CENTRAL CONNECTICUT STATE UNIVERSITY

SPORTS MEDICINE CONFERENCE

MARCH 2017

SHOULDER ACRONYMS EXPLAINED

...AND MORE

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ORTHOPEDIC ASSOCIATES OF HARTFORD

DISCLAIMER

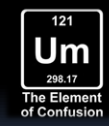
- NO FINANCIAL RELATIONSHIP OR COMPENSATION FROM ANY COMPANY OR CORPORATION
- NO OFF-LABEL USE OF ANY PRODUCT OR DEVICE

Objectives

- Enhance understanding of shoulder instability
- Comprehend specific shoulder acronyms
- Understand evolving techniques for shoulder stabilization

Perspective

- Just when you think you understand something...



...you don't

Curiosity

- We want to know...

...Vexing when you don't know the answer

Motivation

- Desire to understand a concept in order to enact a positive change…

…staying one step ahead

"Understanding"

- Evolution of a compiled knowledge base pioneered by those who established the foundation
- Progress is marked by those pushing the conceptual templates to the next level
- Success is measured by actual proof, tempered by tangible failure

The Shoulder

- Delicate balance between *stability* and *mobility*

The Shoulder

SIMPLE

- Humeral head
- Glenoid
- Acromial arch
- Acromio-clavicular architecture

COMPLEX

- Static restraints
  - Labrum
  - Ligament
    - SGHL, MGHL, IGHL
- Dynamic restraints
  - Rotator cuff
- Concavity-compression concept
- Motion link
  - GH 60%, ST 40%

When things go right

- Coordinated interaction of mechanical components with subtle but precise neuromuscular function

When things go wrong

- Disruption of the chain leading to dysfunction and compromise
  - Acute traumatic
  - Chronic repetition

Perspective

- Learn from the pioneers by standing on their "shoulders"

Experience is something you get just after you need it...

Historical Perspective

- Edwin Smith Papyrus
  - Ancient Egypt c. 1600 BC
  - Oldest surgical document
  - Anatomic observations and examination, diagnosis, treatment and prognosis of 48 types of medical problems
  - Possibly transcribed from earlier work by *Imhotep* c. 3000 BC

Historical Perspective

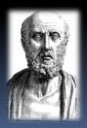
- Ebers papyrus
  - Oldest known anatomic document c. 1550 BC

- Confucianism
  - Chinese philosopher *Confucius* 551-479 BCE

- Hindu anatomists
  - *Sushruta* and *Atreya* 6th century BCE

Historical Perspective

- *Hippocrates* (c. 460 BC – c. 370 BC)
- Father of modern medicine
- Belief that diseases were caused naturally and not by superstition or the gods



"It is thus with regard divine nor more sacred than other diseases, but has a natural cause from the originates like other affections. Men regard its nature and cause as divine from ignorance and wonder..."
—Hippocrates, On the Sacred Disease

Historical Perspective

- Method for reducing shoulder dislocation

Ambe of Hippocrates

Historical Perspective

- Surgical method for treatment of recurrent dislocation: cautery
  - Red-hot oblong iron inserted through the axilla in order to create eschars in the inferior margin of the joint

"For thus more especially will cicatrization take place, and the wide space into which the humerus used to escape will become contracted..."

Note Bene: Thermal Capsulorhaphy

Fast Forward

Litany of challenging shoulder conditions

- Sublime
  - Rotator cuff
    - Impingment
      - Intrinsic, extrinsic, internal…
    - Tear
      - Partial, complete
  - Instability
    - *TUBS, AMBRI*
  - Neurogenic
  - Neurologic
  - Capsular
    - Adhesive
  - Arthritic
    - GH, AC, SC joints
- (almost) ridiculous
  - SARL
    - Shoulder
    - Acronyms
    - Review of the
    - Literature

Shoulder Acronyms

GHLs Glenohumeral ligaments
SGHL Superior glenohumeral ligament
MGHL Middle glenohumeral ligament
IGHL Inferior glenohumeral ligament
aIGHL Anterior band of IGHL
pIGHL Posterior band of IGHL
SSSC Superior shoulder suspensory complex
GIRD Glenohumeral internal rotation deficit
SICK scapula Scapular malposition, inferior medialborder prominence, coracoid painand malposition, and dyskinesis of scapular movement
PASTA Partial articular supraspinatus tendonavulsion
PABAST (bony PASTA) Partial articular side bony avulsion of supraspinatus tendon
PAINT Partial articular tears with intratendinous extension
TUBS Traumatic unidirectional Bankart treated with surgery
AMBRI Atraumatic multidirectional bilateral treated with rehabilitation or inferior capsular shift with rotator interval repair
ABER Abduction with external rotation
HAGL Humeral avulsion of inferior glenohumeral ligament
AHAGL Anterior humeral avulsion of glenohumeral ligament
ABHAGL Anterior bony humeral avulsion of glenohumeral ligament
AIGHL Anterior inferior glenohumeral ligament
PHAGL (reverse HAGL) Posterior humeral avulsion of glenohumeral ligament
PBHAGL Posterior bony HAGL
Floating PIGHL Posterior inferior glenohumeral ligament

Shoulder Acronyms

ALPSA Anterior labroligamentous periosteal sleeve avulsion
POLPSA Posterior labrocapsular periosteal sleeve avulsion
GLAD Glenolabral articular disruption
SLAP Superior labrum anterior posterior
GLEN Ganglion cyst arising from superior labrum with entrapment of inferior branch of suprascapular nerve
GLOM Glenoid labrum ovoid mass
PAGCL Postarthroscopic glenohumeral chondrolysis
TOTS Temporary outside traction suture
PITT Percutaneous intra-articular transtendon technique
DASH Disabilities of the Arm, Shoulder and Hand
SPADI Shoulder Pain and Disability Index
WOSI Western Ontario Shoulder Instability Index
WOOS Western Ontario Osteoarthritis of the Shoulder Index
WORC Western Ontario Rotator Cuff Index
RC-QOL Rotator Cuff Quality of Life Measure
WUSPI Wheelchair User's Shoulder Pain Index

'SARL': Shoulder Acronyms. A Review of the Literature

Michael Khazzam, M.D., Martin I. Jordanov, M.D., Charles L. Cox, M.D.,Warren R. Dunn, M.D., M.P.H., and John E. Kuhn, M.D.

Arthroscopy The Journal of Arthroscopic and Related Surgery 27(4):542-55 · December 2010

Clear as mud

Focus on a topic

- Osteoarthritis ?
- Adhesive capsulitis ?
- Rotator cuff impingement ?
- Cuff tear arthropathy ?
- Rotator cuff tear ?
- Instability ?

Mechanics of instability

- Delicate balance of *mobility* and *stability*

- Coordinated interaction of muscular contraction interacting with anatomic structures resulting in purposeful action

Modern Perspective

- *Bankart lesion*
  - "Essential lesion"




Bankart ASB. Recurrent or habitual dislocation of the shoulder-joint. Br Med J 1923

Open procedures
Open anatomic repair
Sutures (Bankart)
Staples
Soft tissue reconstruction
Fascia lata autograft (Gallie)
Muscular transposition of subscapularis (Magnuson-Stack)
Shortening of subscapularis and anterior capsule (Putti-Platt)
Osseous glenoid reconstruction
Bristow
Latarjet
Iliac crest autograft (Eden-Hybinette)
Distal tibia allograft
Coracic tive osteotomy
Proximal humerus (Weber)
Glenoid (Neviser-Burscovet)
Open capsular imbrication
Laterally based inferior capsular shift (Neer and Foster)
Medially based inferior capsular shift (Altchek)
Vertical capsulotomy
Horizontal capsulotomy
Arthroscopic procedures
Arthroscopic anatomic repair
Staples
Transosseous sutures
Metallic rivet
Bioabsorbable tack
Suture anchors
Arthroscopic capsular imbrication
Thermal capsulorrhaphy
Split and shift
Multi-plicated capsular plication
Posteroinferior capsular plication
Rotator interval closure
Arthroscopic Latarjet
Targeted management of Hill-Sachs lesions
Humeral head or femoral head allograft
Osteotomy
Partial resurfacing arthroplasty
Hemiarthroplasty
Arthroscopic remplissage

Instability

Disruption in the mechanical chain that balances stability

- Labrum
  - Fibrocartilaginous rim circumferentially attached to leading edge of glenoid periphery
  - Biceps (long head) confluent at superior ("12 o'clock") position

Instability

- Acute
  - Traumatic
    - Dislocation
    - Subluxation
- Chronic
  - Repetitive overload
  - ? MDI

Instability disorders & acronyms

Sublime to the ridiculous

- BANKART *(eponym)*
  - Standard, Reverse, Bony
- SLAP
- PASTA
- HAGL
- ALPSA
- POLPSA
- GLAD

Anatomic Template

It's all about the anatomy

- Anterior posterior
- Cross-sectional

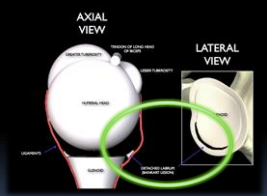
Ready...

...Set...

...Go

Bankart Lesion

- Anterior
  - Most common location:
    - *anterior/inferior*

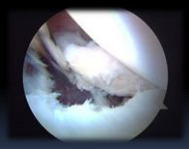


BANKART LESION

- POSTERIOR
  - REVERSE

BANKART LESION

- BONY

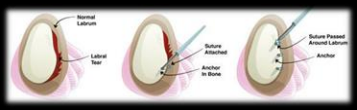


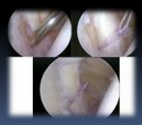
BANKART LESION

- MECHANISM OF INJURY
  - HYPER ABDUCTION AND/OR EXTERNAL ROTATION FORCE

Bankart Lesion

- Surgery





Craig, Edward V. (2004). The shoulder. Lippincott Williams & Wilkins. pp. 209

SLAP Lesion

- Superior
- Labrum
- Anterior
- Posterior

  - Andrews

Andrews JR, Carson WG Jr, McLeod WD. Glenoid labrum tears related to the long head of the biceps. Am J Sports Med. 1985 Sep-Oct. 13(5):337-41.

  - Snyder (SCOI)

SLAP lesions of the shoulder
Stephen J. Snyder, M.D.'Correspondence information about the author M.D. Stephen J. Snyder, Ronald P. Karzel, M.D., Wilson Del Pizzo, M.D., Richard D. Ferkel, M.D., Marc J. Friedman, M.D.
Southern California Orthopedic Institute, Van Nuys, California, U.S.A.

  - Rodosky (UPMC)
    - BICEPS

The Role of the Long Head of the Biceps Muscle and Superior Glenoid Labrum in Anterior Stability of the Shoulder
Mark W. Rodosky, MD Christopher D. Harner, MD Freddie H. Fu, MD

SLAP Lesion

- Types
  - I...
  - II...
  - ...*Too many*

Table 2 SLAP Classifications

Type	Location (clock face)	Description
I	11-1	Fraying
II	11-1	Tear with biceps instability
IIA	11-1	Tear with biceps instability -associated with repetitive overhead motion -similar to Type X
IIB	9-11	Tear with biceps instability -associated with inferoanterior tear
IIC	9-3	Tear with biceps instability -associated with inferoposterior tear
III	11-1	Bucket-handle tear with intact biceps
IV	11-1	Bucket-handle tear with biceps extension
V	11-5	Bankart lesion with superior extension, or JLAP with anterior inferior extension
VI	11-1	Anterior or posterior flap tear, with tear of the bucket handle component
VII	11-3	Middle glenohumeral ligament extension
VIII	7-1	Similar to IIB, but more extensive -associated with acute posterior dislocation
IX	7-5	Globally abnormal labrum -likely post traumatic
X	11-1+	Rotator interval extension

SLAP Lesion

- Mechanism of injury
  - Forceful translation of humeral head on glenoid
    - Subluxation
    - dislocation

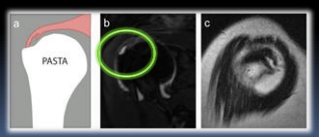
SLAP Lesion

- Surgical treatment
  - Arthroscopic suture/anchor repair

Huri G, Hyun YS, Garbis NG, McFarland EG (2014). "Treatment of superior labrum anterior posterior lesions: a literature review". Acta Orthop Traumatol Turc. 48 (3): 290–7.

PASTA Lesion

- Partial
- Articular
- Supraspinatus
- Tendon
- Avulsion

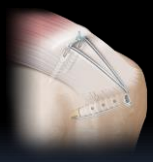


PASTA Lesion

- Mechanism of injury
  - Traction on extended arm
  - Forceful retraction of shoulder joint
  - Resultant shear of rotator cuff off greater tuberosity

PASTA Lesion

- Surgical treatment
  - Suture-bridge technique
    - Span and close/advance musculotendinous gap



Snyder, S.J. Arthroscopic repair of partial articular supraspinatus tendon avulsions: PASTA lesions of the rotator cuff tendon. in: S.J. Snyder (Ed.) Shoulder arthroscopy. Lippincott Williams & Wilkins, Philadelphia, PA; 2003:219–229.

HAGL Lesion

- Humeral
- Avulsion
- Glenohumeral
- Ligament

HAGL Lesion

- Mechanism of injury
  - Forced translation of humeral head on glenoid with resultant avulsion of ligament attachment off humerus

HAGL Lesion

- Surgical treatment

  - Arthroscopic suture anchor repair

The HAGL lesion: An arthroscopic technique for repair of humeral avulsion of the glenohumeral ligaments
Jeffrey T. Spang, M.D., Spero G. Karas, M.D., Arthroscopy, April 2005, Vol 21, Issue 4, pg 498-502.

Arthroscopic treatment of anterior shoulder instability associated with a HAGL lesion—a case series
*Matthias Flury, MD*Correspondence information about the author MD Matthias Flury, Dominik Rickenbacher, MSc, Laurent Audigé, PhD, JSES, December 2016, Vol 25, Issue 12, pg 1989-1996.*

ALPSA Lesion

- Anterior
- Labrum
- Periosteal
- Sleeve
- Avulsion

ALPSA Lesion

- Mechanism of injury
  - Anterior translation on glenoid avulsing tissue plane off anterior glenoid neck

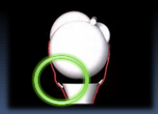
ALPSA Lesion

- Surgical treatment
  - Advance periosteal avulsion with suture anchor repair

Results of arthroscopic capsulolabral repair: Bankart lesion versus anterior labroligamentous periosteal sleeve avulsion lesion. Ozbaydar M1, Elhassan B, Diller D, Massimini D, Higgins LD, Warner JJ. Arthroscopy, 2008, Nov;24(11): 1277-83.

POLPSA Lesion

- POsterior
- Labrocapsular
- Periosteal
- Sleeve
- Avulsion



POLPSA Lesion

- Mechanism of injury
  - Forced translation of humeral head posteriorly with avulsion of capsulolabral tissue

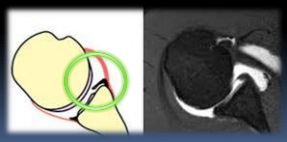
POLPSA Lesion

- Surgical treatment
  - Advance and reattach posterior capsulolabral complex
    - *NB:* thin veil of tissue

The POLPSA lesion: MR imaging findings with arthroscopic correlation in patients with posterior instability. Skeletal Radiol. 2002; 31(7):396-9 , Yu JS; Ashman CJ; Jones G

GLAD Lesion

- Gleno
- Labral
- Articular
- Disruption



GLAD Lesion

- Mechanism of injury
  - Forced impaction to the shoulder with associated shift of humeral head on glenoid face

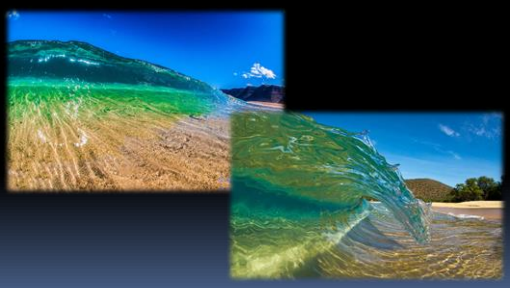
The GLAD lesion: Another cause of anterior shoulder pain
M.D. Thomas J. Nevaser
Arthroscopy: The Journal of Arthroscopic & Related Surgery
Volume 9, Issue 1, February 1993, Pages 22–23

GLAD Lesion

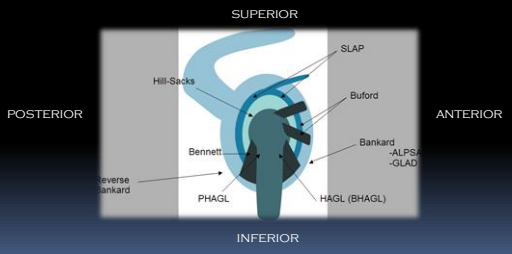
- Surgical treatment
  - Combination
    - Labral repair
    - Chondral procedure
      - Chondroplasty
      - Microfracture

The GLAD lesion: Another cause of anterior shoulder pain, Thomas J. Nevaser MD.Arthroscopy, The Journal of Arthroscopic & Related Surgery, Vol 9, Issue 1, Feb 1993, pg 22-23.

Crystal Clear



Acronym & Location



What's around the bend

Evolving Trends

- Instability
  - Many variations on a theme
    - Creative solutions
      - Correct procedure for correct diagnosis
    - Balance of mobility & stability
- Recurrent instability
  - Primary procedure
  - Revision procedure

Surgical Technique

Laterjet procedure

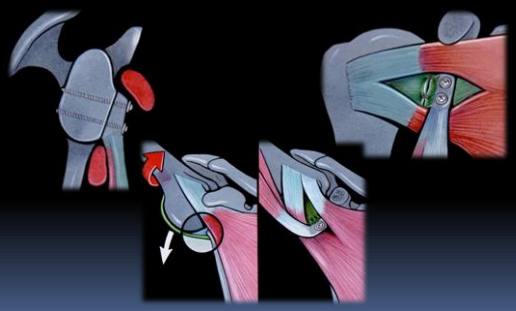
- "Old school"
  - Dr. Laterjet, 1954
    - aka Laterjet-Bristow
  - Recurrent instability with glenoid bone loss
    - Coracoid transfer to anterior glenoid
    - Attached conjoint tendon acts as sling
- "Next generation"
  - State of the art
    - Modified Laterjet to incorporate stability through dynamic range of motion
      - Open technique
      - Arthroscopic technique

Laterjet Procedure

Technically demanding

- Open
  - Soft tissue dissection through open incision
  - Fixation through dynamic range of motion
    - "Block" unstable position
  - Complication risk/scar tissue potential
- Arthroscopic
  - Minimally invasive
  - Multiple surgical "working" portals
  - Highly skilled arthroscopic technique
  - Complication risk

Laterjet Procedure



LATERJET PROCEDURE

- STUDIES:
  - IMPROVED RESULTS WHEN USED FOR INSTABILITY WITH BONE LOSS

Burkhart, SS; De Beer JF; Barth JR; Cresswell T; Roberts C; Richards DP (2007). "Results of modified Latarjet reconstruction in patients with anteroinferior instability and significant bone loss". Arthroscopy. 23 (10): 1033–41.

  - TECHNICAL VARIATIONS IN OPEN AND ARTHROSCOPIC TECHNIQUES

Lafosse, L; Boyle S (2010). "Arthroscopic Latarjet procedure". J Shoulder Elbow Surg. 19 (2 suppl): 2–12.
Jump up ^ Young, AA; Maia R; Berhout J; Walch G (March 2011). "Open Latarjet procedure for management of bone loss in anterior instability of the glenohumeral joint.". Journal of Shoulder and Elbow Surgery. 20 (2 Suppl): S61-9.
Jump up ^ Burkhart, SS; De Beer JF; Barth JR; Cresswell T; Roberts C; Richards DP (2007). "Results of modified Latarjet reconstruction in patients with anteroinferior instability and significant bone loss". Arthroscopy. 23 (10): 1033–41

LATERJET PROCEDURE

- STUDIES:
  - EXPECTED TO PREVENT RECURRENT ANTERIOR INSTABILITY IN 94-99%
    - *APPROPRIATE PATIENT SELECTION*

Allain, J; Goutallier D; Glorion C (1998). "Long-term results of the Latarjet procedure for the treatment of anterior instability of the shoulder". J Bone Joint Surg Am. 80 (6): 841–52.
Burkhart, SS; De Beer JF; Barth JR; Cresswell T; Roberts C; Richards DP (2007). "Results of modified Latarjet reconstruction in patients with anteroinferior instability and significant bone loss". Arthroscopy. 23 (10): 1033–41.
Hovelius, LB; Akermark C; Albrektsson B; Berg E; Körner L; Lundberg B; Wredmark T (1983). "Bristow-Latarjet procedure for recurrent anterior dislocation of the shoulder. A 2-5 year follow-up study on the results of 112 cases". Acta Orthop Scand. 54 (2): 284–90.
Hovelius, L; Sandström B; Sundgren K; Saebö M (2004). "One hundred eighteen Bristow-Latarjet repairs for recurrent anterior dislocation of the shoulder prospectively followed for fifteen years: study I—clinical results". J Shoulder Elbow Surg. 13 (5): 509–16.
Walch, G; Boileau P (2000). "Latarjet-Bristow procedure for recurrent anterior instability". Tech Shoulder Elbow Surg. 1: 256–61

LATERJET PROCEDURE

- RESULTS:
  - SUCCESSFUL IN CONTACT ATHLETES

Joshi, M; Young AA; Ballestro J-C; Walch G (2013). "The Latarjet-Patte Procedure for Recurrent Anterior Shoulder Instability in Contact Athletes". Clinics in Sports Medicine. 32 (4): 731–9.
Neyton, L; Young A; Dawidziak B; Visona E; Hager JP; Fournier Y; Walch G. (2012). "Surgical treatment of anterior instability in rugby union players: clinical and radiographic results of the Latarjet-Patte procedure with minimum 5-year follow-up.". J Shoulder Elbow Surg. 21 (12): 1721–7.

  - MAY NOW BE THE "GO TO" PROCEDURE IN SPECIFIC PATIENT POPULATION

Hackett, T, (2017) USSA Team Physician, Steadman Clinic, Vail, CO, personal communication.

Complexity

Simplicity

- Identify a concept
- Define its components
- Work through the process
- Challenge your comprehension
- *Understand your limits*

TYFYT