SPARSH
The Touch of Life

SHOULDER INSTABILITY

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BONE SCHOOL POST GRADUATE TEACHING 04/03/2012

- STABILITY CONCEPT
- INSTABILITY
- PATHOLOGY
- CLINICAL DIAGNOSIS
- TREATMENT

SHOULDER JOINT

- MOST mobile joint…

  …most frequently dislocated

- Unlike HIP, cup is shallow
- Unlike WRIST, socket can rotate
- Unlike KNEE, ligaments are loose & capsule is redundant

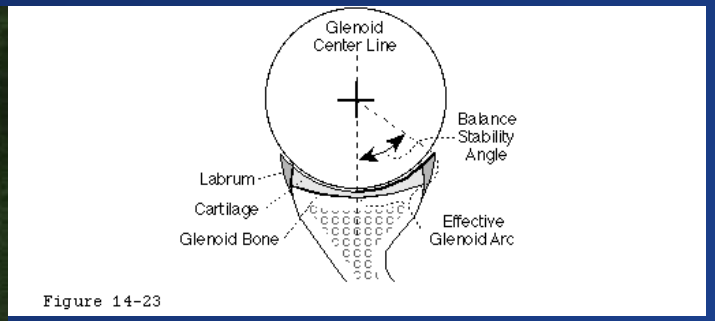


Figure 14-23

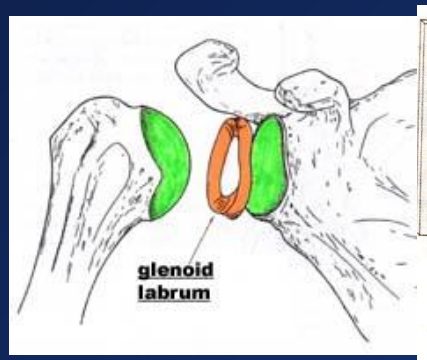
Terminologies

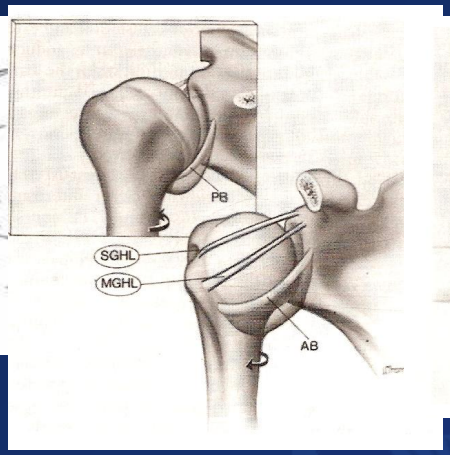
- Stability
  - the ability to keep the humeral head centered within the glenoid arc (and coracoacromial arch)
- Laxity
  - SIGN not a symptom
  - Appreciated by the examiner, not necessarily the patient
  - May be a RISK FACTOR for the development of instability
- Instability
  - SYMPTOM versus sign
  - Appreciated by the patient, possibly elicited by the examiner

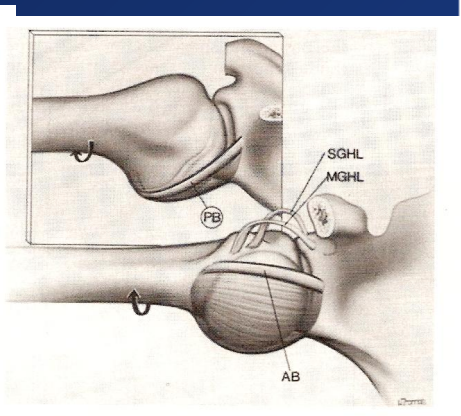
FACTORS FOR STABILITY

STATIC STABILITY

- Labrum and cartilage
- Capsule
- Ligaments
  - **IGHL**
    - Sling mechanism
    - Most important in ABDUCTION
  - MGHL – Adduction
  - SGHL – Adduction
  - Coracohumeral







DYNAMIC STABILITY

- Rotator Cuff
- Long head Biceps
- Deltoid
- Periscapular muscles

Concavity Compression

Adhesion Cohesion

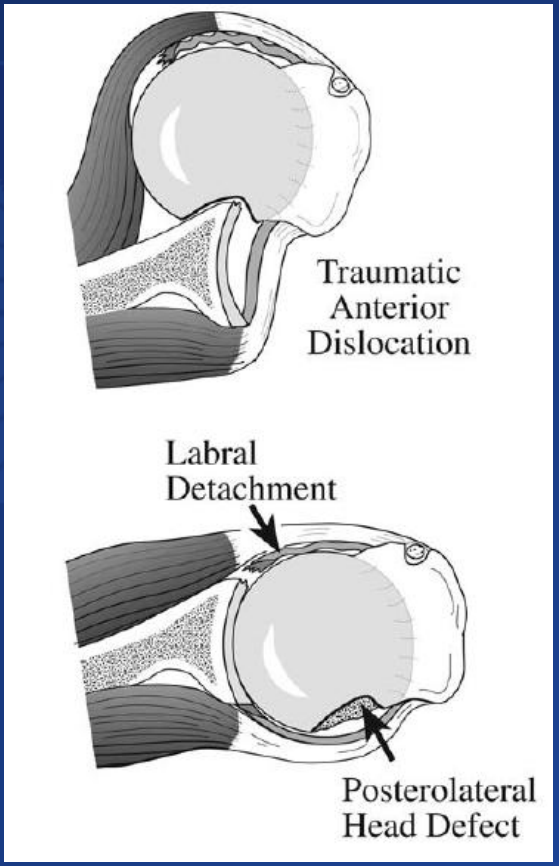
- Molecular attraction of wet surfaces

Negative pressure

- Sealed system with limited joint volume

INSTABILITY directions

- ANTERIOR INSTABILITY
- POSTERIOR INSTABILITY
- MULTIDIRECTIONAL INSTABILITY(MDI)



Diagnosis

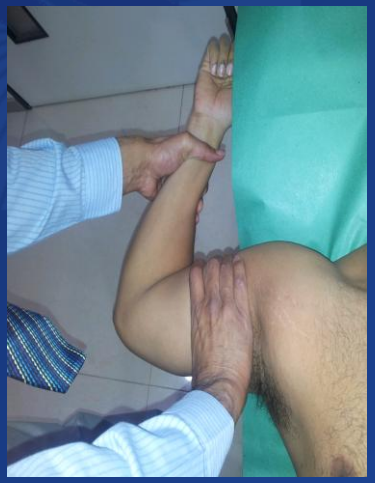
- Young age, Sporting or Other injury
  - Anterior Dislocation(90%)
- Presence of Laxity/Seizures/ No Trauma –
  - Posterior Dislocation/Multidirectional(10%)
- Special tests

MATSEN CONCEPT

- TUBS
  - TRAUMA
  - UNILATERAL
  - BANKART
  - SURGERY
- AMBRI
  - ATRAUMATIC
  - MULTIDIRECTIONAL
  - BILATERAL
  - REHABILITATE
  - INFERIOR SHIFT

Tests for anterior instability

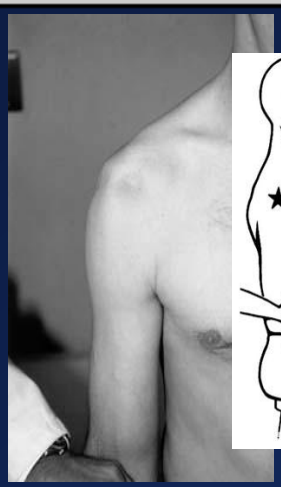
- Anterior apprehension
  - Abduction 90 degree
  - Extension and External rotation
  - Pain/Apprehension
- Relocation test
  - Push Humeral head relieves apprehension
- Surprise test (>95% Specific)
  - After pushing humeral head slowly
    release the pressure it reproduces pain

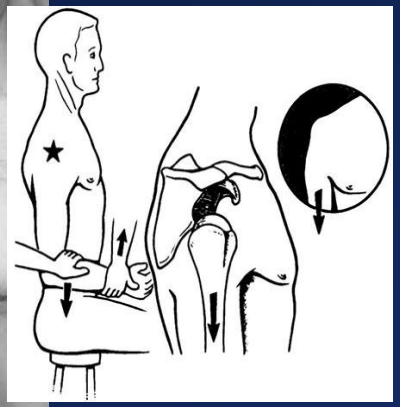


Tests for posterior instability

- **Posterior Load & Shift :**
  - Pt supine, neutral rotation, 40-60° abduction minimal forward flexion, load humeral head and Posterior force
- **Jerk Test :**
  - Post directed force with arm in line with sagittal plane of body (elbow at 90 flexion, shoulder IR to 90°)clunk is positive for posterior subluxation.

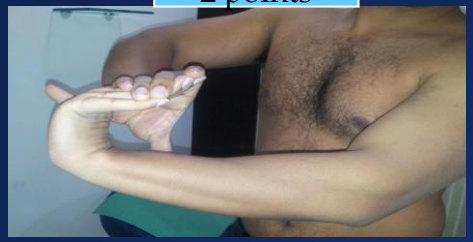
MDI





SULCUS TEST –
Axial traction increases acromiohumeral distance

2 points



2 points

2 points

1 point

Knee Hyperextension 2 points

Beighton score
5/9 - Laxity

ANTERIOR INSTABILITY → 90%, Trauma, Recurrence >80%

Features: Young age,
Anterior apprehension,
Relocation, Surprise test positiv e

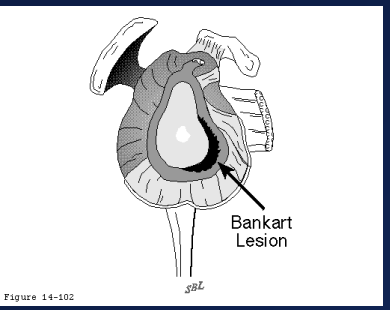
POSTERIOR INSTABIKLITY → Seizures, Psychosomatic disorders,

Features: Posterior load and shift test
Jerk test

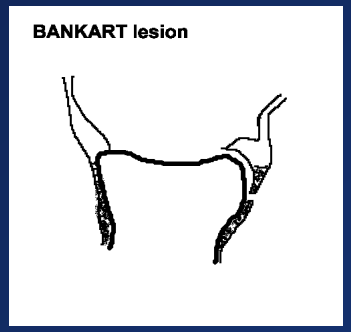
MDI → Connective tissue disorders,
Ehlers danlos, Habitual, Hyperlaxity

Features: Sulcus sign positive, Beighton score >5/9

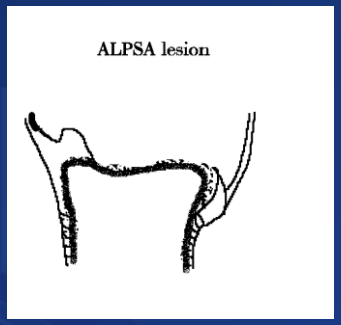
SPECTRUM OF ANTERIOR INSTABILITY – Bankart, Bony Bankart, ALPSA, HAGL



BANKART LESION –
AVULSION OF GLENOID LABRUM

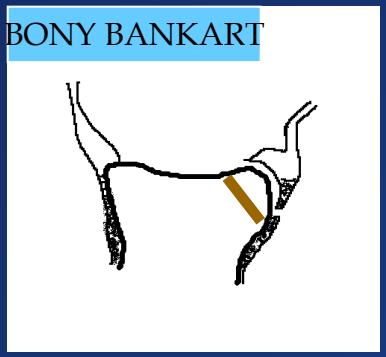


ANTERIOR
LABRAL
PERIOSTEAL
AVULSION

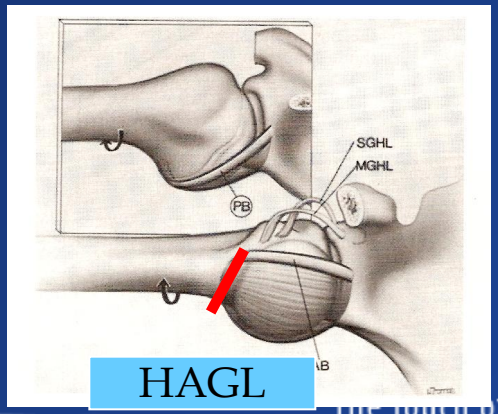


BONY BANKART – AVULSION OF
INFERIOR GLENOID BONE

BONY BANKART



HUMERAL AVULSION OF
GLENOHUMERAL LIGAMENT



HAGL

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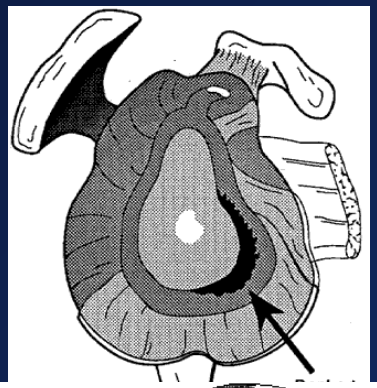
HILL SACH



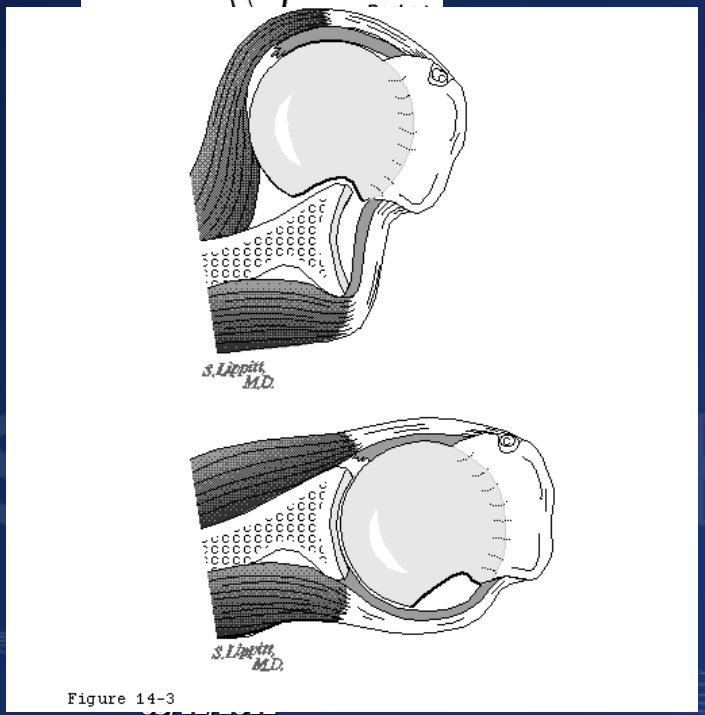
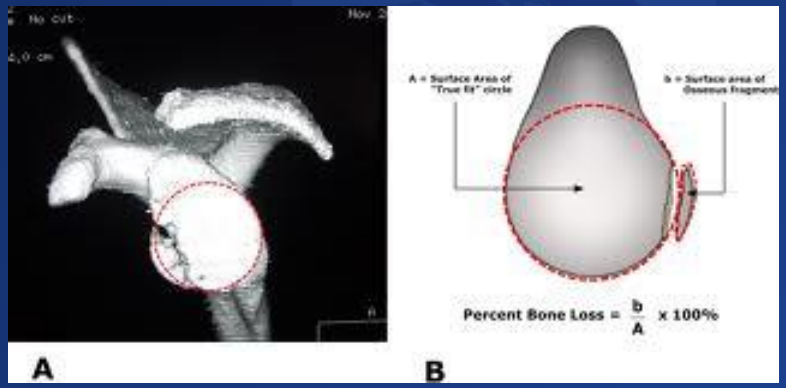


Figure 14-3

Imaging

- X ray – AP, Axillary (Posterior dislocation)
- CT Scan – To assess Glenoid bone defect and also to assess Hill Sach
- MRArthrogram – To assess capsulolabral complex and HAGL



TREATMENT – ANTERIOR INSTABILITY

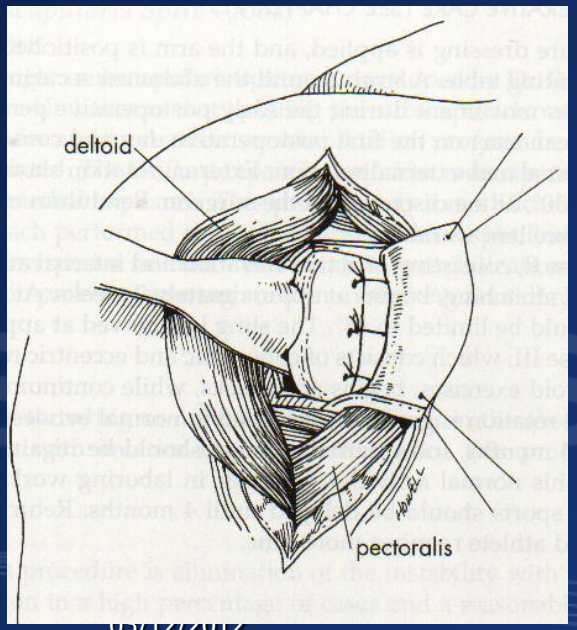
- Non Op – Strengthening Core muscles, Scapular stabilisers
- 80% Recurrence rate
- The lesion will not heal

- ANATOMICAL RECONSTRUCTION
  - BANKART REPAIR
- NON ANATOMICAL
  - PUTTI PLATT
  - MAGNUSON STACK
  - LATARJET

- ANTERIOR INSTABILITY – Surgical stabilisation – Bankart repair

  Open - Recurrence rate 5%

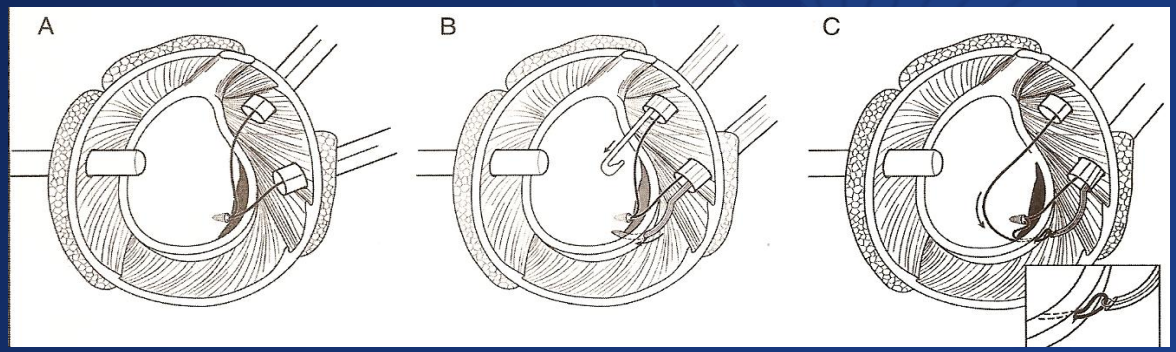
  Arthroscopic – Recurrence rate 7%

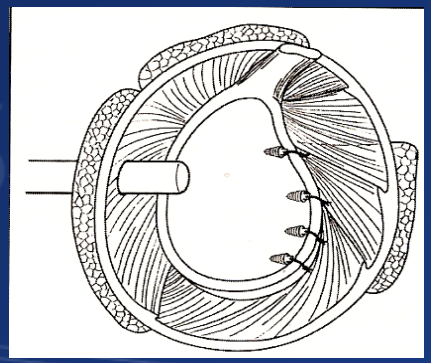


Open Stabilisation
- Deltopectoral approach
- Fix the capsulolabrum with Anchors
- Do Inferior Capsular Shift

Arthroscopic stabilisation

- Two or three portals –
  - Posterior portal - Camera
  - Anterosuperior portal – Working Portal
  - Anteroinferior portal – Suture management portal





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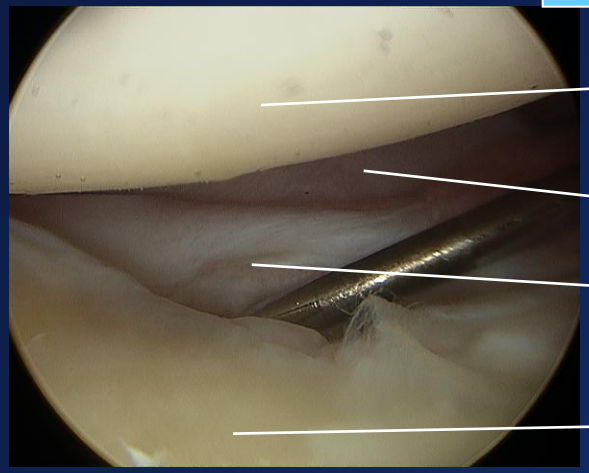
ARTHROSCOPIC STABILISATION

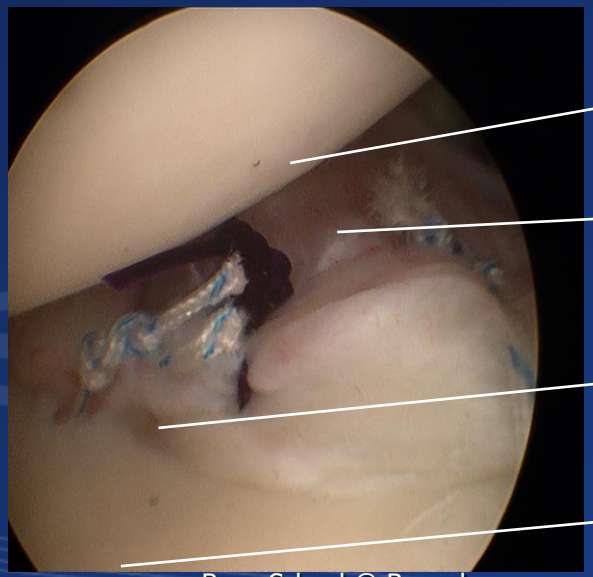


Humerus head

Anterior capsule

Detached labrum with probe

Glenoid



Humeral head

Anterior capsule

Labrum stitched with Anchors withFibrewire & PDS

Glenoid

Open anatomical repair

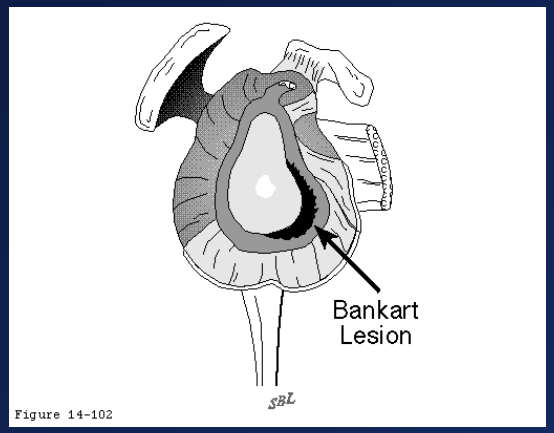


Figure 14-102

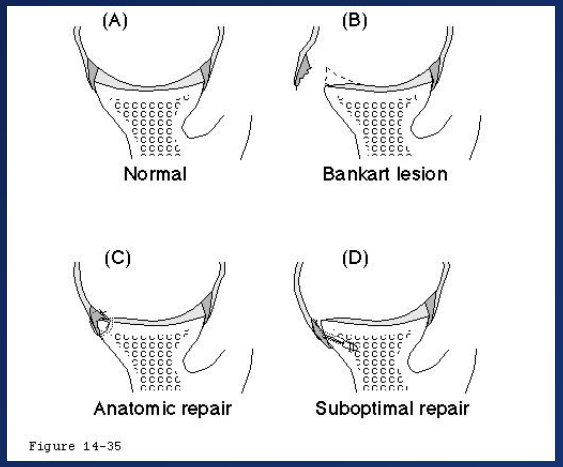


Figure 14-35

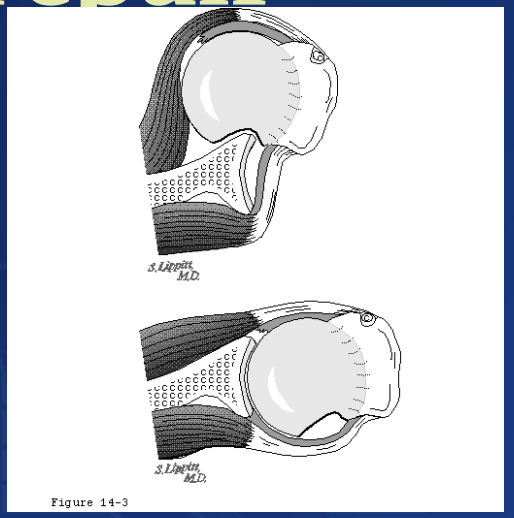


Figure 14-3

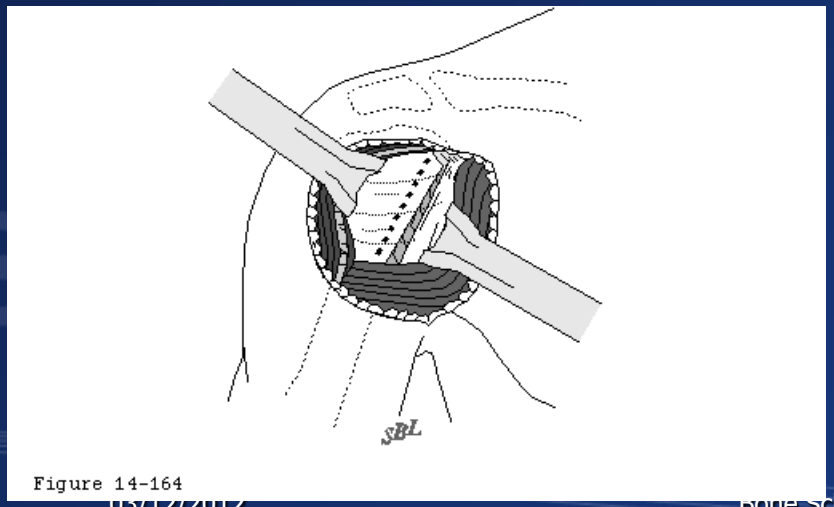


Figure 14-164

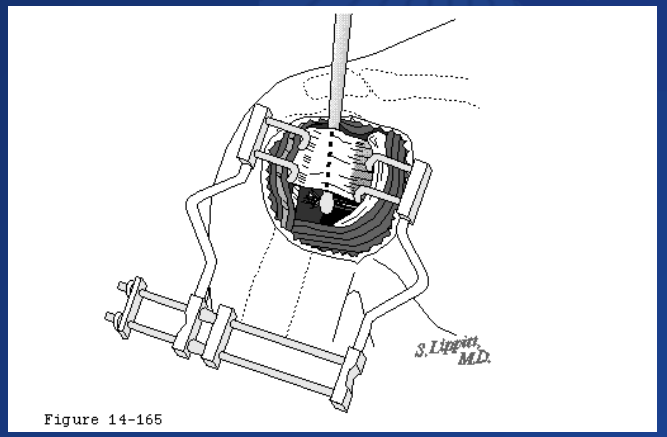


Figure 14-165

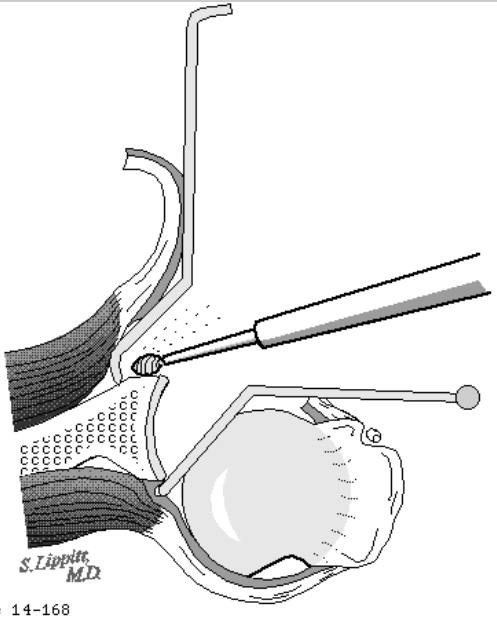
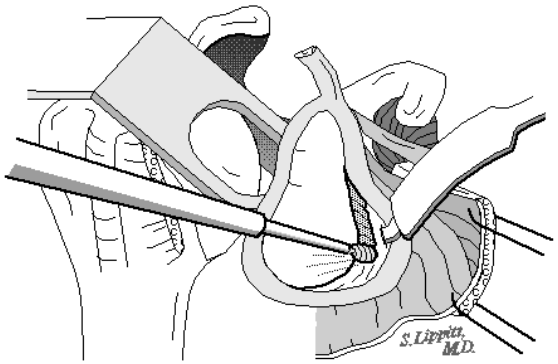


Figure 14-168



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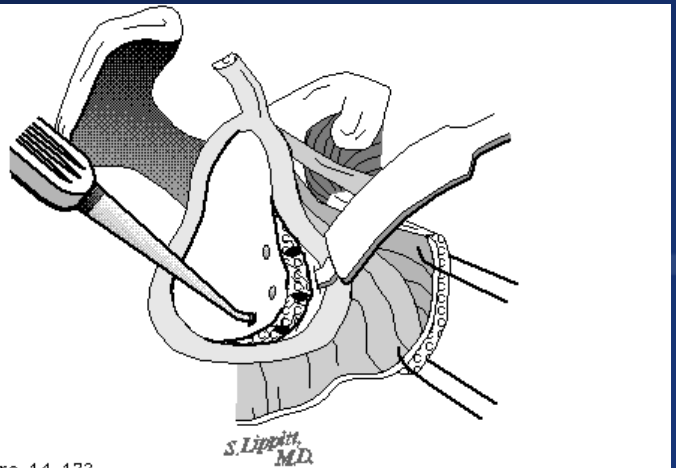

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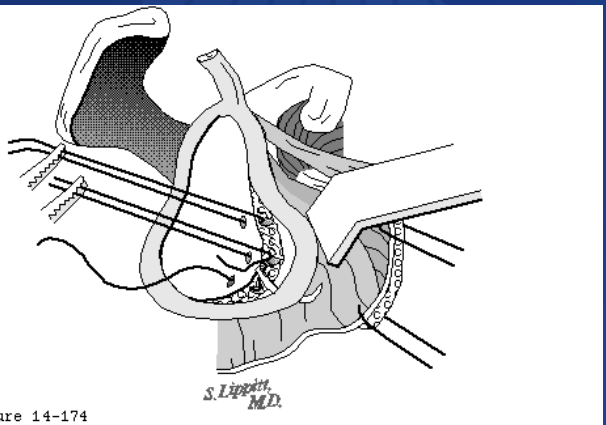


Figure 14-174

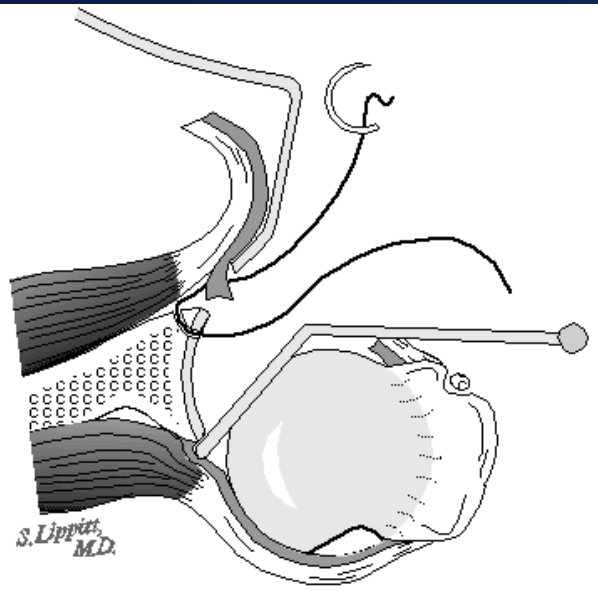


Figure 14-175

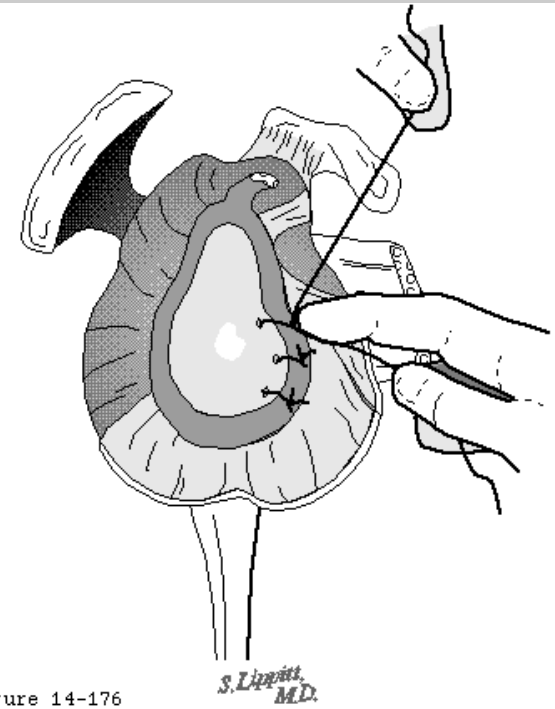


Figure 14-176

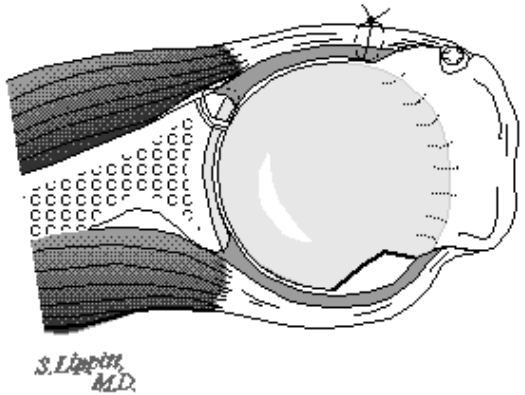
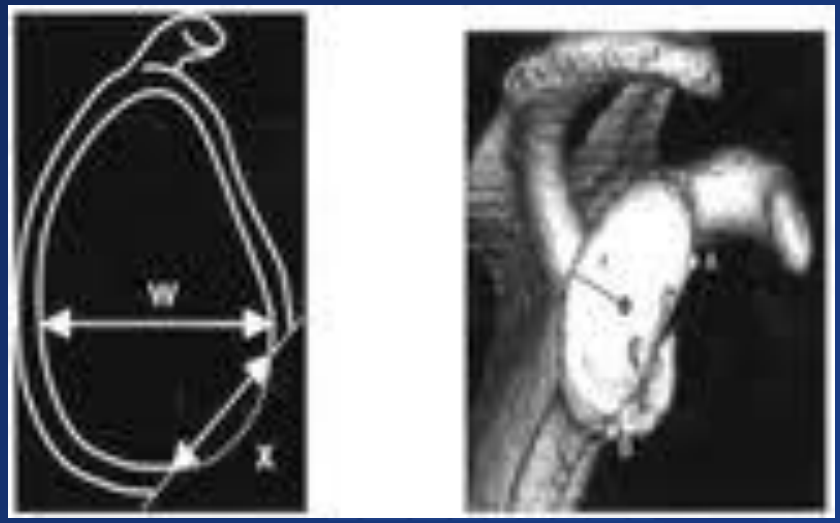


Figure 14-177

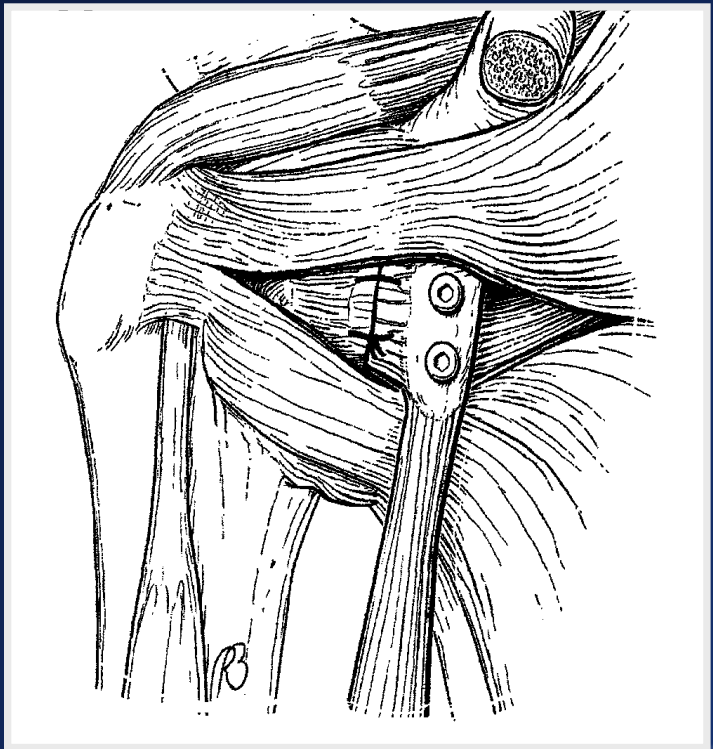
Bony Bankart - Treatment

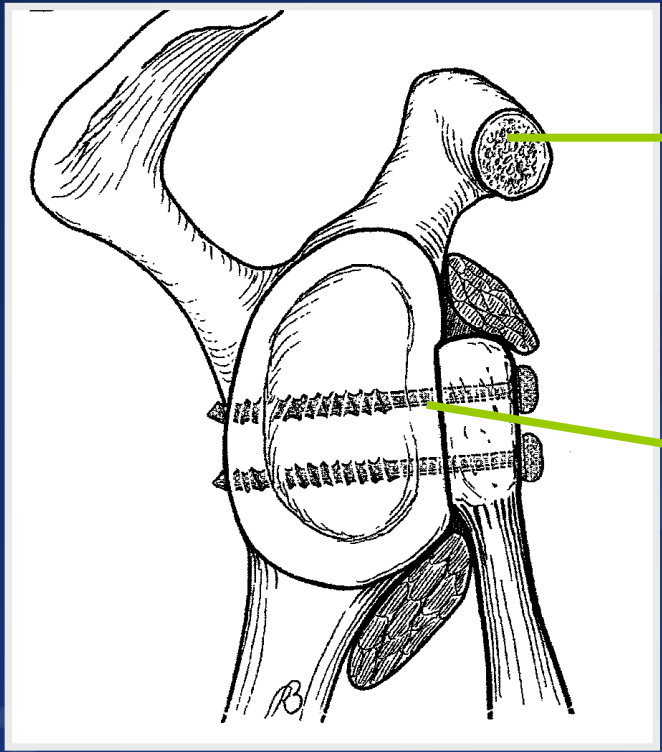
- <10% Bony defect – Still soft tissue procedure can be done
- 10-25% - Equivocal
- >25% - Bony procedure to be done

(Latarjet procedure)



LATARJET PROCEDURE





Non anatomical repairs

- Aims to restrict external rotation and hence reducing dislocation
- **Putti-Platt procedure :**
  - **Divide Subscapularis tendon 2.5 cm from its insertion.**
  - **The lateral stump of the tendon is attached to the "most convenient soft-tissue structure along the anterior rim of the glenoid cavity."**
  - **The medial muscle stump is lapped over the lateral stump, producing a substantial shortening of the capsule and subscapularis muscle**
- **Magnuson Stack Procedure:**
  - **Transfer of the subscapularis tendon from the lesser tuberosity across the bicipital groove to the greater tuberosity**

Complications

- Infection
- Recurrence of Instability
- Hardware related complications

- Nerve injury –
  - Musculocutaneous nerve, axillary nerve
- Limited ROM
- Secondary arthritis
- Posterior dislocation
- Biceps tendinopathy

Non anatomical/ Open procedures

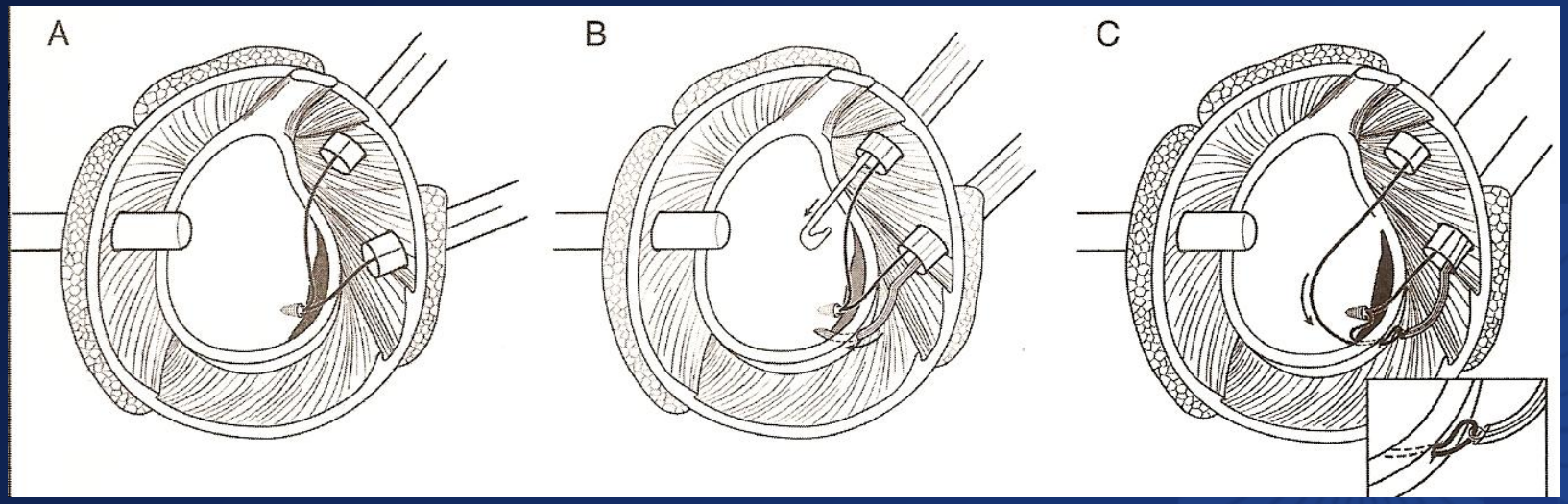
Treatment of MDI

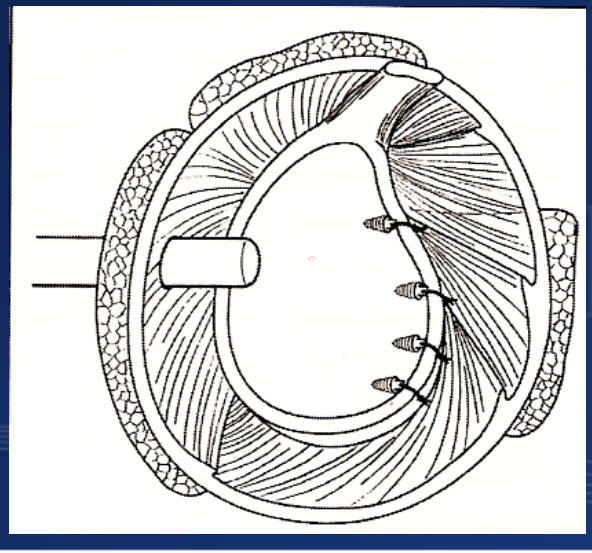
- Atraumatic Instability
  - 80% respond to physio
  - Surgical stabilization - CAPSULORRHAPHY if non - operative fails.
- Voluntary or Habitual
  - Retrain muscles
  - No surgery

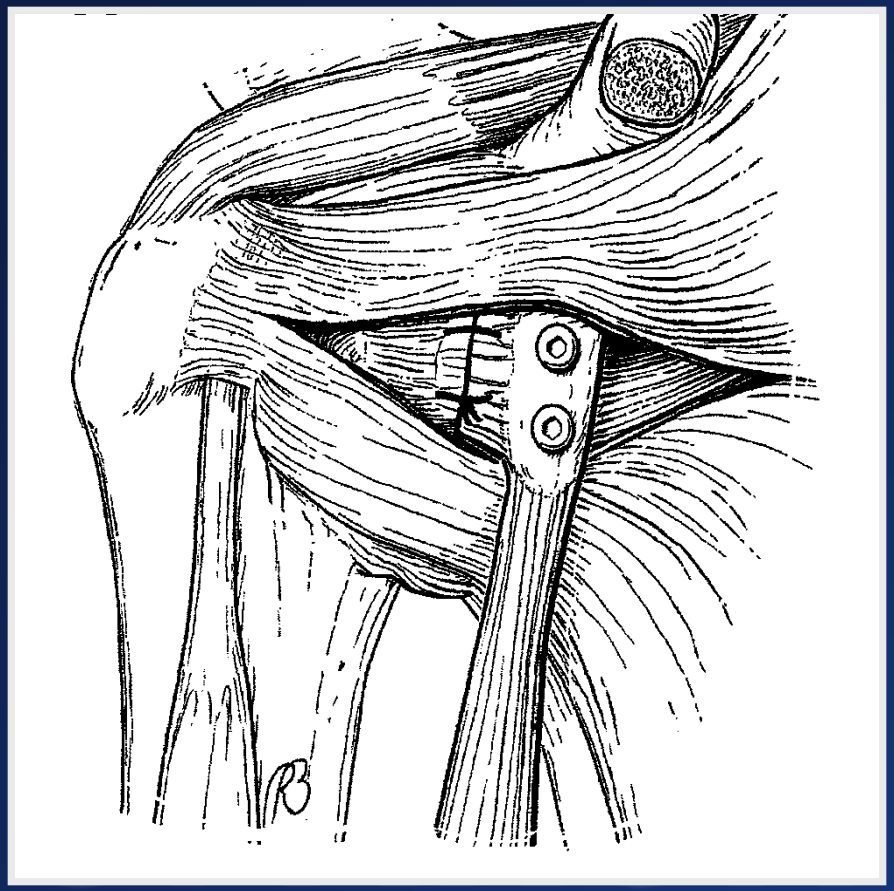
- Lateral capsular shift (humeral side)- 91% success
- Medial capsular shift (glenoid side) for associated BanKart

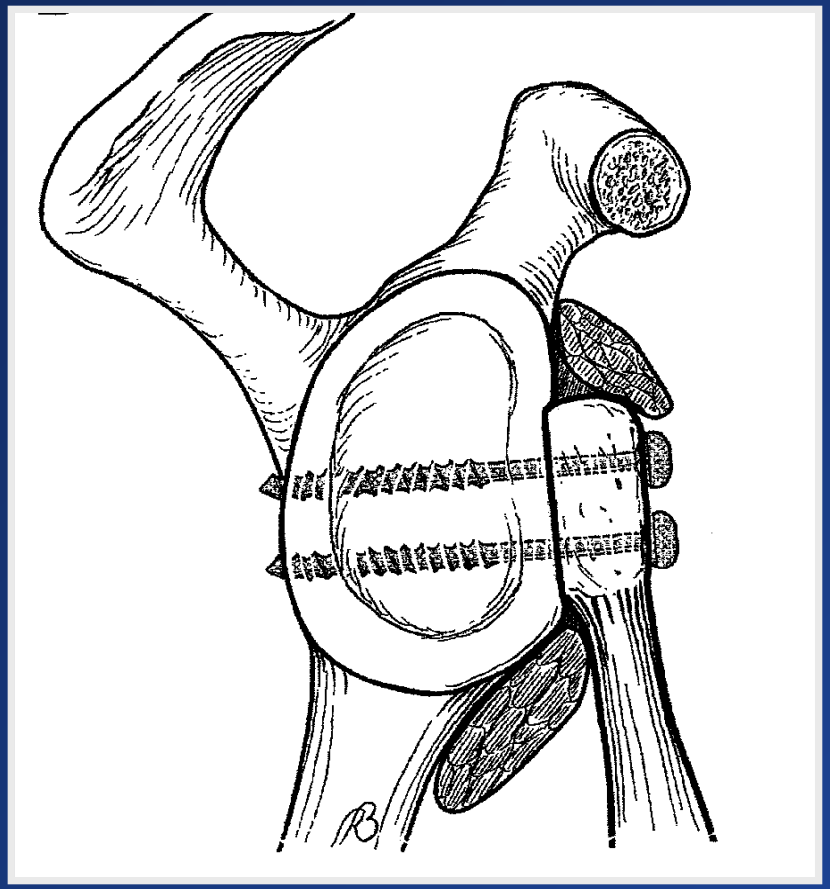
- Recurrent Traumatic Posterior Instability
  - First line = Non - operative (strengthening)
  - Failure of surgical stabilization = 12 - 50%

THANK YOU







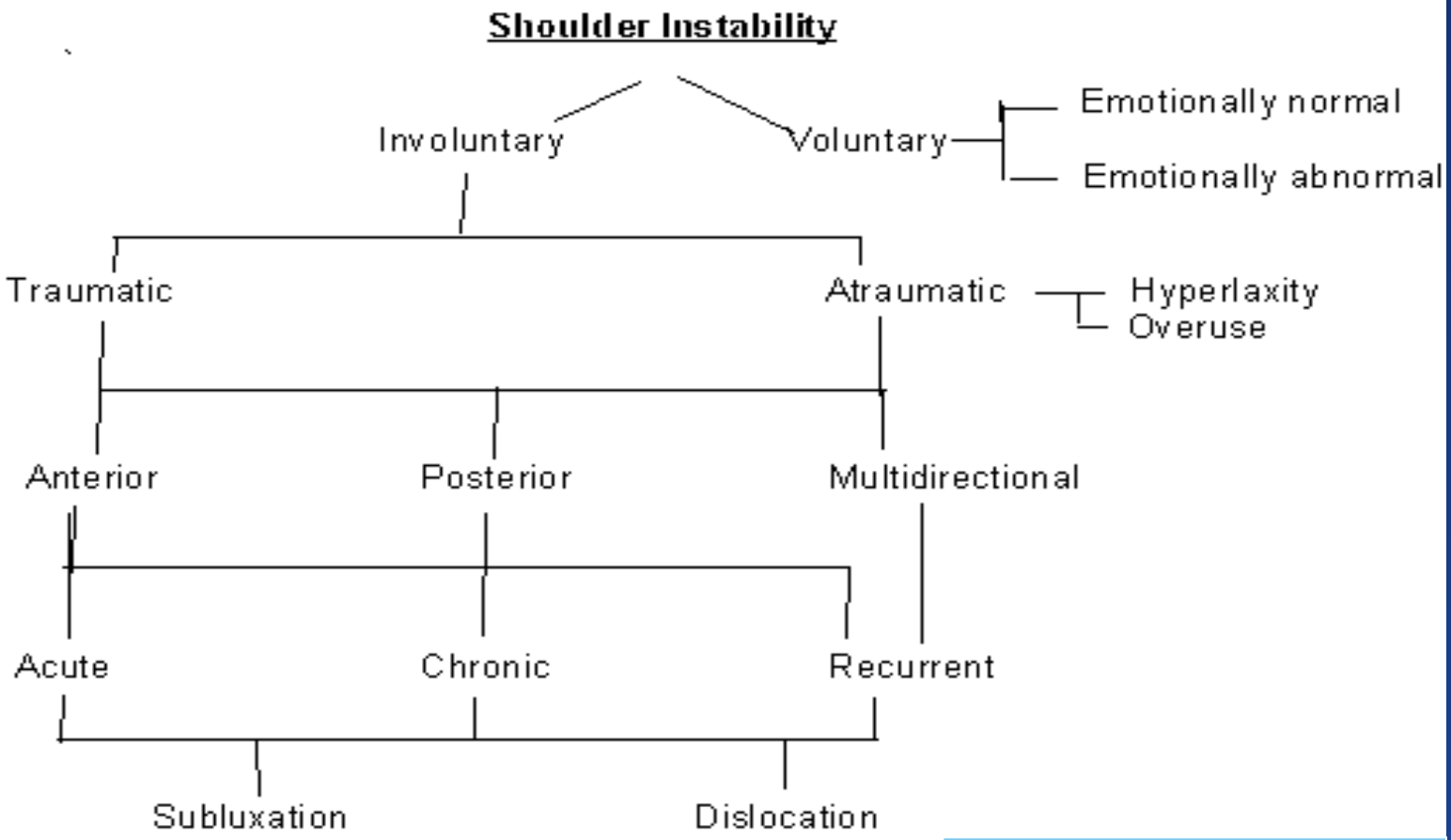


TUBS

- Traumatic
- Unidirectional
- Bankart
- Surgery

AMBRI

- Atraumatic
- Multidirectional
- Bilateral
- Rehabilitation
- Inferior shift



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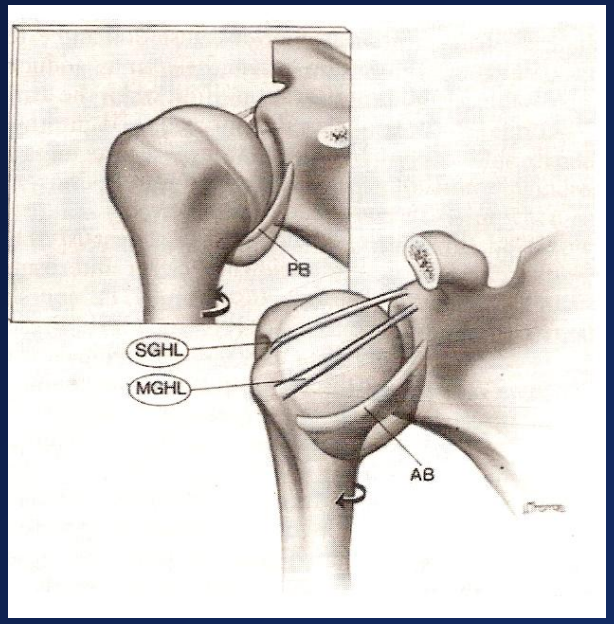

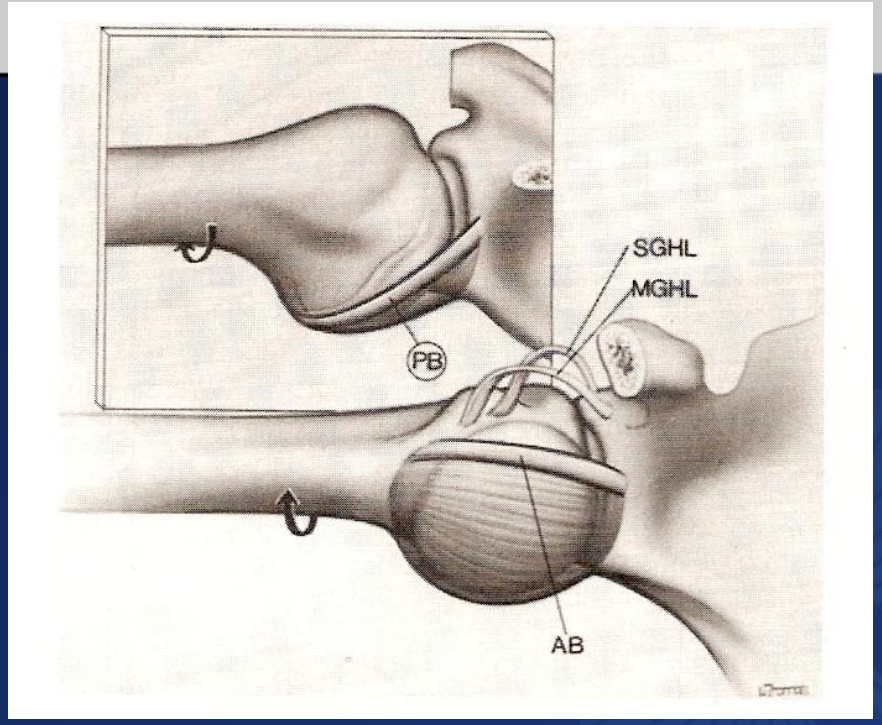

LATARJET RECONSTRUCTION