SLAP Lesions

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정 의

- SLAP = Superior Labrum Anterior & Posterior
- Injury to superior part of glenoid labrum involving region of biceps tendon insertion
- 상부 관절와 순의 후방부에서 시작하여 관절와 순에서 기시하는 상완 이두 장두건을 보함하여 전방 관절화 절흔은 바로 전부위 까지 파열되는 병변.

역 학

- Most common in young males
- Often associated with rotator cuff tear

SLAP Lesion

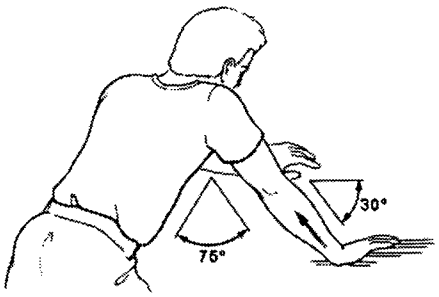
- Acquired tight posterior capsule
- Increased posterior-superior peel-back forces
- Circle concept
- Pathologic cascade

원 인

- Two mechanisms

1. Humeral head가 Biceps-labral complex에 direct compression force

- 견관절 외전 전방 굴곡 상태에서 outstretched hand로 넘어질 때 발생

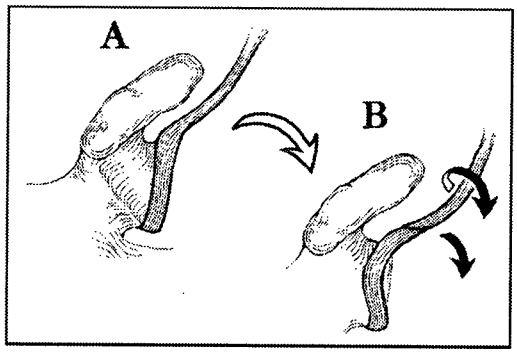


2. Biceps long head의 견인 (traction)

- 떨어질 때 물건을 팔로 잡거나 수상 스키 시 관절와에서 관절와순이 잡아 당겨

져 발생
· Extension injury

3. 비정상적인 peel-back mechanism

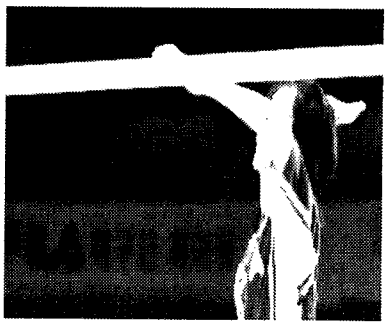


· Repetitive microtrauma
· Overhead motion, esp. Throwing, hammering

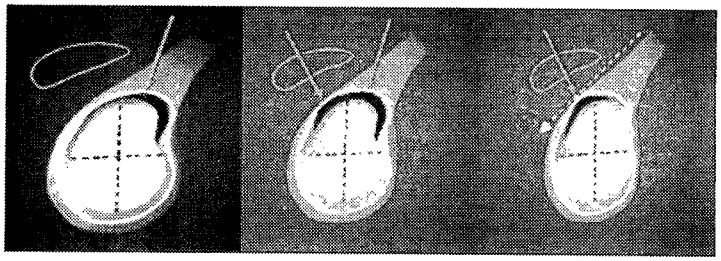
Controversy

· SLAP Lesions Vs Internal Impingement

SLAP Lesions In Throwers



3 Subtypes of Type Ⅱ Lesions



Anterior Posterior Combined

· Not a rare condition and very Common
· Acceleration Injuries
· Mostly Posterior
· Acquired Tight Posterior Inferior Capsule
  - Starts the Pathological Process

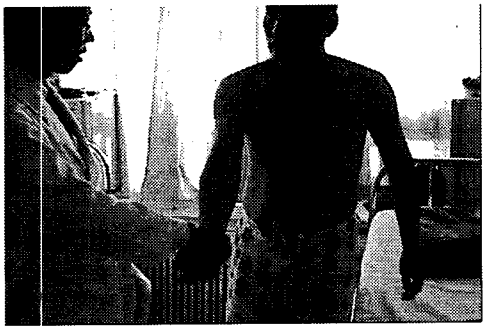
Clinical

SYMPTOMS

- 둔통(후방 견관절 통)
- 외전, 외회전시(overhead activities)에서 통증을 동반하는 염발음(catching), -popping, clicking
- Posterior Tightness
- Post-Sup Soreness
- Usually sudden event in late cocking
- Pain, Loss of velocity

Signs

- Speed's test



- Biceps tension test
  - Resisted shoulder flexion with elbow extended and forearm supinated
  - Positive if painful
- THE SLAP TEST

- Unstable type II & IV에서 양성
- Crepitation, buckling, and pain

· Kibler test

- Push upward and foreward on the elbow
- Pain, crepitation
- Anterosuperior labral tear, middle glenohumerallig. avulsion

· O'Brien test I

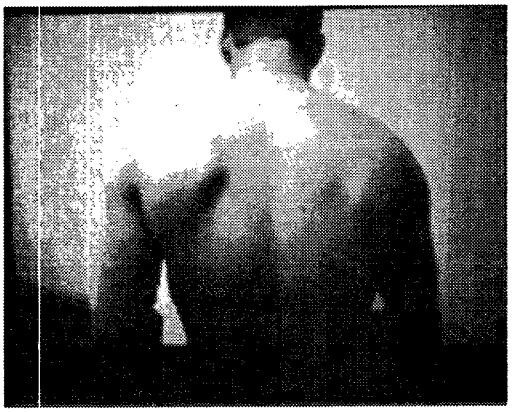
- Pain, buckling
- Biceps long head를 꼬이게 한다.

· O'Brien test II

· Compression-rotation test
- Shoulder McMurray's test

- Patient supine with shoulder abducted 90° and elbow flexed 90°
- Positive if pain and click
  - 12시 방향에서 양성
    SLAP lesion
  - 1시 방향에서 양성
    Superior GH lig. lesion
  - 3시 방향에서 양성
    Middle GH lig. lesion

· Jobe Relocation Test
· Acquired Scapular Winging



Investigations

Imaging

· May be demonstrated on CT-arthrogram or MRI
· Lesion often missed or misdiagnosed

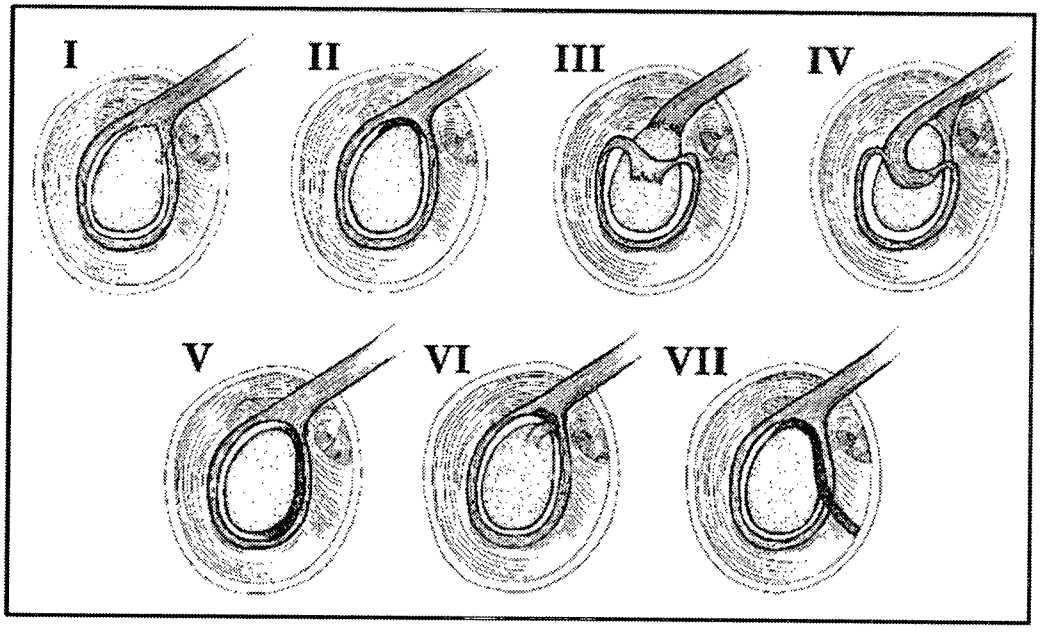
Arthroscopy

· Definitive diagnostic technique
· Arthroscopic Findings

- Positive Drive-Through
  Anteroinferior Pseudolaxity
- Positive Peel-Back
- Displaceable Vertex of Biceps
- Associated Rotator Cuff Tear
  60%
  Location-specific
  Undersurface
  Partial thickness

분류 (by Snyder and Maffet)

Type I Frayed and degenerated superior labrum
Type II Detachment of superior labrum and biceps tendon from glenoid rim
Type III Bucket-handle tearing of superior labrum
Type IV Extension of displaced bucket-handle tear into biceps tendon
Type V Extension of anterior-inferior Bankart lesion superiorly
Type VI Lesion includes a biceps separation with an unstable labral flap tear
Type VII A superior labrum-biceps tendon separation that extends anteriorly beneath the middle glenohumeral ligament.



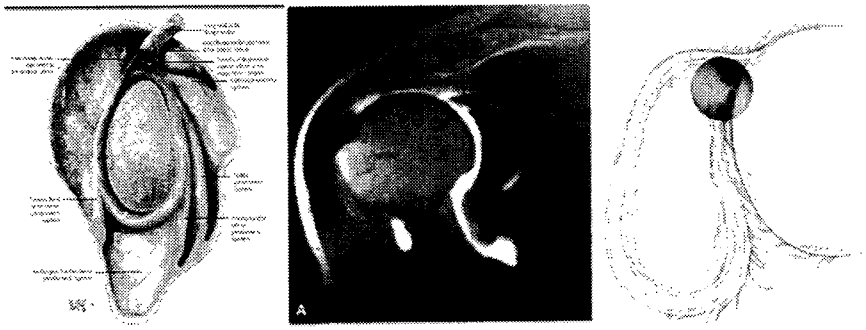


Fig 1.

· Fraying and degeneration of superior labrum
· No detachment of labrum or biceps tendon

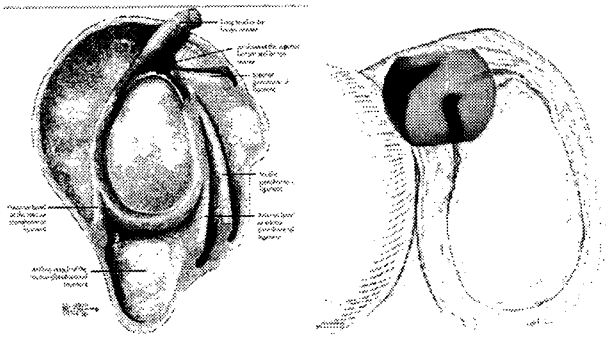


Fig 2.

· Superior labrum and attached biceps tendon stripped off glenoid
· Identification of the unstable SLAP II lesion
  - Clunk with peel back mechanismin abduction and external rotation
  - Irregular and abnormal direction of dye infiltration in MR arthrogram
  - Irregular margin of inner side of the attached area in arthroscopic finding
  - Granulation tissue of the inner side of the attached area in arthroscopic fin ding

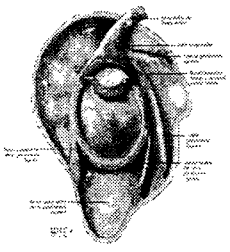


Fig 3.

· Bucket handle tear of superior labrum
· Displacement of central rim of labrum into joint
· Peripheral labrum and biceps tendon attached to glenoid

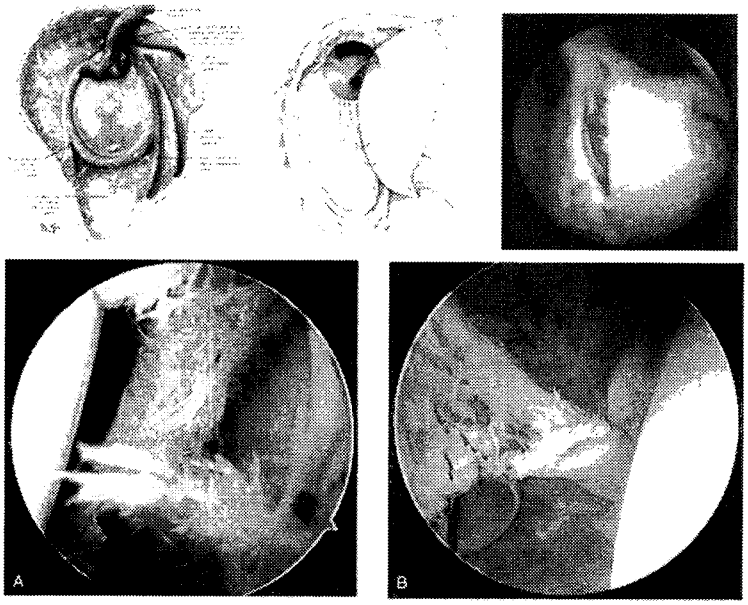


Fig 4.

· Bucket handle tear of superior labrum
· Extension into biceps tendon which remains attached but with partial tear

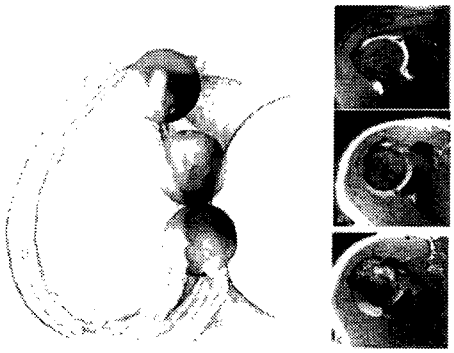
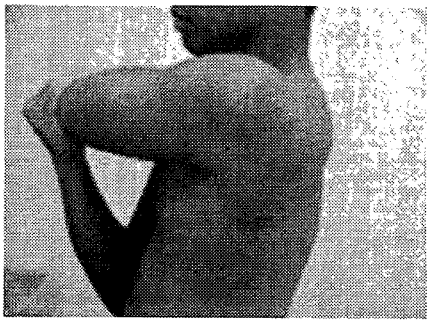


Fig 5.

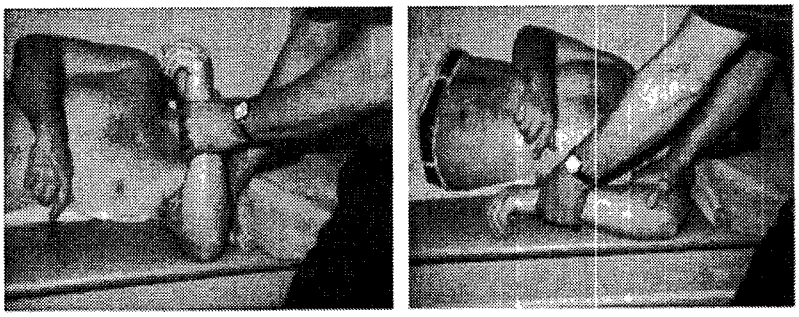
· Extension of anterior-inferior Bankart les ion superiorly
· Includes separation of biceps tendon



Treatment

Conservative

· Stretching Exercise



- Kibler: 38% decrease in shoulder problem in High Level Tennis Players
- Cooper: 22 professional baseball pitchers
  No innings Lost , no Surgery

Surgical

· Type I
- Debride, excise flap tears

· Type II
- Repair biceps-labrum to glenoid

· Type III
- Excise or repair the bucket handle

· Type IV
- Excise or repair, tenodesis biceps
- SLAP and Bankart: repair all

· Arthroscopic repair
- Suture Anchor must be placed POSTERIOR to the Biceps at the corner of Glenoid to Resist torsional Peel-back
- 90% excellent, 10% good

Postoperative rehabilitation after S.L.A.P. Repair

· Phase 1 (0~2 weeks)
- Sling immobilization at all times; hand, wrist, elbow exercises started

· Phase 2 (2~3 weeks)
- Codman exercises, PROM 0-90 degrees flexion and abduction; external rotation in adduction to neutral; avoid extension of arm behind body for 4 weeks
- No external rotation in abduction because of peel-back mechanism
- Sling immobilization when not doing PROM regimen

· Phase 3 (3~6 weeks)
- Discontinue sling and start progressive PROM to full as tolerated in all planes

- Begin passive posterior capsular and internal rotation stretching
- Begin passive and manual scapulothoracic mobility program
- Begin external rotation in abduction
- Allow use of operative extremity for light activities of daily living

· Phase 4 (6~16 weeks)
- Continue all stretching and flexibility programs as above; ROM should be full
- Begin progressive strengthening of rotator cuff, scapular stabilizers, and deltoid
- At 10-12 weeks, biceps resistance and sports / work specific exercises insti tuted with goal of normal function at 4 months

· For Throwing Athlete:Phase 5(4~6 months)
- Begin interval throwing program on level surface(if applicable)
- Continue stretching and strengthening regimen, with particular emphasis on posterior capsular stretching

· Phase 6 (6 months)
- Begin throwing from mound

· Phase 7 (7 months)
- Allow full-velocity throwing from mound
- Continue strengthening and posterior capsular stretching indefinitely

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