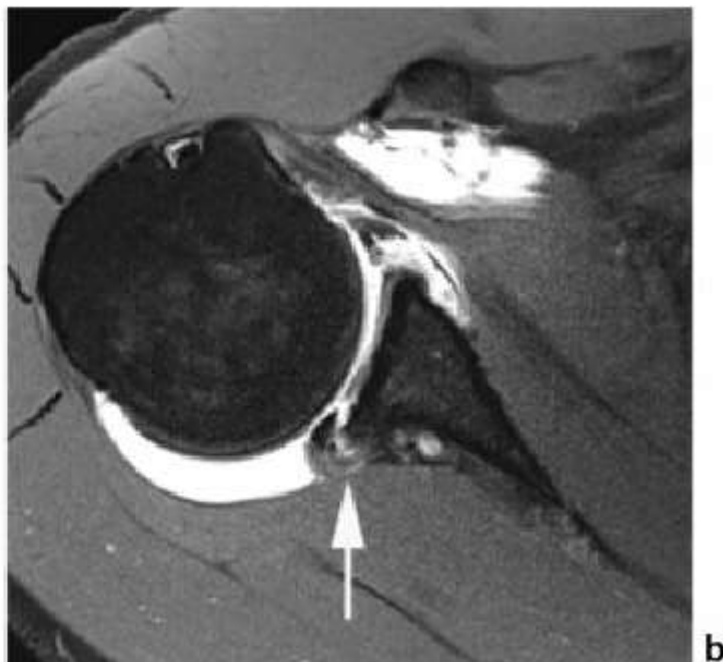
KIM LESION

- Labrum remains non displaced
- At arthroscopy „ A kim lesion is a concealed lesion
- It is hypothesized that this lesion forms from medial to lateral



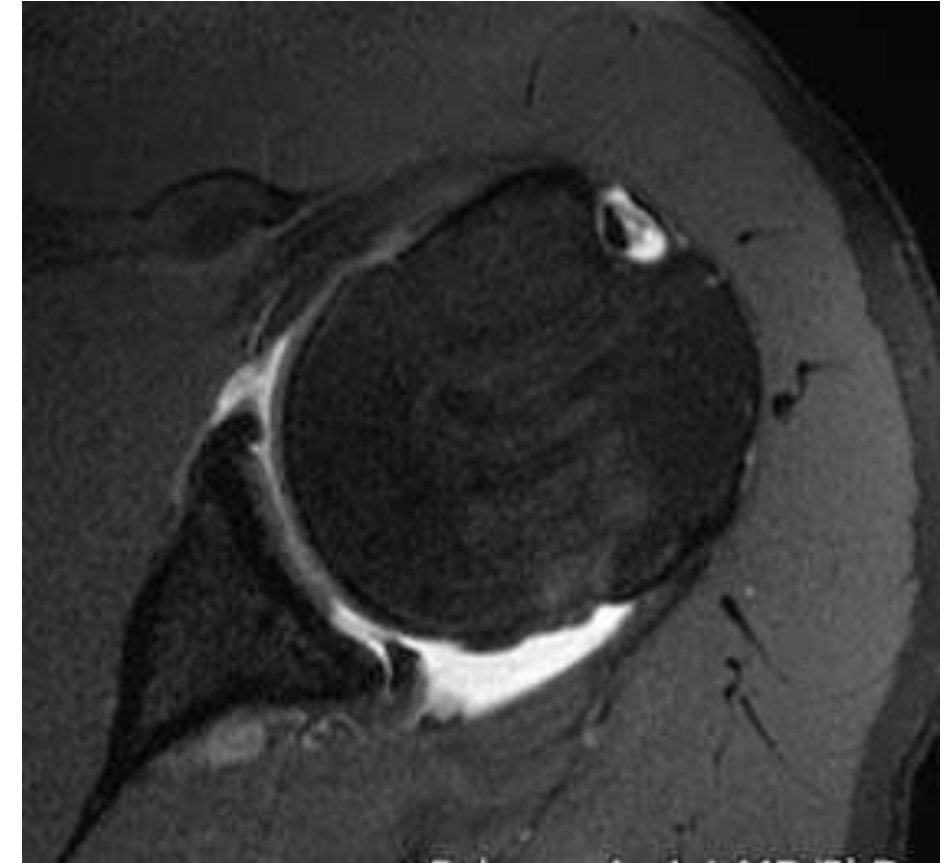
POLPSA

- Impingement of the humeral head on the posterior labrocapsular complex
- Posterior labrum and unruptured posterior scapular periosteum are stripped from the posterior glenoid resulting in redundant recess that communicates with the joint



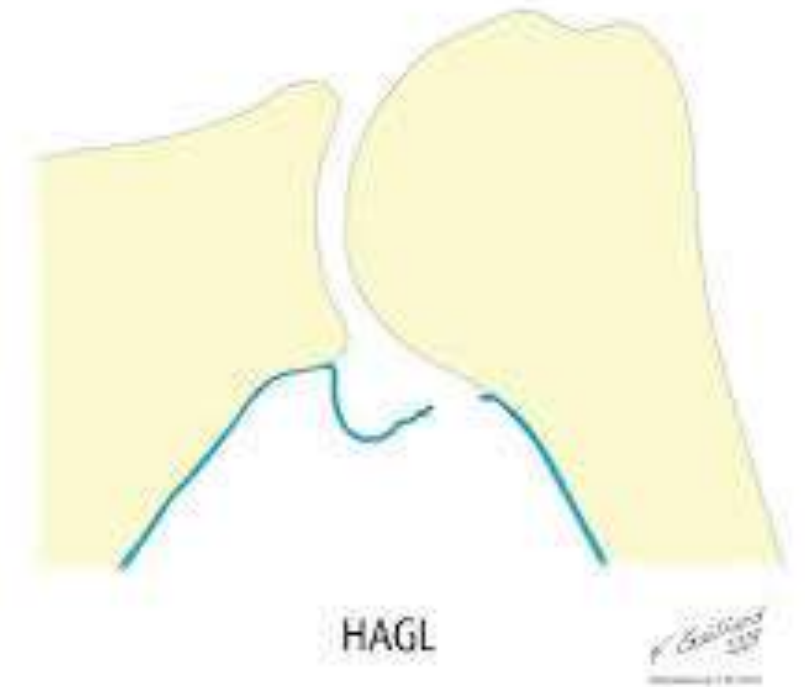
POSTERIOR GLAD

- Involves the posteroinferior glenoid
- Focal cartilage defects between 7'o clock and 9'o clock positions
- Associated with subtle tearing of the labrum



HAGL LESION , RHAGL LESION

- HUMERAL AVULSION OF GLENOHUMERAL LIGAMENT
- REVERSE HUMERAL AVULSION OF GLENOHUMERAL LIGAMENT
- **IGHL STRIPPED OUT FROM THE HUMERAL SIDE**



KIM LESION IS ? (FNB PATTERN 2014)

ROOT AVULSION OF ANTERIOR HORN OF MEDIAL MENISCUS

INCOMPLETE AND CONCEALED AVULSION OF POSTEROINFERIOR LABRUM

ANTERIOR LABRAL PERIOSTEAL SLEEVE AVULSION ALONG WITH IGHL TEAR

ROOT AVULSION OF POSTERIOR HORN OF MEDIAL MENISCUS

KIM LESION IS ? (FNB PATTERN 2014)

ROOT AVULSION OF ANTERIOR HORN OF MEDIAL MENISCUS

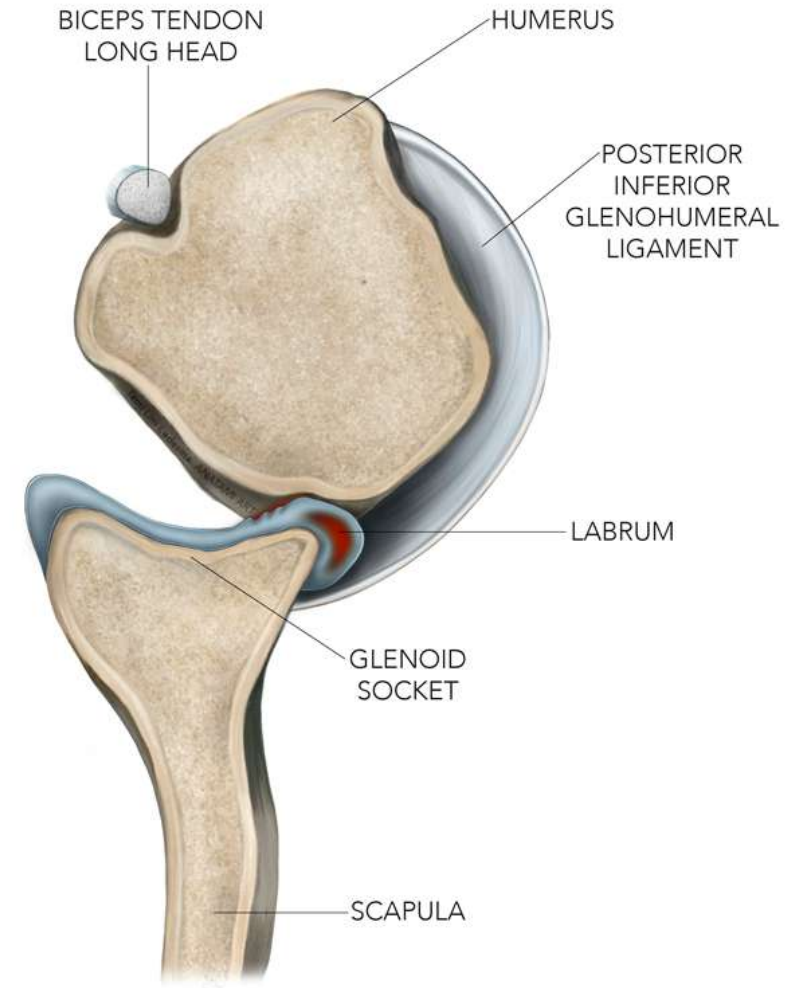
INCOMPLETE AND CONCEALED AVULSION OF POSTEROINFERIOR LABRUM

ANTERIOR LABRAL PERIOSTEAL SLEEVE AVULSION ALONG WITH IGHL TEAR

ROOT AVULSION OF POSTERIOR HORN OF MEDIAL MENISCUS

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PERTHES LESION OF SHOULDER IS ? (FNB PATTERN 2017)

ANTEROINFERIOR LABRAL TEAR WITH INTACT PERIOSTEUM

POSTEROSUPERIOR LABRAL TEAR

ASSOCIATED WITH RECURRENT SHOULDER DISLOCATION

AVULSION OF INFERIOR GLENOHUMERAL LIGAMENT

PERTHES LESION OF SHOULDER IS ? (FNB PATTERN 2017)

ANTEROINFERIOR LABRAL TEAR WITH INTACT PERIOSTEUM

POSTEROSUPERIOR LABRAL TEAR

ASSOCIATED WITH RECURRENT SHOULDER DISLOCATION

AVULSION OF INFERIOR GLENOHUMERAL LIGAMENT

PERTHES LESION

- VARIANT OF BANKART LESION
- LABRUM IS AVULSED NOT TORN FROM THE GLENOID BUT REMAINS ATTACHED TO THE SCAPULA BY INTACT PERIOSTEUM
- PERIOSTEUM ALBEIT REMAINS INTACT BUT IS STRIPPED MEDIALY

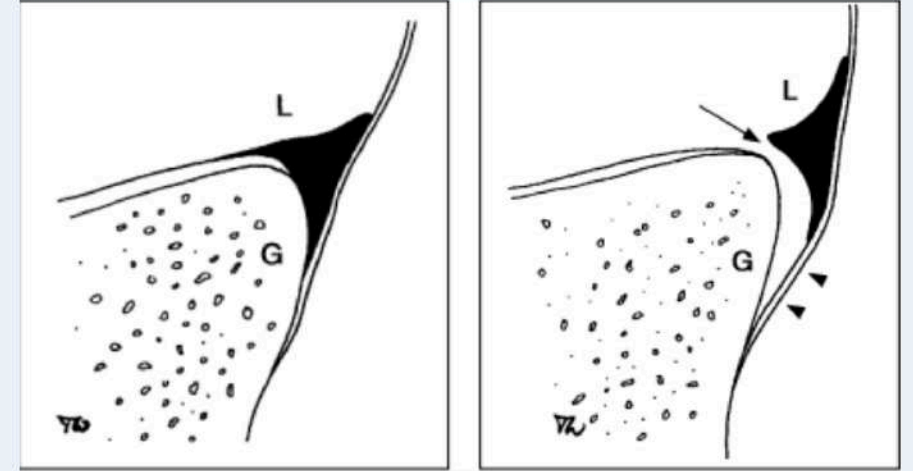


Fig 1: 1a: Normal labrum and 1b: perthes lesion (arrow shows intact but avulsed labrum attached to intact periosteum and arrow head show intact but medially stripped periosteum)

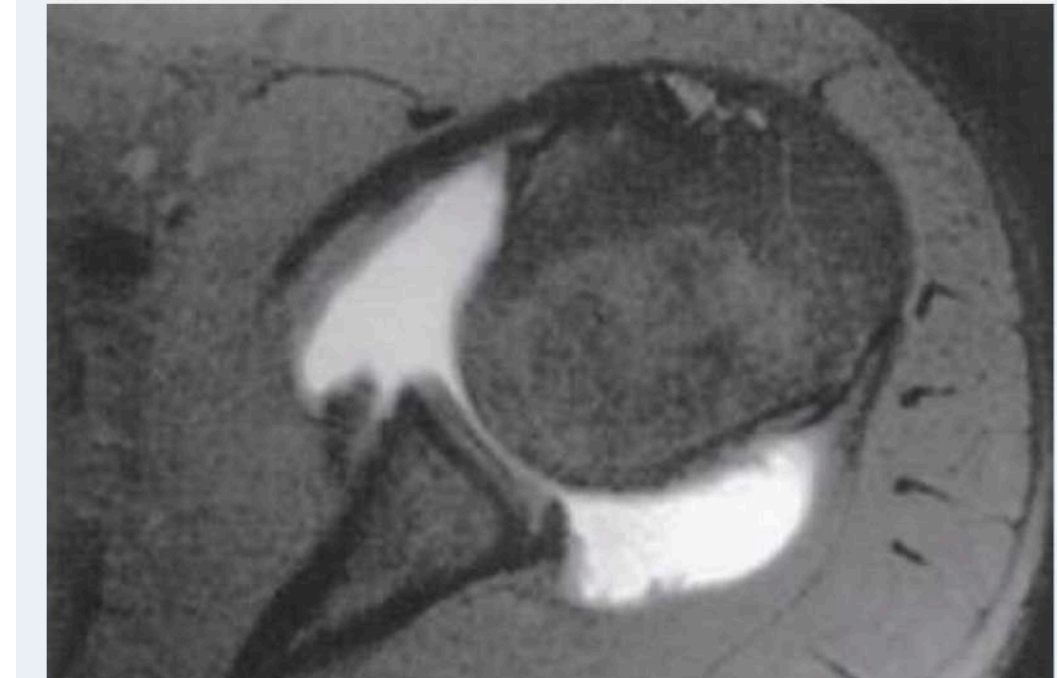
A 25 YEAR OLD UNIVERSITY PLAYER MET WITH AN ACCIDENT 2 MONTHS BACK AND GOT HIS SHOULDER DISLOCATED , REDUCED FOLLOWING THAT HE DEVELOPS PAIN IN OVERHEAD ACTIVITY LAST TWO MONTHS
MRI AXIAL CUT SHOWN IN FIG 1 , DIAGNOSIS ?

BANKART LESION

ALPSA

SLAP

HAGL



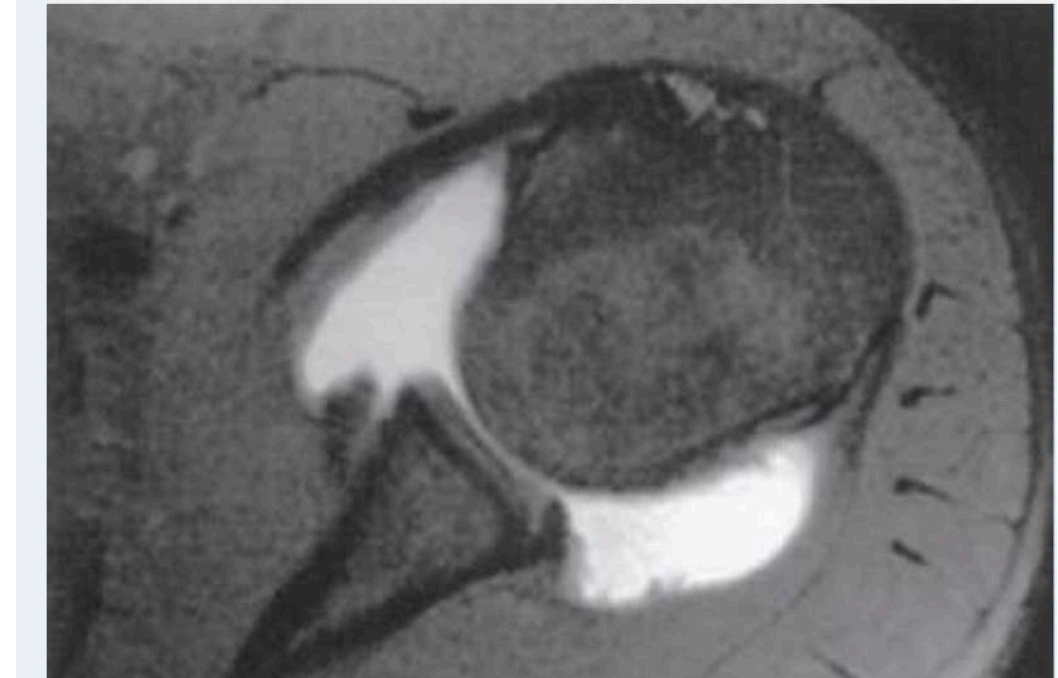
A 25 YEAR OLD UNIVERSITY PLAYER MET WITH AN ACCIDENT 2 MONTHS BACK AND GOT HIS SHOULDER DISLOCATED , REDUCED FOLLOWING THAT HE DEVELOPS PAIN IN OVERHEAD ACTIVITY LAST TWO MONTHS
MRI AXIAL CUT SHOWN IN FIG 1 , DIAGNOSIS ?

BANKART LESION

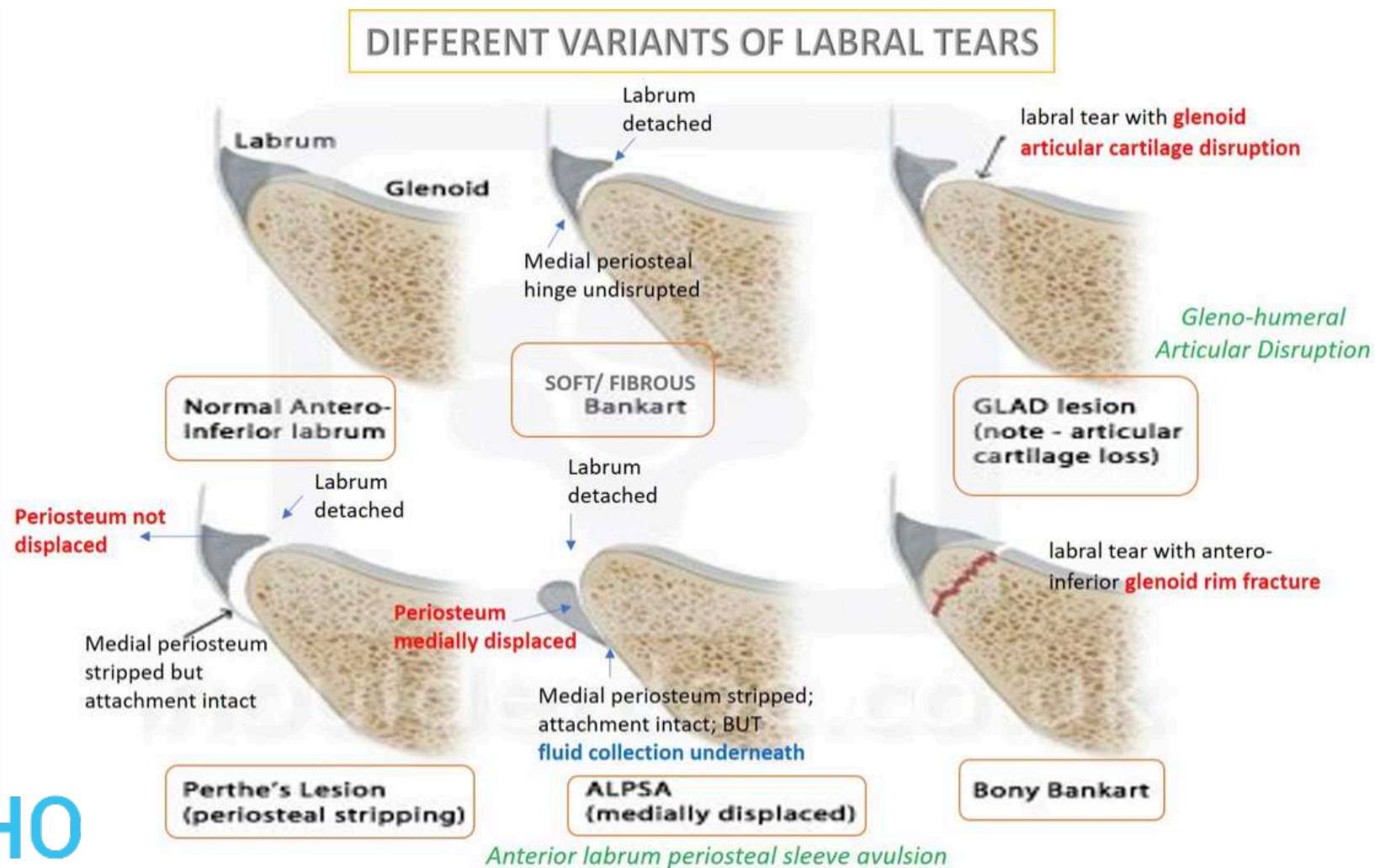
ALPSA

SLAP

HAGL



DIFFERENT VARIANTS OF LABRAL TEARS



CLASSIFICATION OF RECURRENT SHOULDER DISLOCATION

BASED ON FREQUENCY
ACUTE
RECURRENT
CHRONIC

BASED ON CAUSE
TRAUMATIC EVENT (MACROTRAUMA)
ATRAUMATIC EVENT
MICROTRAUMA
CONGENITAL CONDITION
NEUROMUSCULAR CONDITION (ERB,CP, SEIZURES)

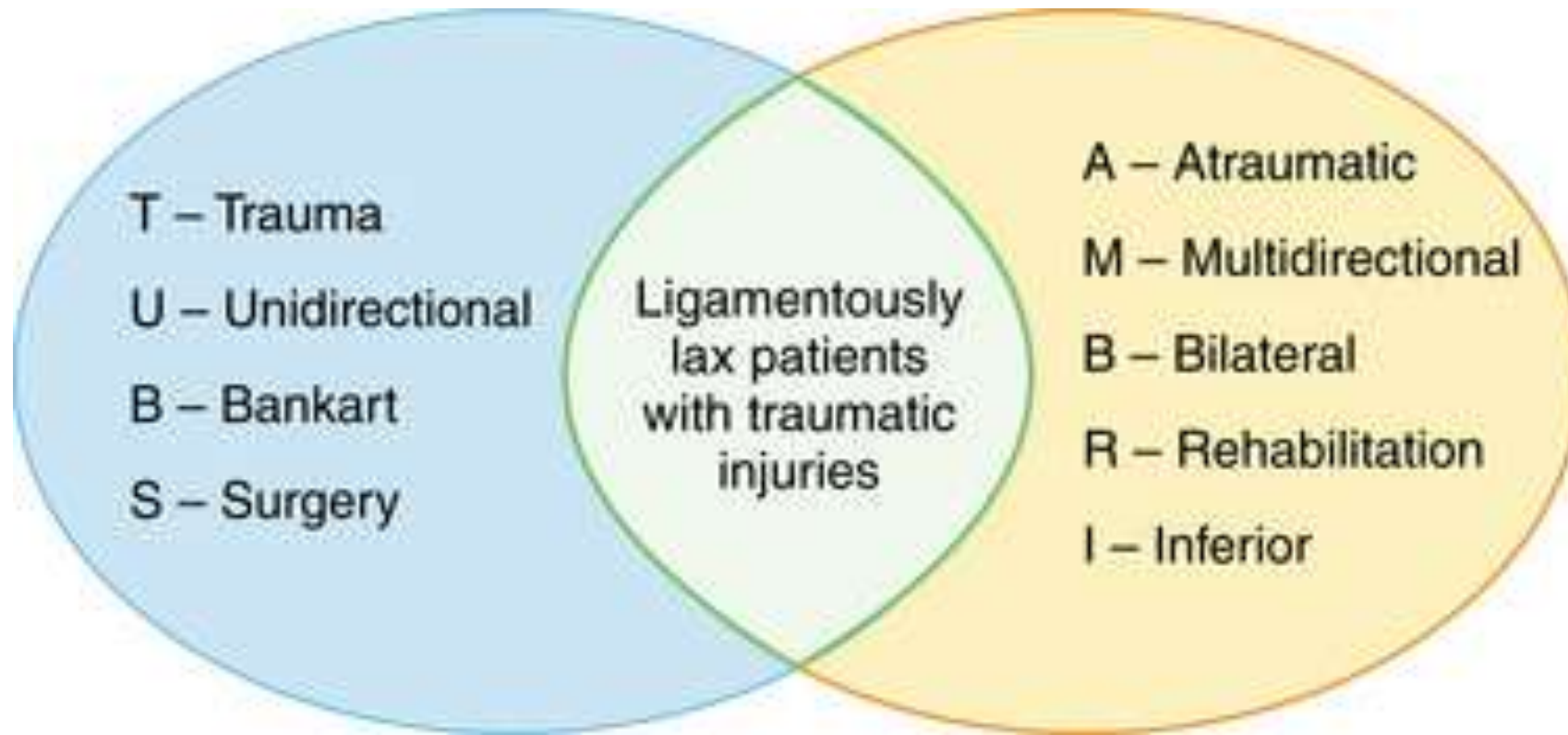
BASED ON DIRECTION
ANTERIOR
POSTERIOR
INFERIOR
MULTIDIRECTIONAL

BASED ON DEGREE
SUBLUXATION
DISLOCATION
MICROTRAUMA (TRANSCIENT)

STANMORE CLASSIFICATION



MATSEN CLASSIFICATION

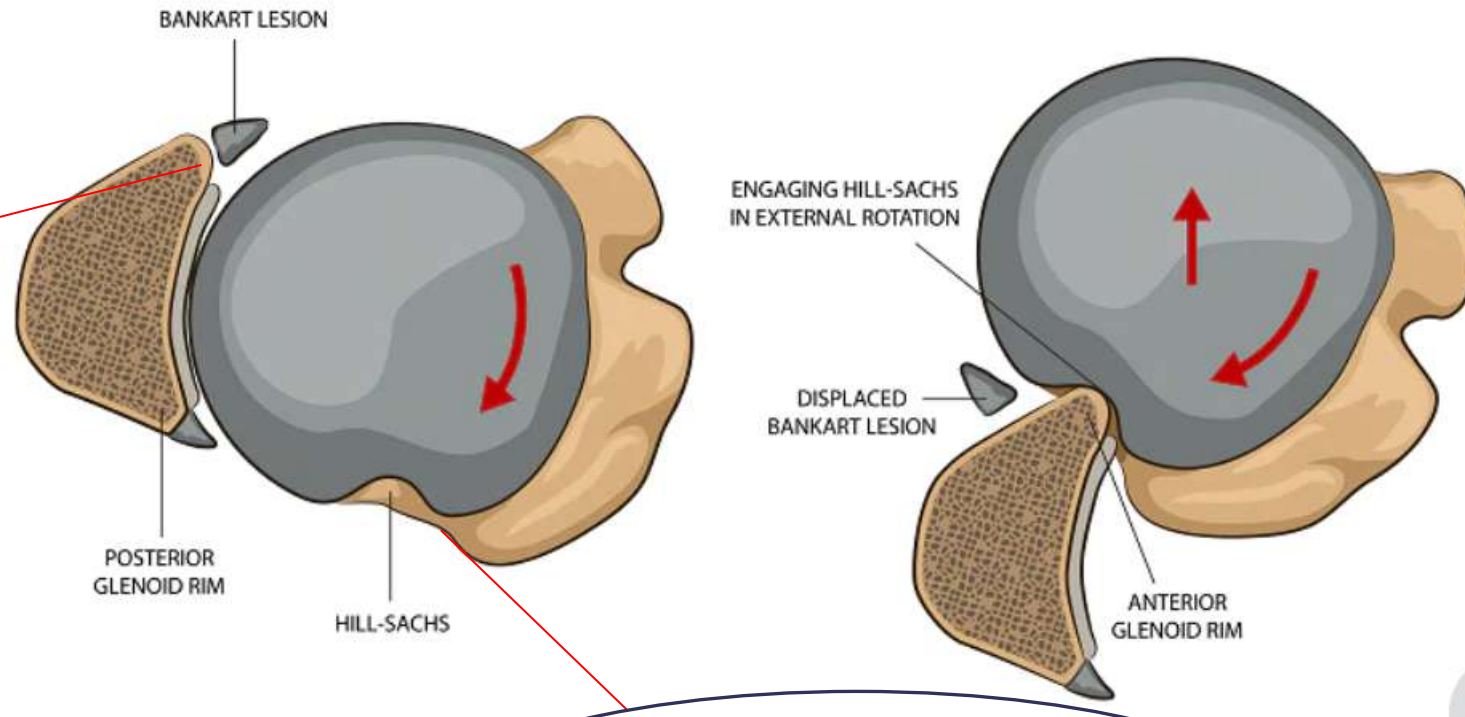


MANAGEMENT OF BONE LOSS IN ANTERIOR SHOULDER INSTABILITY

BONE LOSS OCCURS FROM ANTERO-INFERIOR GLENOID AND POSTERO-LATERAL HUMERAL HEAD IN RECURRENT SHOULDER DISLOCATION

BANKART LESION

Antero-inferior
glenoid labrum
stripping

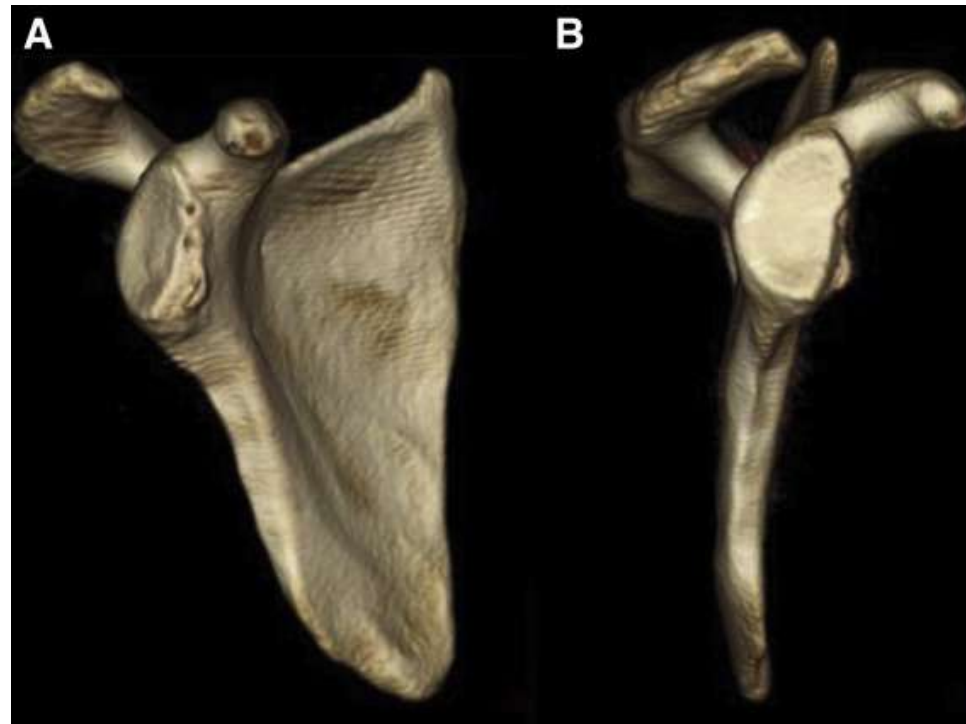


HILL SACHS LESION

Depression on humeral head in
its postero-lateral quadrant

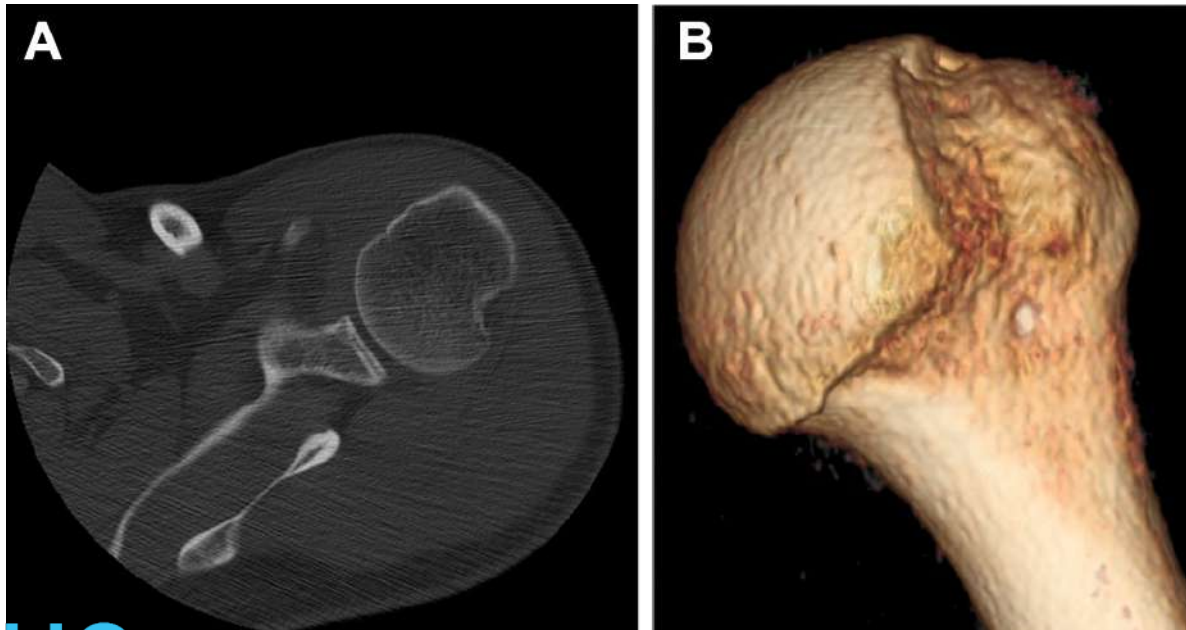
GLENOID BONE LOSS

- FROM THE ANTERIOR INFERIOR RIM OF GLENOID DUE TO FRACTURE OR EROSION BY HUMERAL HEAD



HUMERAL BONE LOSS

- HILL SACHS LESION – DEPRESSION ON THE POSTEROLATERAL HUMERAL HEAD
- COMPRESSION FRACTURE PRODUCED WHEN THE POSTEROLATERAL HUMERAL HEAD IMPINGED AGAINST ANTERIOR RIM OF GLENOID

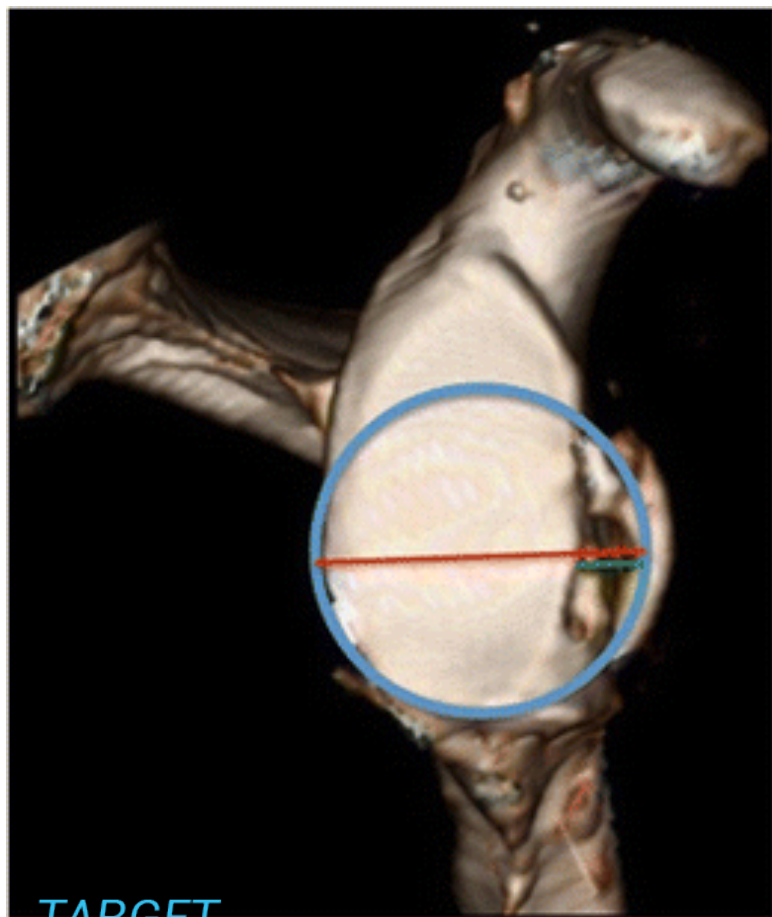


ASSESSMENT OF GLENOID BONE LOSS

- EN FACE VIEW OF GLENOID USING 3D CT
1. BEST FIT CIRCLE
 2. USING CONTRALATERAL GLENOID AS REFERENCE



BEST FIT CIRCLE (SUGAYA METHOD)



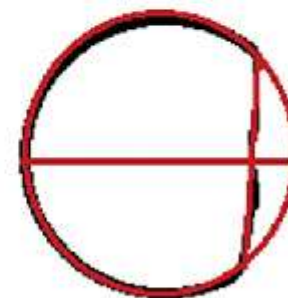
1. Select *en face* view of glenoid



2. Create a best-fit circle

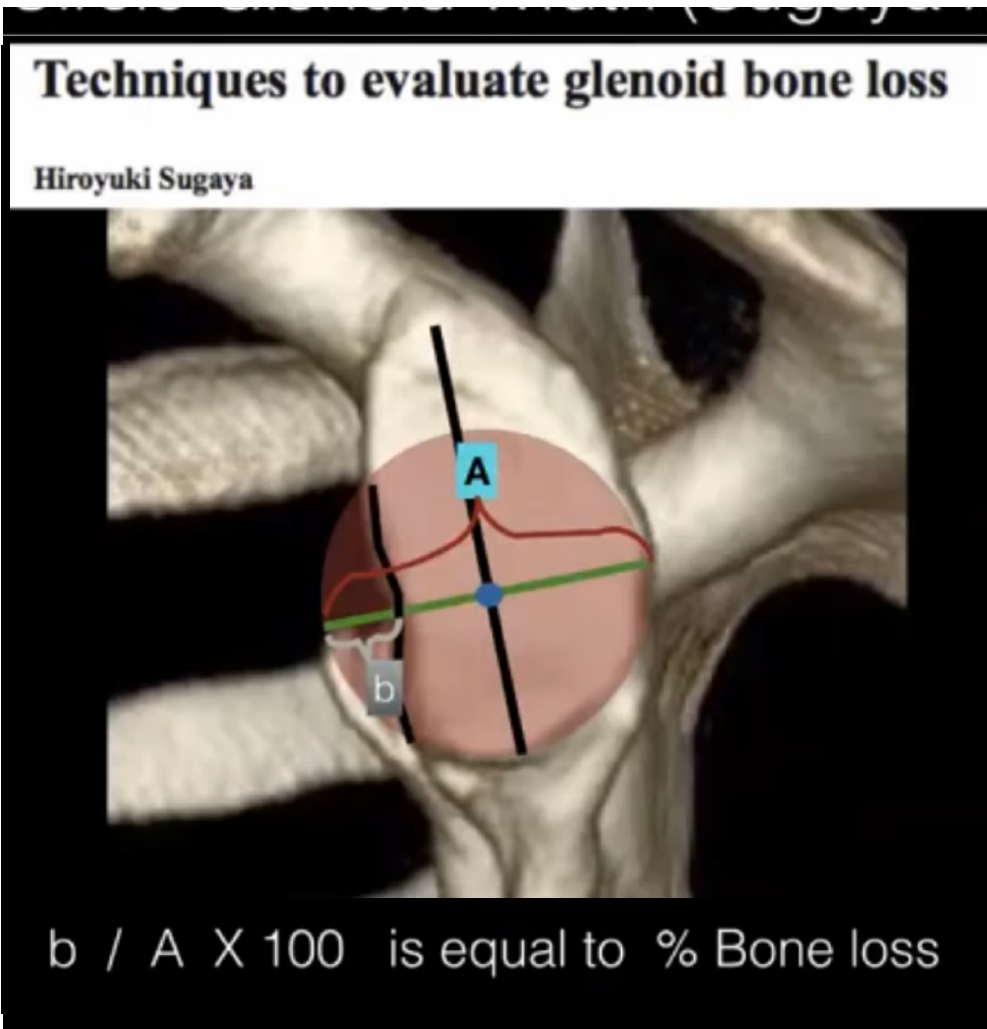


3. Measure a line of bone loss that is a straight line connecting only 2 points on the circle (chord)

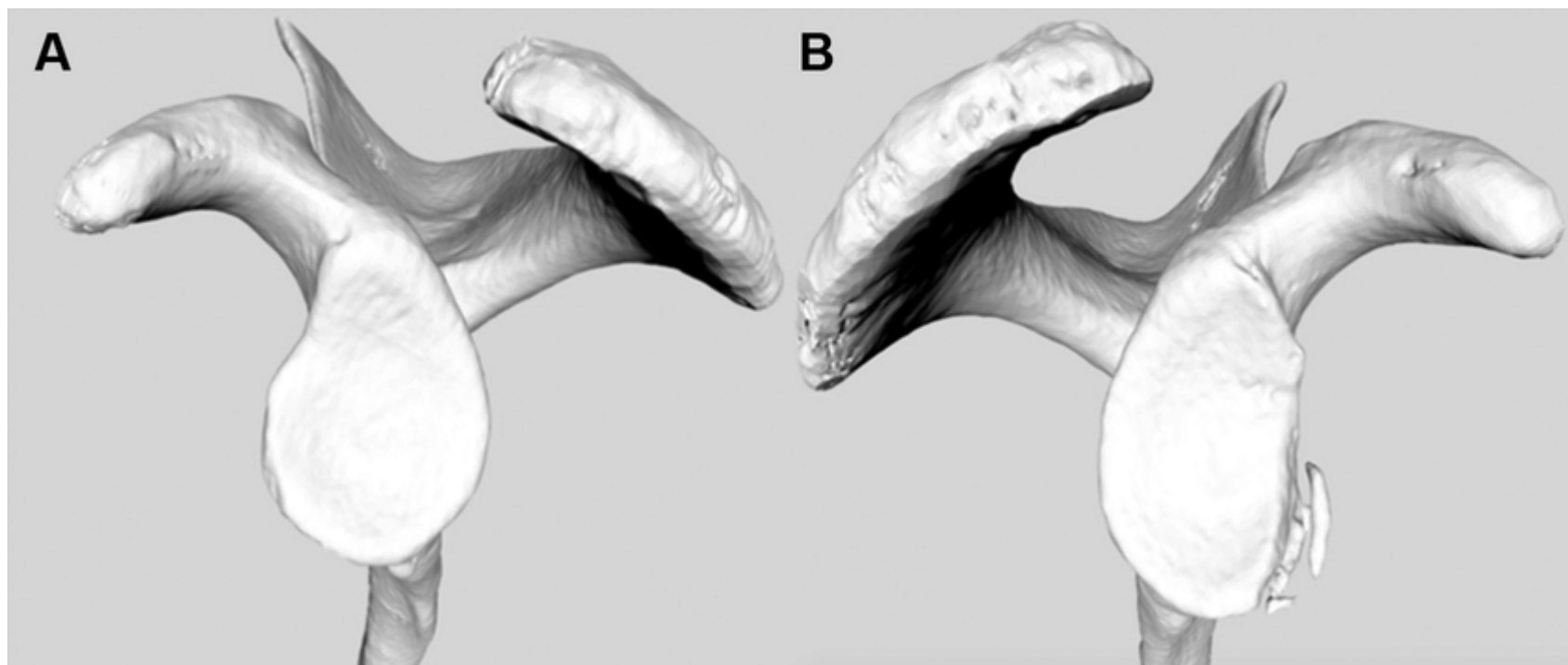


4. Measure the diameter of the circle

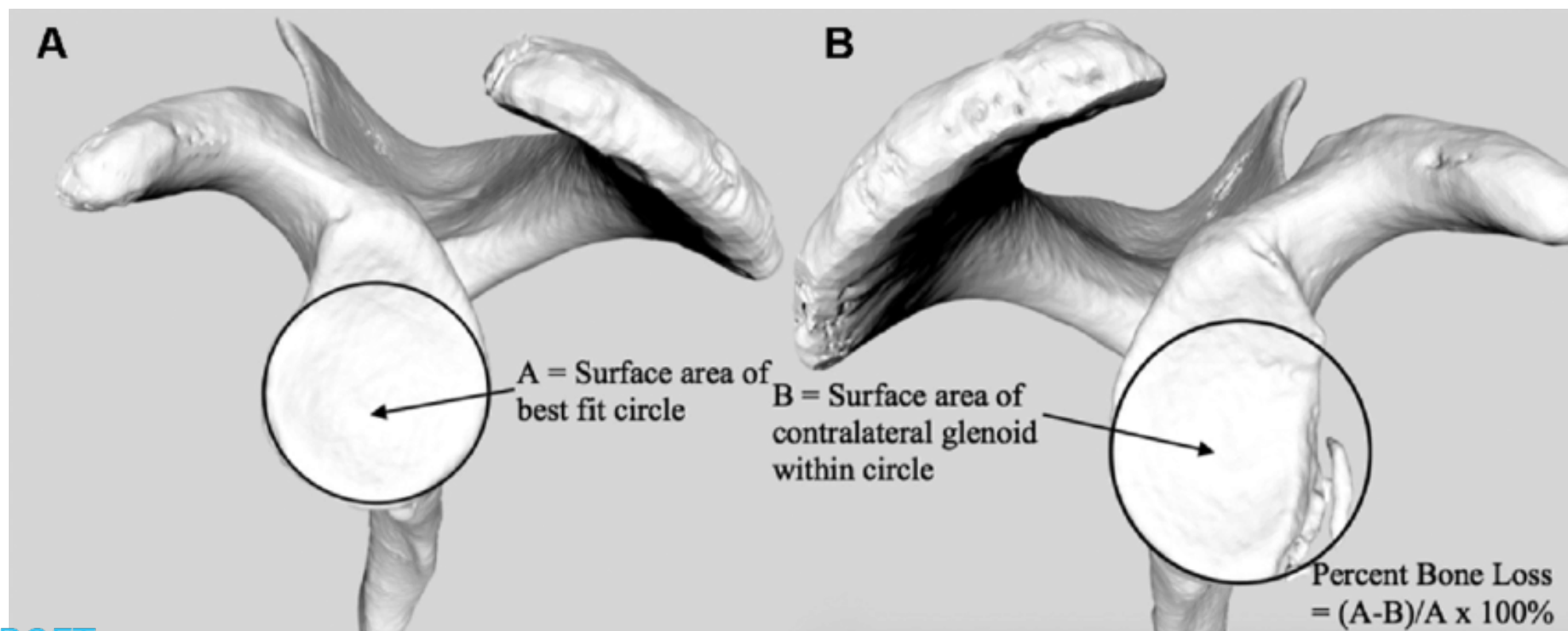
BEST FIT CIRCLE (SUGAYA METHOD)



CONTRALATERAL GLENOID AS REFERENCE



COMPARING OPPOSITE NORMAL GLENOID (PICO'S METHOD)

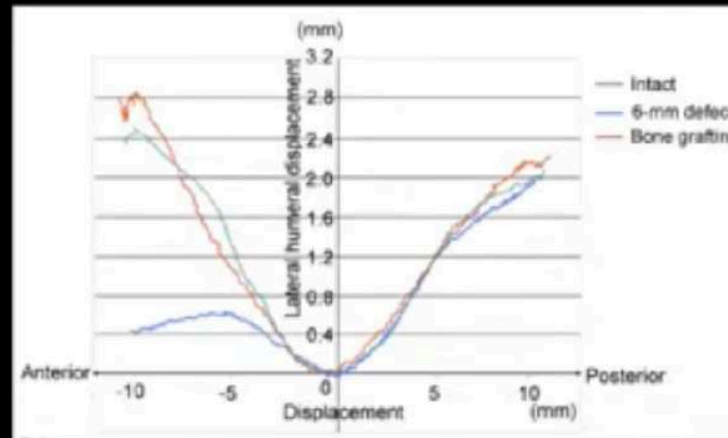


GLENOID BONE LOSS SO WHAT?

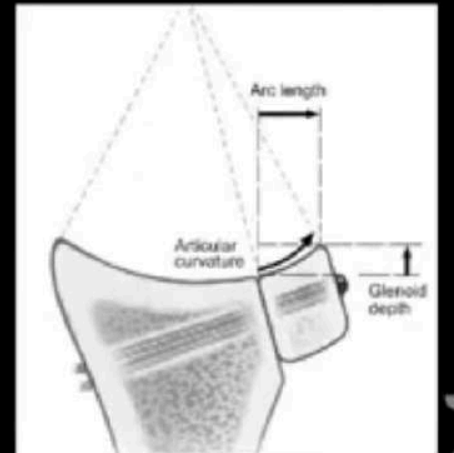
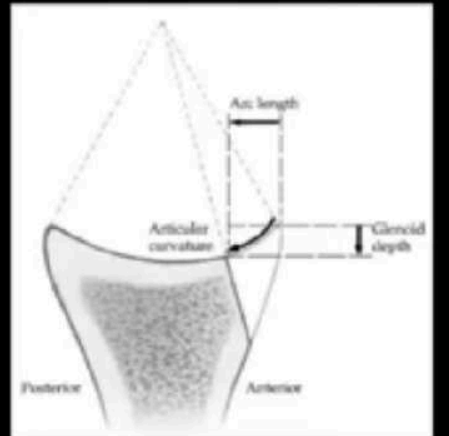
Osseous stability:

Depth
Curved articular surface
Arc length of the glenoid

Shortened with defect
Return to intact-condition after bone-grafting

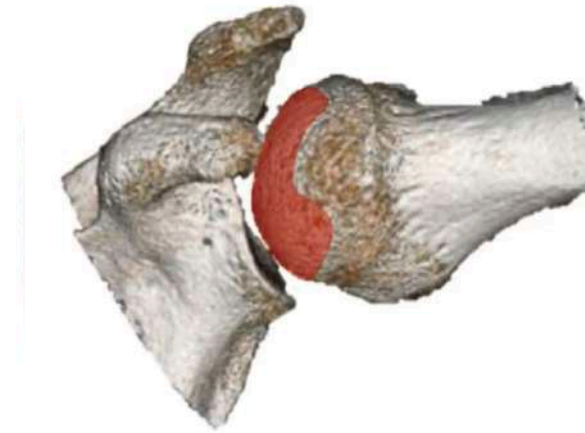


Yamamoto et al, JBJS-A, 2010



GLENOID TRACK

- **ZONE OF CONTACT BETWEEN THE GLENOID AND HUMERAL HEAD DURING MOTION FROM NEUTRAL TO ABER**



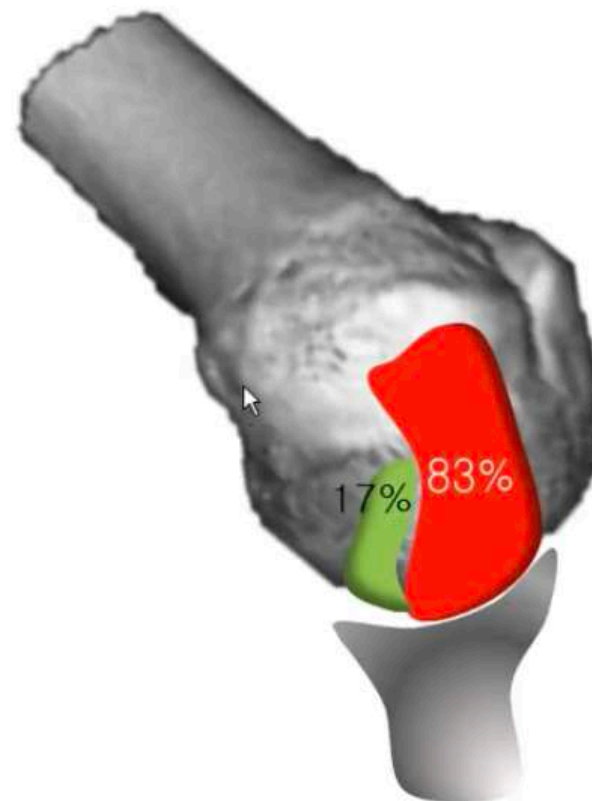
SHOULDER DISLOCATION

- **ENGAGED VS NON ENGAGED LESION**
(BURHART S 2000)
- **ON TRACK VS OFF TRACK LESION**

(ITOLE 2007)

WIDTH OF GLENOID TRACK

- APPROXIMATELY 83% OF GLENOID AP DIAMETER
- GLENOID BONE LOSS RESULTS IN SMALLER GLENOID TRACK



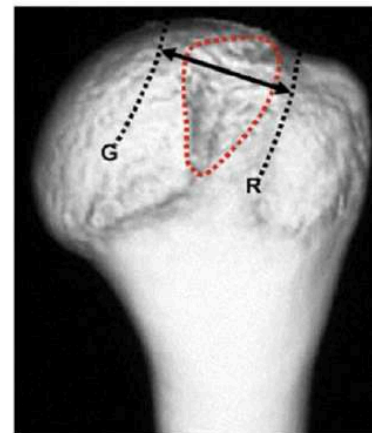
INSTABILITY

- WHEN THE ARM IS IN POSTERIOR END RANGE OF MOVEMENT SUCH AS ABDUCTION AND EXTERNAL ROTATION , THE GLENOID COMES TO POSTEROLATERAL PORTION OF HUMERAL HEAD , WHERE HILL SACH LESION IS PRESENT

ON TRACK LESION



IF THE HSL IS ENTIRELY COVERED BY THE GLENOID IN THIS ARM POSITION , IT CANNOT CAUSE ANY INSTABILITY

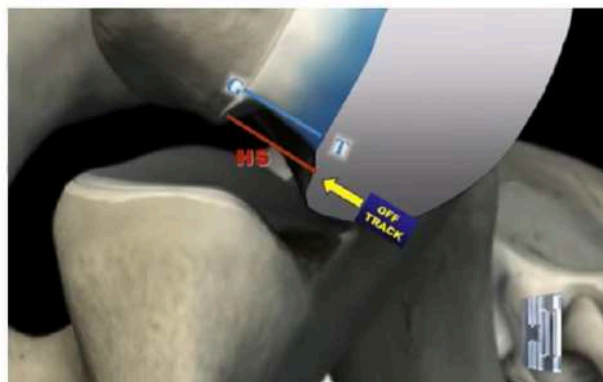


On track

Hill-Sachs lesion is located within glenoid track

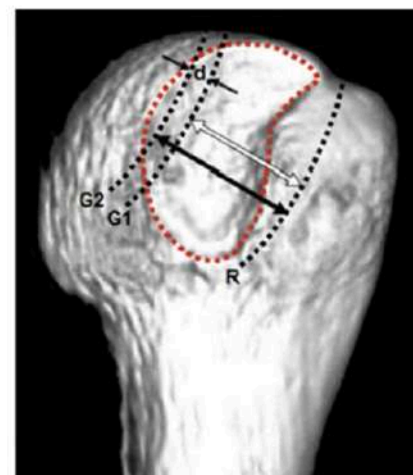


OFF TRACK LESION



IF THE HSL IS OUT OF THE GLENOID COVERAGE IT MAY ENGAGE WITH THE ANTERIOR RIM OF GLENOID AND CAUSE A DISLOCATION

IT IS AN END RANGE INSTABILITY



Off-track

Hill-Sachs lesion extends medially over medial margin of glenoid track



HOW TO ASSESS INSTABILITY ?

- DYNAMIC EXAMINATION – DURING SURGERY , RELATIVE RELATIONSHIP BETWEEN HSL AND GLENOID CAN BE ASSESSED
- SECOND METHOD IS “ **GLENOID TRACK**” CONCEPT

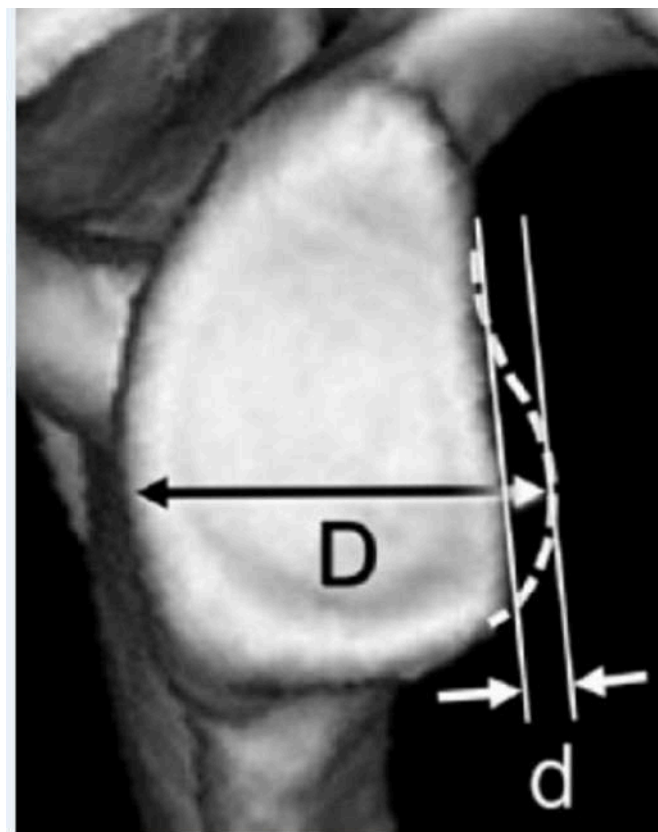
MEASURE GT GLENOID TRACK

IN ORDER TO MEASURE THE GLENOID TRACK

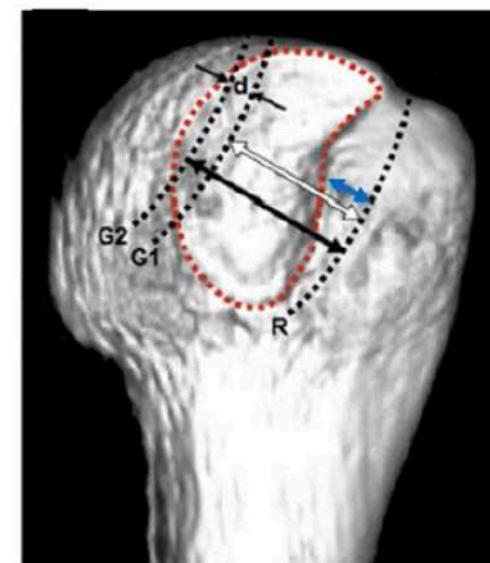
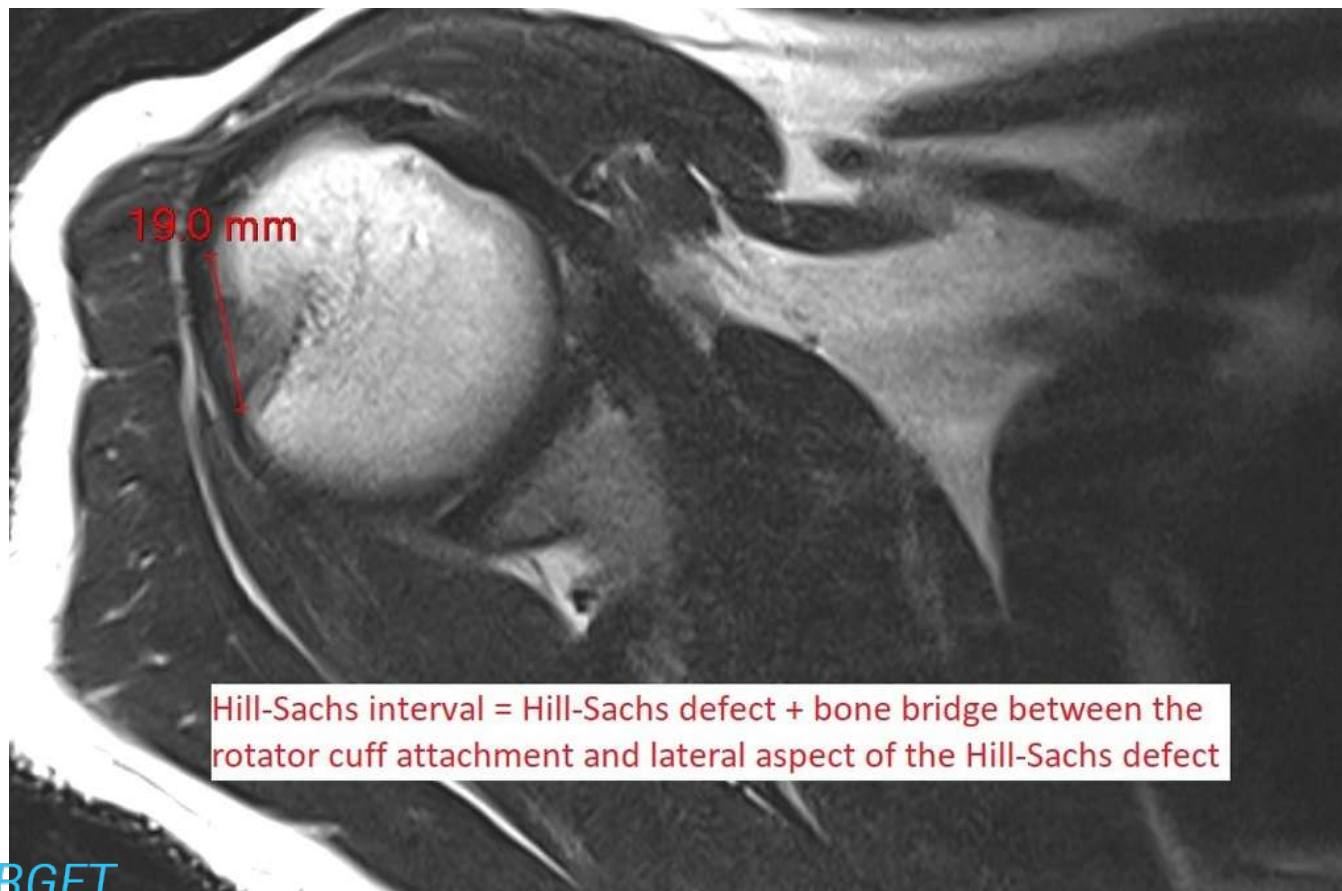
FIRST MEASURE DIAMETER OF THE INFERIOR GLENOID VIA
ADVANCED IMAGING = **D**
A CIRCLE CAN BE DRAWN ALONG THE INFERIOR GLENOID
TO OBTAIN THE **D**

THE WIDTH OF THE GLENOID BONE LOSS IS MEASURED AS **d**

$$GT = 0.83D - d$$

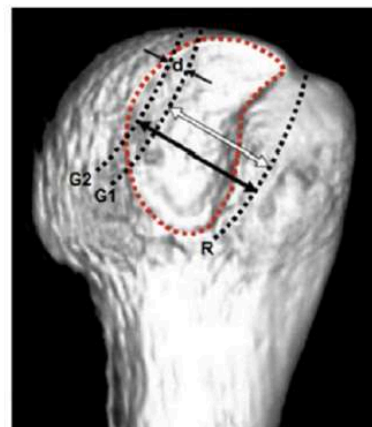
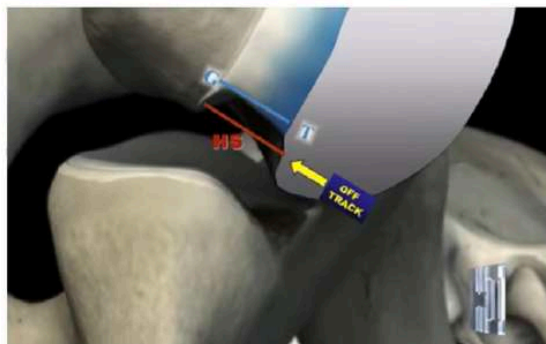


MEASURE HILL SACH INTERVAL



$$\text{HSI} = \text{HS} + \text{BB}$$

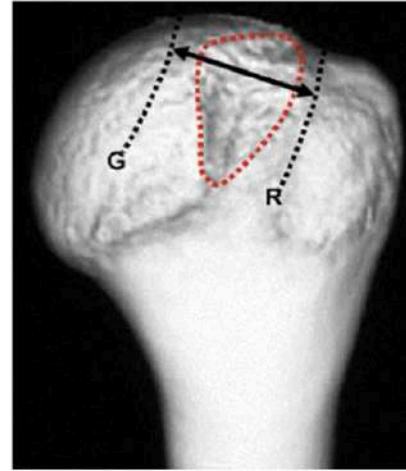
HSI > GT , OFF TRACK OR ENGAGING



Off-track

Hill-Sachs lesion extends medially over medial margin of glenoid track

HSI < GT , THE HS IS ON TRACK OR NON ENGAGING



On track

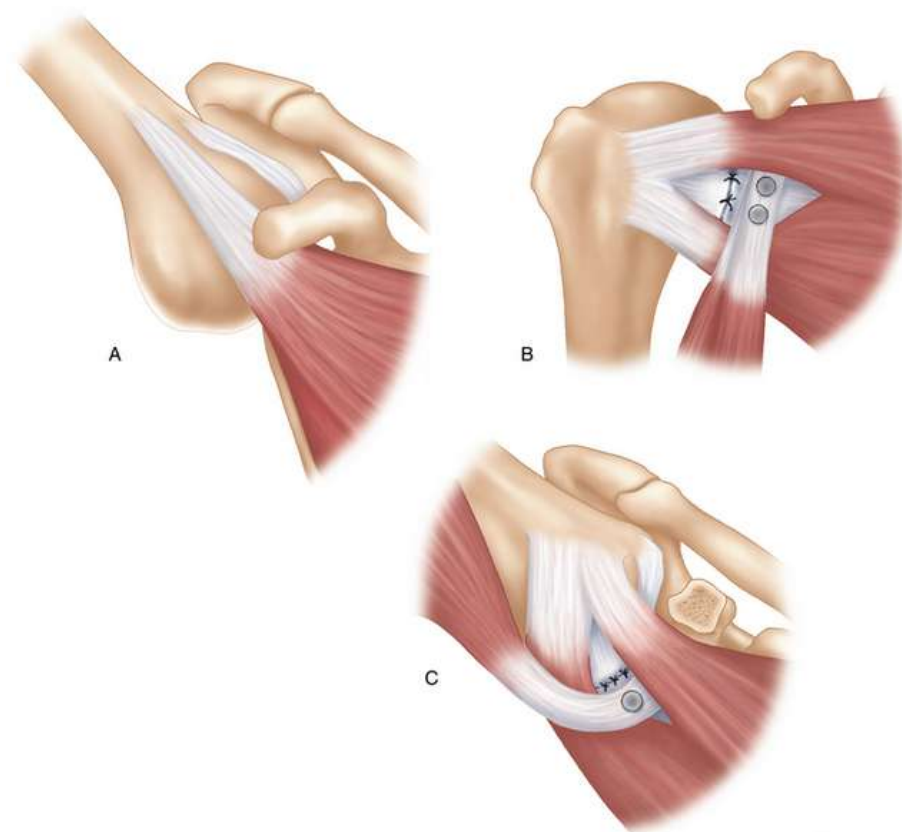
Hill-Sachs lesion is located within glenoid track

LATARJET PROCEDURE



THE LATARJET PROCEDURE — HOW DOES IT WORK ?

- **‘GLENOPLASTY’ EFFECT — BONE PLUG**
- **CAPSULAR REPAIR — REPAIR IGHL TO BONE PLUG**
- **DYNAMIC LIGAMENT EFFECT OF CONJOINT TENDON & SUBSCAPULARIS**



TRIPLE BLOCK
EFFECT

LATARJET

Osseous stability:

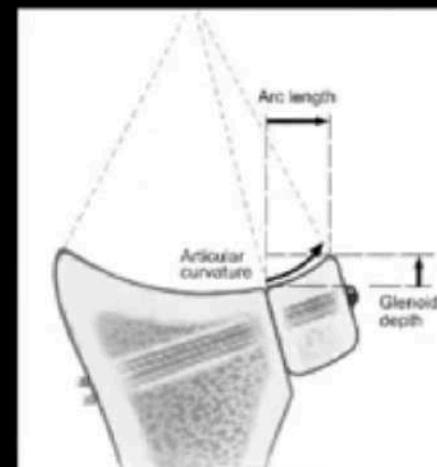
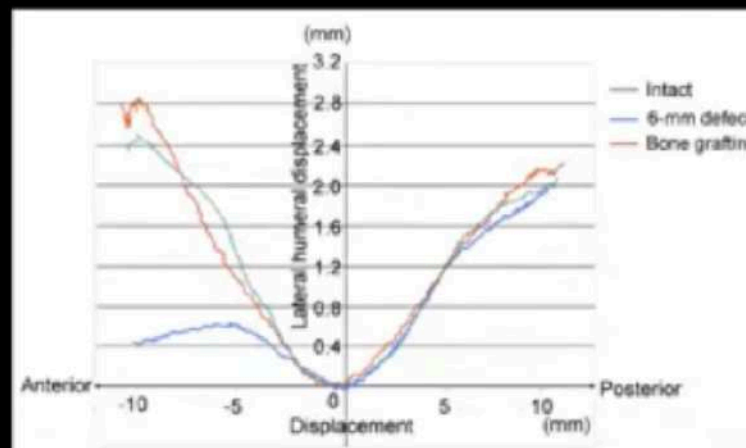
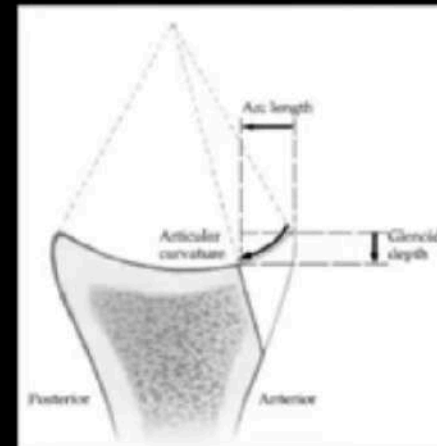
Depth

Curved articular surface

Arc length of the glenoid

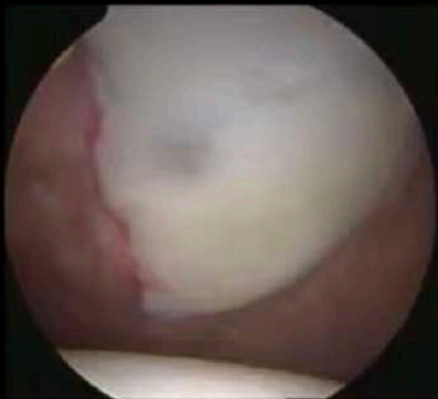
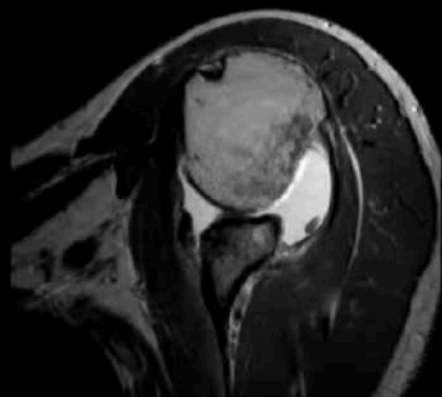
Shortened with defect

Return to intact-condition after bone-grafting



Yamamoto et al, JBJA, 2010

WHEN TO DO LATARJET PROCEDURE ?



Results of Arthroscopic Bankart repair

194 patients

173

No bone defects
Recurrence rate 4%

21

Significant bone loss
Recurrence rate 67%

} 16 times more!

Burkhart SS, De Beer JF, *Arthroscopy* 2000

GLENOID BONE LOSS

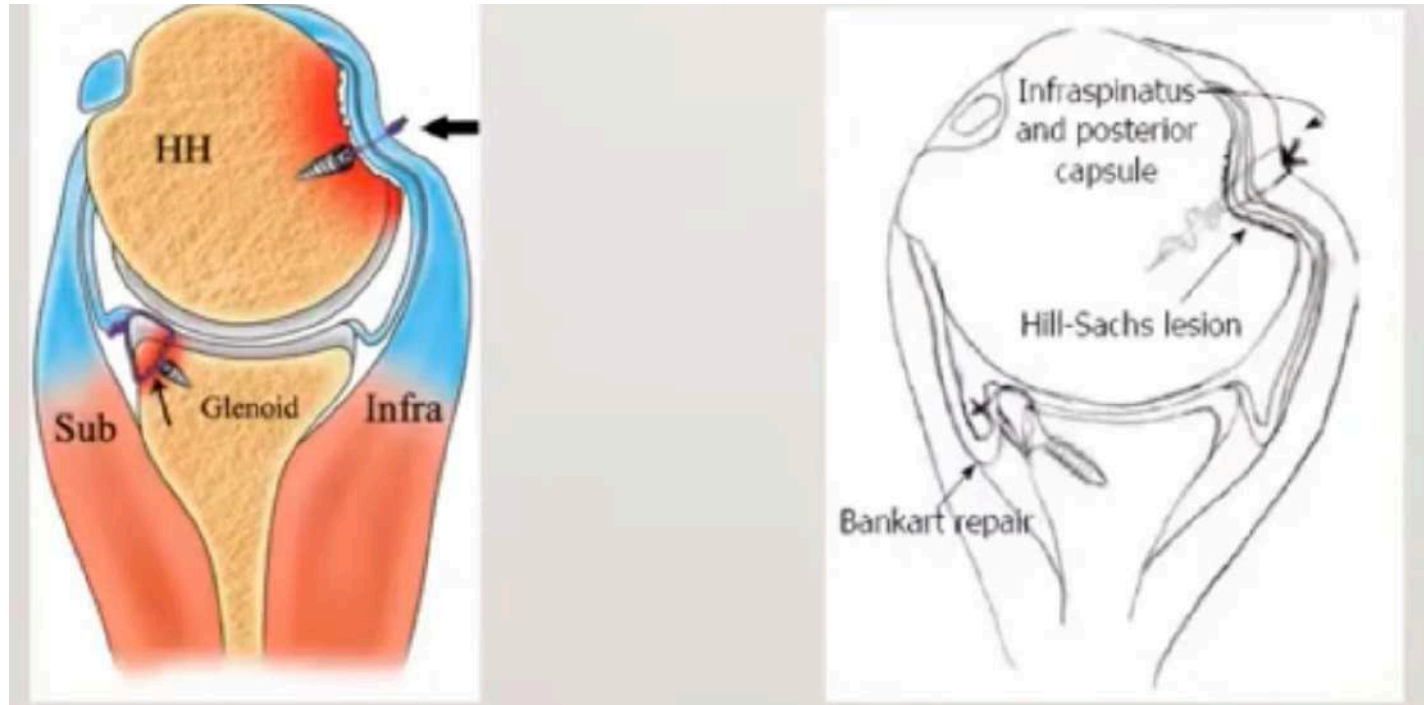
GLENOID BONE LOSS	DECISION
< 20 %	BANKART REPAIR
> 20 %	LATARJET PROCEDURE

REPLISSAGE

- REPLISSAGE IS DERIVED FROM ROOT VERB **REPLIR** WHICH TRANSLATES TO FILLING IN FRENCH
- DESCRIBED IN 2007 BY WOLF AND POLLACK TO ADDRESS A SOLUTION FOR LARGE ENGAGING HILL SACHS DEFECT

CAPSULO-TENODESIS INTO HUMERAL HEAD DEFECT

- REMPLISSAGE MAKES THE HILL SACHS DEFECT EXTRA ARTICULAR , THEREBY ELIMINATING ENGAGEMENT OF THE DEFECT WITH THE ANTERIOR GLENOID RIM



HILL SACHS LESION

LESION	INTERVENTION
NON ENGAGING HILL SACHS (USUALLY <20% DEFECT)	NOTHING
ENGAGING HILL SACHS (20-40% DEFECT)	REMPLISSAGE
ENGAGING HILL SACHS (> 40 % DEFECT)	BONE GRAFT (MCLAUGHLIN PROCEDURE)

A 24 YEARS MALE COMES TO OPD WITH A COMPLAINT OF RECURRENT SHOULDER DISLOCATION. HE GIVES THE HISTORY OF 20 DISLOCATIONS AFTER THE FIRST DISLOCATION 2 YEARS BACK. CT SCAN SHOWS 25% LOSS OF GLENOID WIDTH. ON AXIAL CUT MRI HIS GLENOID TRACK WAS 18 MM AND HILL-SACHS INTERVAL WAS 21.3 MM. MOST APPROPRIATE PROCEDURE FOR HIS WILL BE (FNB PATTERN PAPER 2015) ?

Arthroscopic bankart repair

Arthroscopic bankart repair plus remplissage

Latarjet procedure

Arthroscopic bankart repair plus capsular plication

> 20 % BONE LOSS LATARJET PROCEDURE

A 24 YEARS MALE COMES TO OPD WITH A COMPLAINT OF RECURRENT SHOULDER DISLOCATION. HE GIVES THE HISTORY OF 20 DISLOCATIONS AFTER THE FIRST DISLOCATION 2 YEARS BACK. CT SCAN SHOWS 25% LOSS OF GLENOID WIDTH. ON AXIAL CUT MRI HIS GLENOID TRACK WAS 18 MM AND HILL-SACHS INTERVAL WAS 21.3 MM. MOST APPROPRIATE PROCEDURE FOR HIS WILL BE (FNB PATTERN PAPER 2015) ?

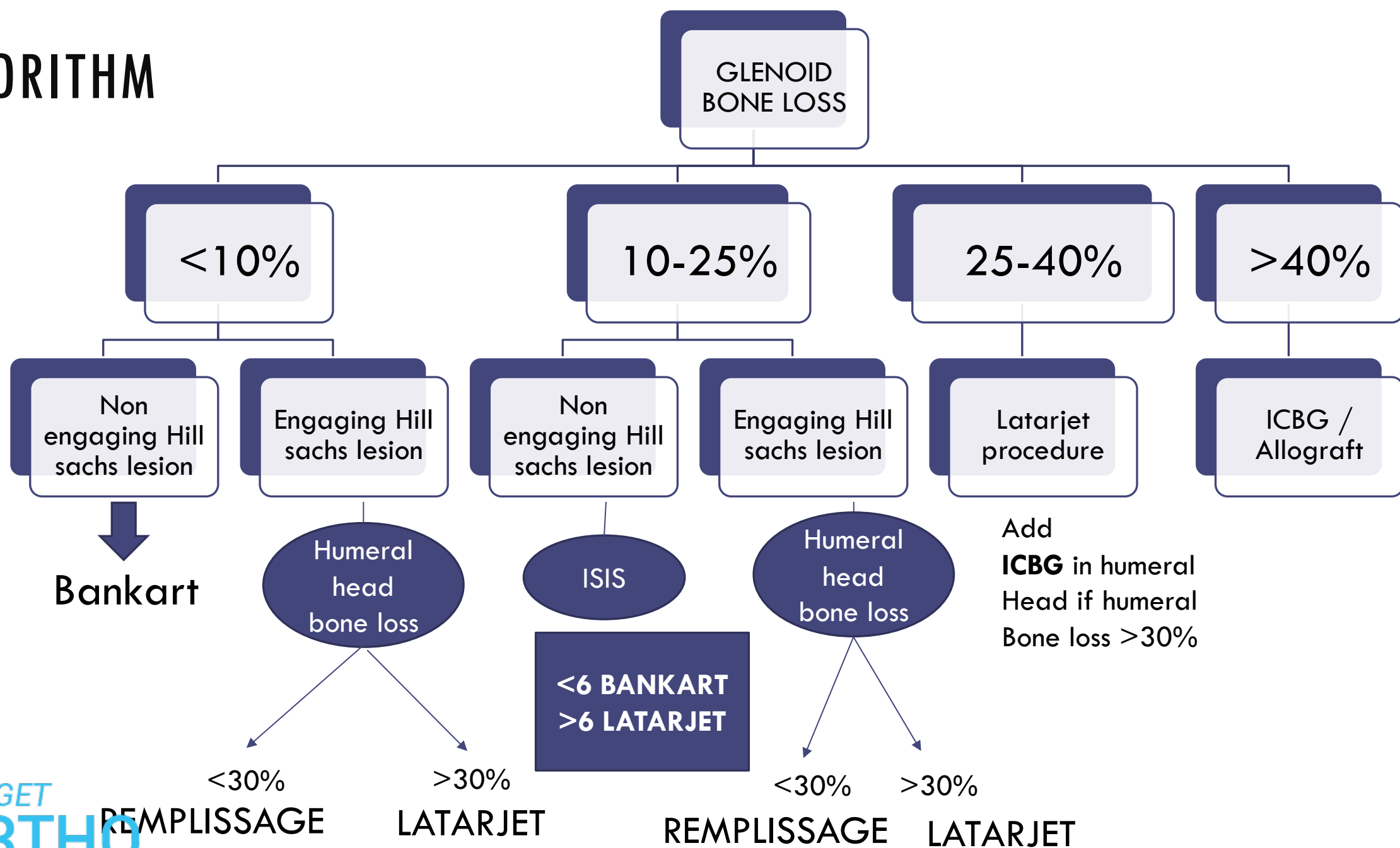
Arthroscopic bankart repair

Arthroscopic bankart repair plus remplissage

Latarjet procedure

Arthroscopic bankart repair plus capsular plication

ALGORITHM



ISIS



The instability severity index score

A SIMPLE PRE-OPERATIVE SCORE TO SELECT PATIENTS FOR ARTHROSCOPIC OR OPEN SHOULDER STABILISATION

F. Balg,
P. Boileau

*From University of
Nice-Sophia
Antipolis, Nice,
France*

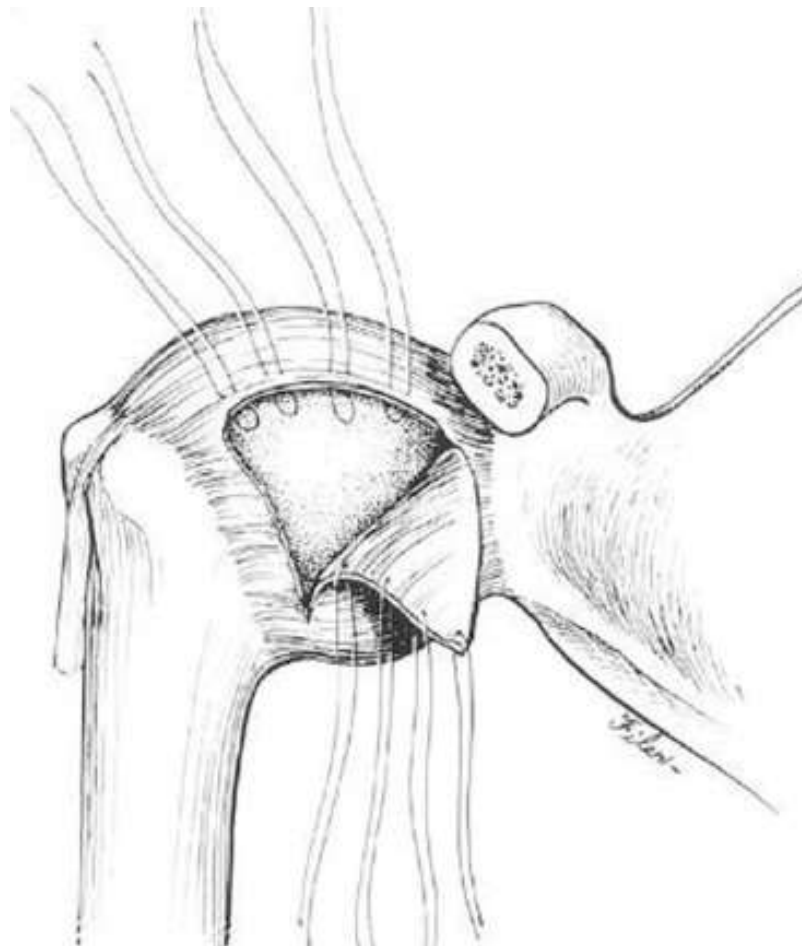
1. Males
2. < 20yrs age
3. Contact sports
4. Competitive sport
5. Large Hill-Sachs
6. Glenoid loss

Arthroscopic
Stabilisation

**70% Recurrence
at 31 months**

EDEN HYBINETTE PROCEDURE

- ILIAC CREST BONE GRAFTING



ADVANCES IN TREATMENT

- SINGLE ANTERIOR PORTAL ARTHROSCOPIC BANKART REPAIR
- KNOTLESS ALL SUTURE ANCHORS
- LATARJET SURGERY
- ARTHROSCOPIC REMPLISSAGE

BANKART'S REPAIR

OPEN BANKART REPAIR

ARTHROSCOPIC BANKART REPAIR



DOUBLE ANTERIOR PORTAL



SINGLE ANTERIOR PORTAL

BANKART REPAIR

- **PRINCIPLES OF ARTHROSCOPIC BANKART REPAIR**

- ❖ ACHIEVE A **BUMPER EFFECT** WITH ANTERIOR CAPSULOLABRAL REPAIR

- ❖ ACCOMPLISH DISTAL TO PROXIMAL **CAPSULAR SHIFT**

- ❖ HUMERAL HEAD **CENTRALIZATION**

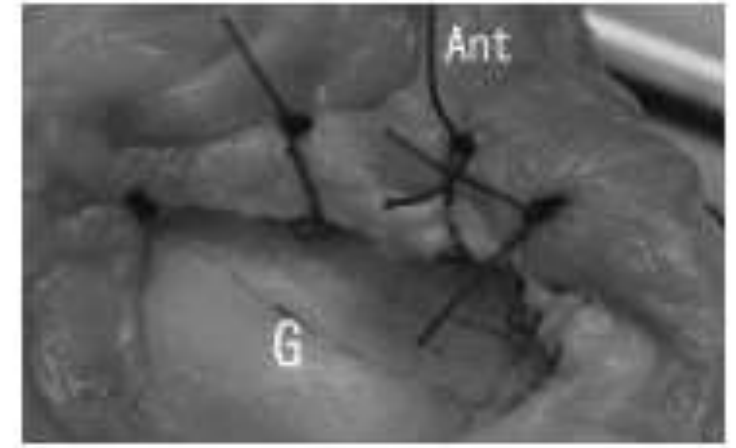


Figure 2 Glenoid (G) rim fixation with a "bumper." Ant, anterior.

TWO ANTERIOR PORTAL TECHNIQUE

- Arthroscopic Bankart repair (ABR) using one posterior and two anterior portals is the standard treatment for recurrent anterior shoulder instability, particularly in cases of isolated Bankart lesions or minimal loss of anterior glenoid rim
- Creating two anterior working portals is challenging in some populations, particularly in patients with **small shoulders**
- The standard anterior two-portal technique may lead to **iatrogenic nerve injuries** and **cannula breakage**, as the cannulas have to be close to each other in small shoulders

SINGLE ANTERIOR PORTAL TECHNIQUE

- Over the past five years, several studies have described the anterior single-portal technique for ABR



FIGURE 2. Arthroscopic view from the posterior portal of the left shoulder. (a) Establishment of single anterior working portal through the rotator interval by means of an epidural needle along the superior border of the subscapularis tendon with outside-in technique. (b) The view of the detached labrum and Bankart lesion. (c) The anterior glenoid neck being prepared with a rasp and anterior labrum mobilized.

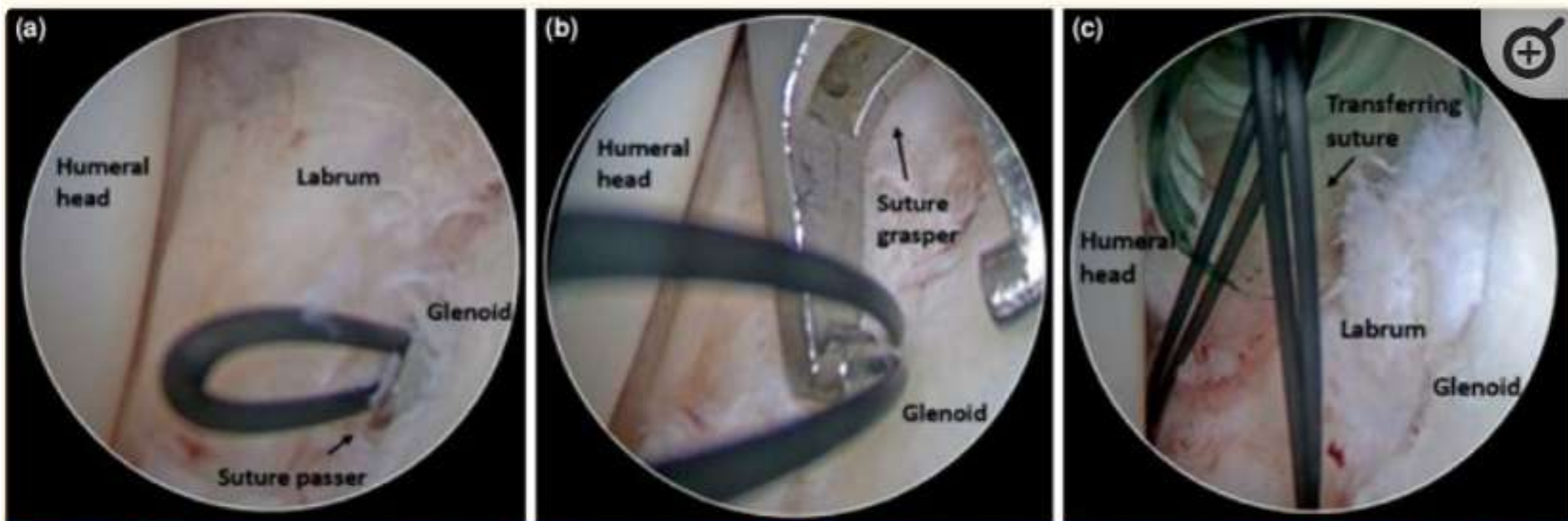
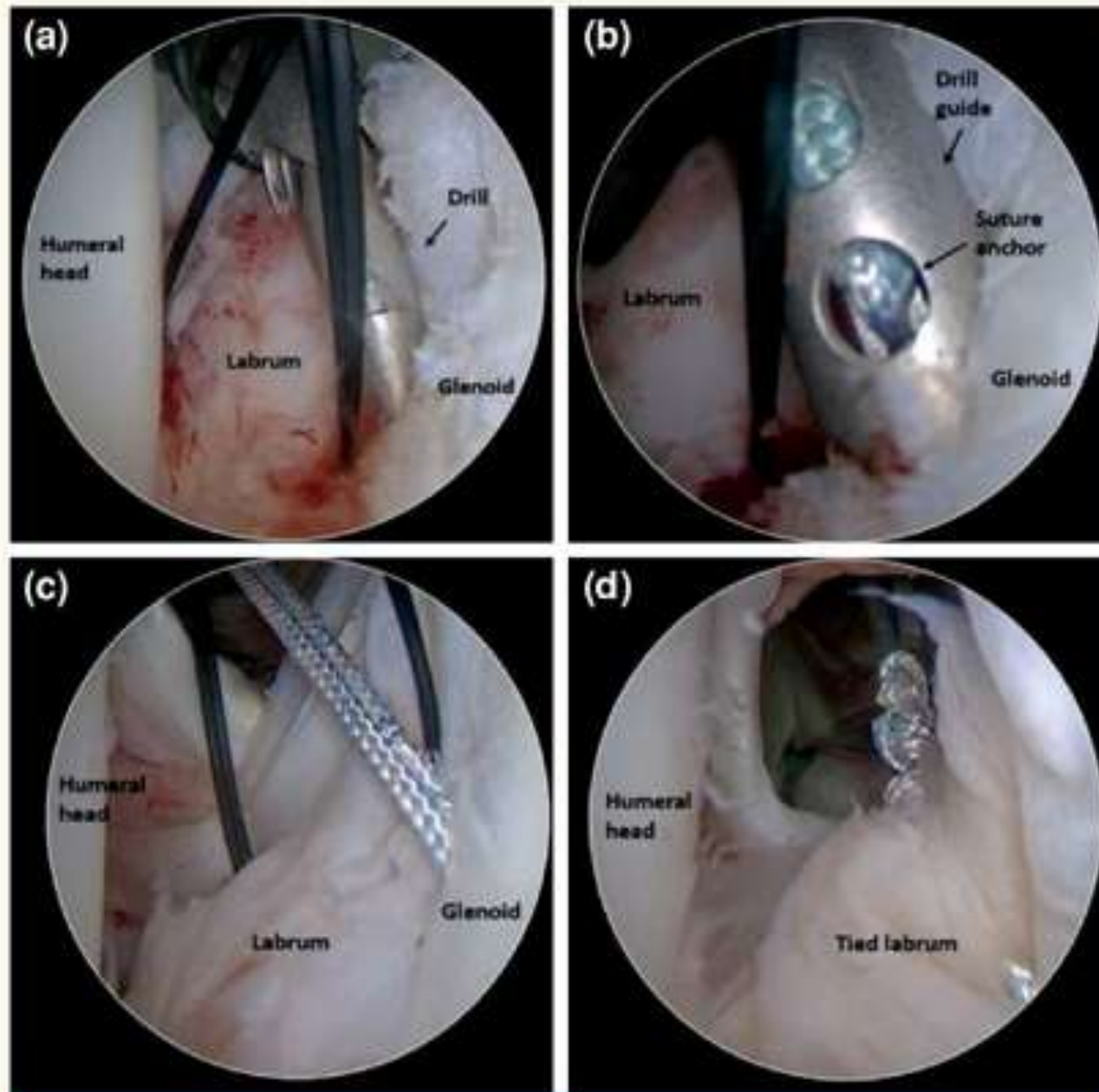
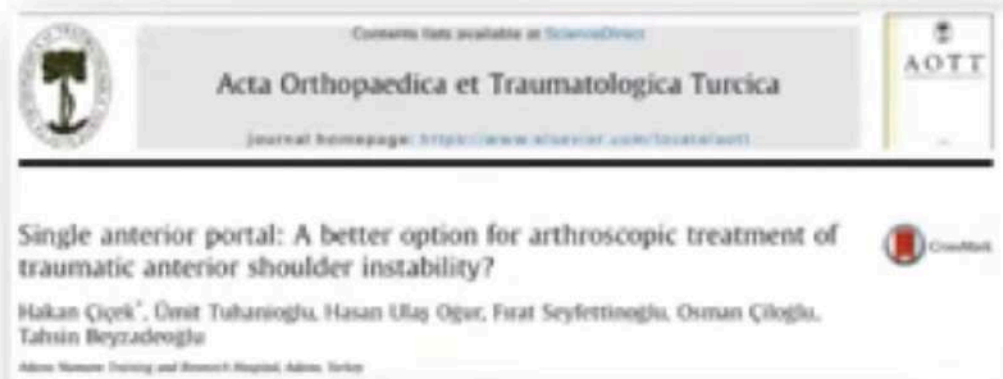


FIGURE 3. Single anterior portal technique, arthroscopic view from the posterior portal of the left shoulder. (a) A suture transferring system passing through the detached labrum and further lefting an ample amount of the suture in the joint. (b, c) After withdrawn of the suture shuttle from the anterior portal, a grasper is used to retrieve the transferring suture.

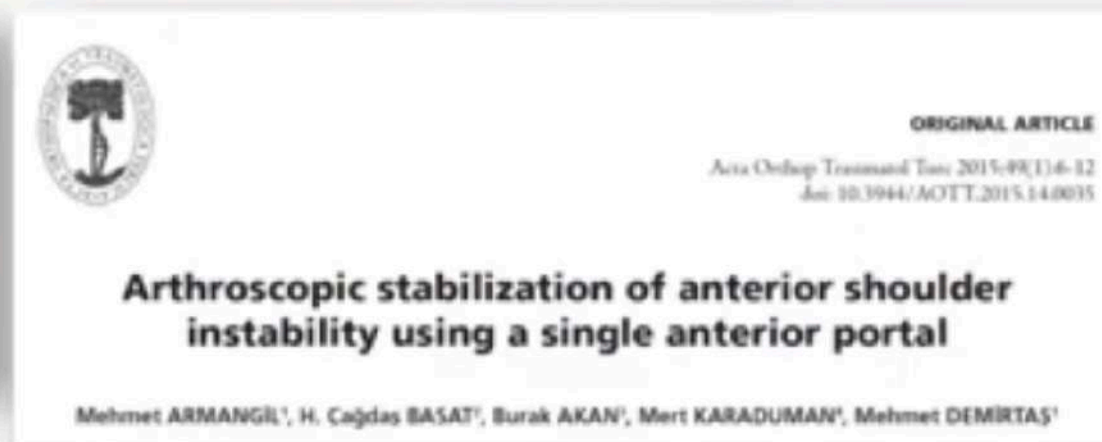


LITERATURE ON SINGLE ANTERIOR PORTAL TECHNIQUE



Peer review under responsibility of Turkish Association of Orthopaedics and Traumatology.

<http://dx.doi.org/10.1016/j.aott.2017.03.002>



Arthroscopic soft tissue stabilization: single anterior portal technique

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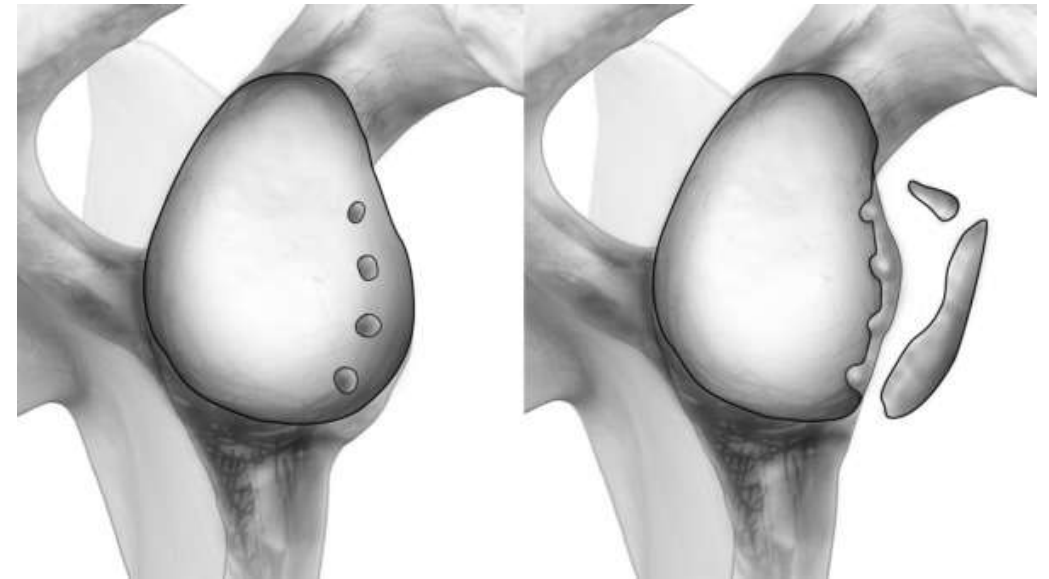


WHAT DOES LITERATURE SAY ?

- **COMPARABLE FUNCTIONAL OUTCOME** FOR SINGLE AND DOUBLE ANTERIOR PORTAL TECHNIQUES
- LESS SURGICAL TIME
- LESS POST OPERATIVE PAIN
- SHORTER LEARNING CURVE
- LESS IATROGENIC INJURIES
- LOWER SURGICAL COSTS & COSMESIS

SOLID ANCHORS

- INFERIOR ACCESS DIFFICULT WITH STRAIGHT ANCHOR GUIDES
- ANCHOR BURDEN
- POSTAGE STAMP GLENOID FRACTURES



ALL SUTURE SOFT ANCHOR

SMALLER SIZE

PRESERVED BONE STOCK – LOW PROFILE INSERTION
& DECREASED BONE REMOVAL

BETTER POST OPERATIVE IMAGING WITHOUT ARTIFACT

MORE ANCHORS PER UNIT AREA

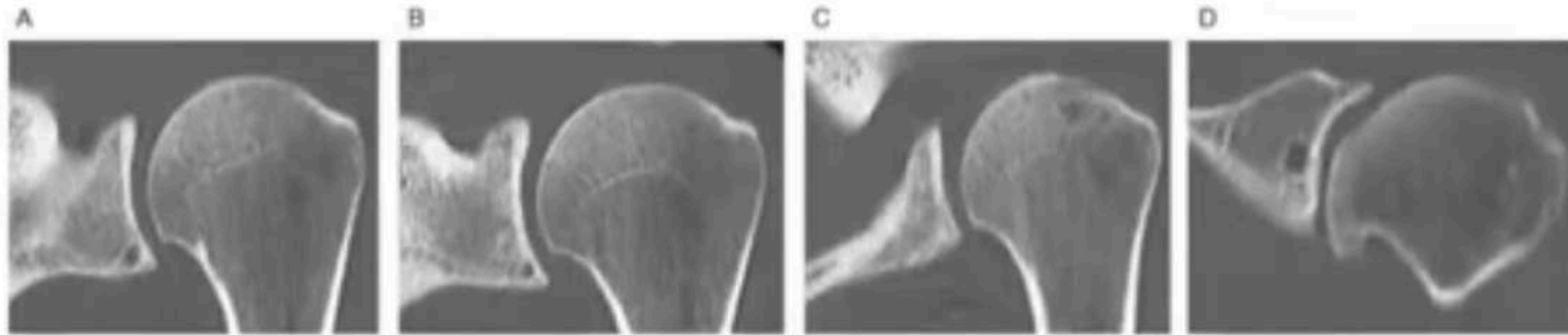
MORE POINTS OF FIXATION – EXCELLENT LABRAL STABILIZATION



LESS RISK OF EROSION OF HUMERAL HEAD

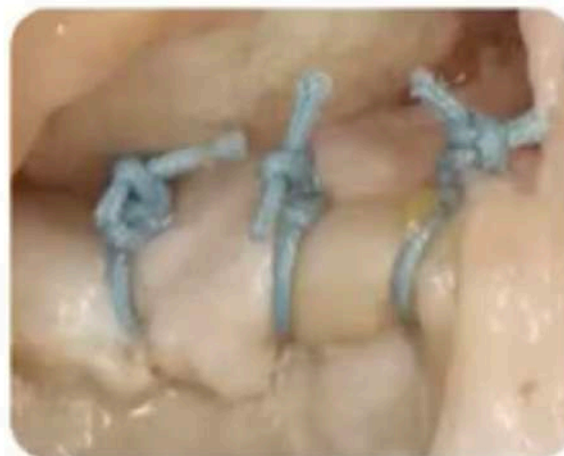
ALL SUTURE SOFT ANCHOR

- TUNNELS HEAL VIA FIBROUS TISSUE, COMPLETE BONY HEALING OR A COMBINATION
- NO SUBCHONDRAL CYST FORMATION OR TUNNEL EXPANSION



KNOTTED OR KNOTLESS ??

- KNOT MOVEMENT COULD DAMAGE ARTICULAR SURFACE AND LEAD TO KNOT LOOSENING
- KNOTTED IMPLANTS – INCONSISTENT CONTACT PRESSURE
- KNOT SECURITY ?

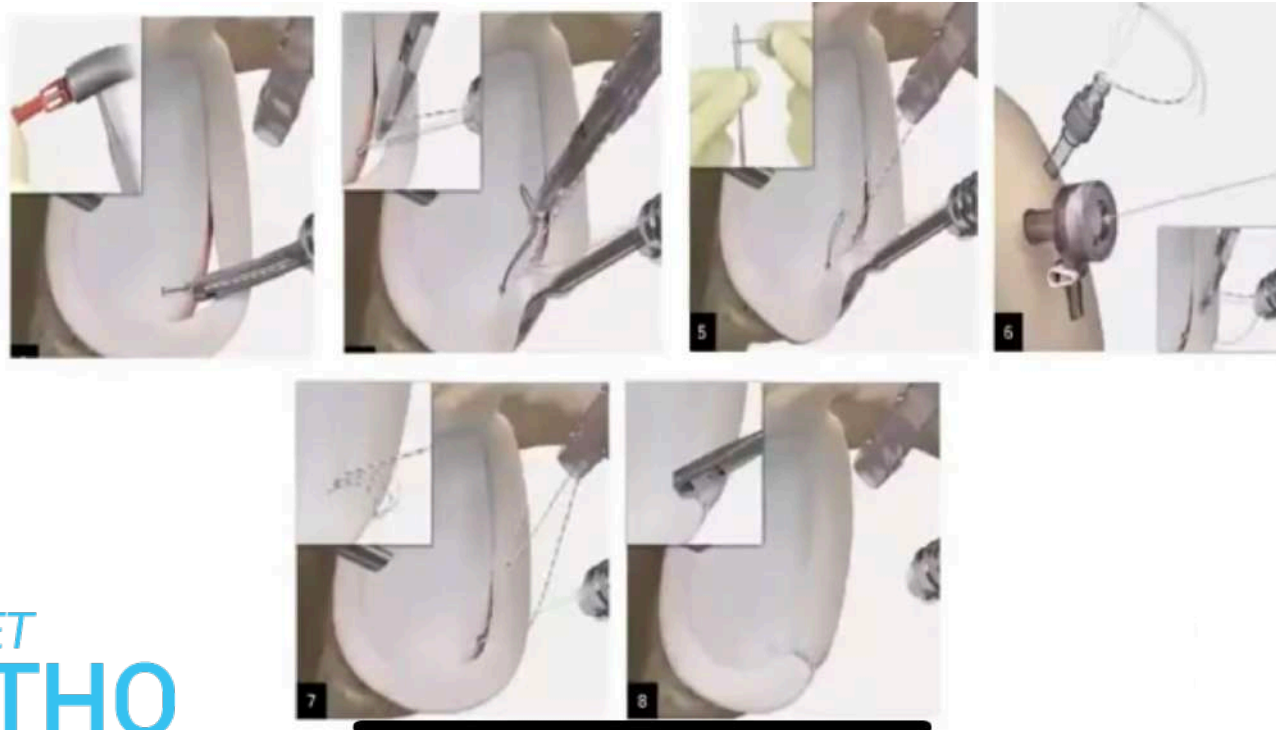
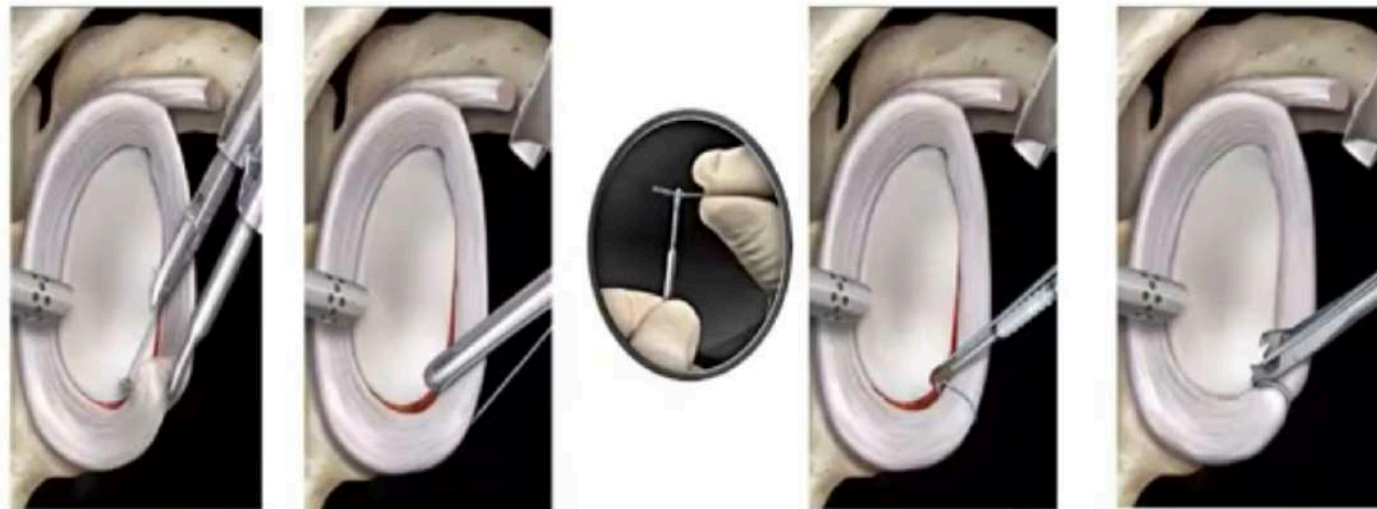


Initial Repair



After pendulum motion

KNOTLESS SOLUTION



THANK YOU!