관절적 복원술
Arthroscopic Repair of Glenohumeral Joint Dislocation

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고 상 훈

1. Ant. Instablilty of shoulder

1) Clinical Sx.
- abduction, extension, ext. rotation —〉 Dislocation
- Apprehension of ant. dislocation
- Limitation of ext. rotation

2) Radiologic findings in a long-standing ant. shoulder instability
- Overlapping of the humeral head to the inf. margin of glenoid
- uneven joint space
- straight oblique line of sclerosis around the greater tuberosity
- Vagueness of the sarp inf. Margin of glenoid

3) Treatment of acute ant. D/L
- closed reduction: traction-countertraction, Stimpson method
- immobilization for 3 weeks
- NSAID, Hot bag, electrical stimulation,,,
- Isotonic exe., pendulum exe., Ext. rotation (x)
- Isometric exe: Theraband exe

4) Surgical Tx.

Bankart procedure, Capsular imbrication procedure through a subscapularis splitlat. Capsular shift, modified McLaughlin procedure, Putti-platt procedure, Bristow procedure, Eden-Hybinette procedure

* ContraIx.
  a. voluntary dislocation
  b. Emotionally unstable
  c. Multidirectional instability
  d. Degenerative arthritis
- Cause of unsuccessful surgical repairs

; Bankart lesion, Excessive laxity of the capsure, Hill-Sachs lesion

2. Post. instability of shoulder

- only 2~4% of all D/L
- recurrent subluxation; atraumatic (repetitive microtraumatic) 〉 traumatic
- overhead sports, weight lifting... (repetitive trauma on the post. Capsule
- Pathology in the post. Instability
  ; Lax posteroinf. Capsular lig.
  Lesion of the post. Part of labrum
  Excessive retroversion of the glenoid fossa
- Characteristics of the post. Instability
  ; Absence of a true reverse Bankart lesion
  Labrum intact and not torn away from the glenoid
  Shallow labrum
  Redundant post. Capsule
- Symptoms in the post. Instability
  ; pain, clunk, pop out in adduction, flexion and int. rotation
- Treatment
  a. Conservative Tx.
    - avoid provocative activities, avoid voluntary sublux.
    - strengthening exe. (ext. rotator, post. deltoid)
  b. Surgical Tx.
    ; reverse Bankart, reverse Putti-Platt procedure, muscle transfers, infraspinatus advancement, post. staple capsulorrhaphy, post. Capsulolabral reconstruction, bone blocks, glenoid osteotomy, prox. Humeral osteotomy

* Ix
  - Failure of rehabilitation at least 4~6months
  - Rule out habitual dislocation
  - Emotionallly stable
  - Pain & instability precluding adequate function

3. Multidirectional instability of shoulder

1) Etiology of multidirectional instability
  - Glenoid hypoplasia
  - Excessive post. Retroversion of the glenoid fossa
  - Loss of inclination of the glenoid fossa
  - Muscle imbalance

- Generalized capsuloligamentous laxity

2) ContraIx. Of surgery
   - No Psychotic problem, emotionally stable
   - Congenital hypoplasia or aplasia of glenoid
   - failure of rehabilitation program over 6month
   - Secondary gain
   - Neurology (axillary, suprascapular n. palsy)

4. Arthroscopic stabilization of shoulder

A. ant. instablilty of shoulder

1) Risk factor
   - Lack of the traumatic event
   - absence of mobile Bankart lesions
   - poorly defined GHL
   - participation in contact sports

2) position; lat. Decubitus position, beach chair position

3) control intraarticular bleeding during the arthroscopic surgery
   a. Gravity elevation with a high flow sheath
   b. 1:1000 epinephrine 1 ml per 3000 ml saline solution
   c. Maintenance of systolic pressure within 90 mmHg
   d. Infusion pumping system: maintaining a constant pr. Around 70 mmHg
   e. Electrocautery device

4) Fluid extravasation; increased tissure pr., severe edema
   —> interchangeable plastic cannula system

5) Portal placement
   - Post. Portal; main portal, 'soft spot' (between infraspinatus and teres minor)
     suprascapular N., axillary N., post. humeral circumflex a.
     most helpful landmark-biceps tendon
   - ant. portal, anterosup. portal, anteroinf. portal, lat. portal, posterolat. Portal, lat. edge portal
   - Instability; post., anterosup., anteroinf. portal
     acromioplasty; post., lat. portal
     SLAP; post., anterosup., lat. edge portal

6) Stabilization technique
   - arthroscopic staple, absorbable tack, transglenoid repair, suture-anchor tech., knotless anchor tech.

7) Indication of arthroscopic stabilization by Warner
   - Traumatic, unidirectional, Bankart lesion in patient who has
     : a minimal sulcus sign
     no general laxity in other joints
     thick, robust ligaments are present
     minimal plastic deformation of the GHL

8) Athroscopic finding consistent with glenohumeral instability
   - Fraying of the labrum seen through ant. portal
   - Bucket handle type tear
   - Chondromalacia of the humeral head
   - Impaction type Fx.
   - Hill-Sachs lesion

9) Pertinent technical points for success of arthroscopc capsulorrhaphy
   a. Realistic patient goals and time frames
   b. Careful evaluation and identification of all significant pathological conditions
   c. Release of capsular ligamentous complex around to approximately the 6 o' clock position
   d. abrasion of the neck to promote bony bleeding for a well-vascularized bed for optimal capsular healing
   e. superior advancement of the glenohumeral complex to restore physiologic tension and eliminate any potential dirve through sign
   f. secure anatomical fixation to the glenoid rim in multiple areas to compress the capsuloligamentous complex to the bony surface and to provide adequate fixation during the early healing stage
   g. Repair of significant rotator interval, labral and cuff defects
   h. supervised, goal-oriented rehabilitation

10) Causes of failure in arthroscopic stabilization
   - suboptimal position: maintenance of chock effect (concavity compression) of glenoid labrum
   - failure of suture anchor fixation
   - Loss of initial knot configuration and knot twisting
   - Limitation of reaching at a lowermost point

- Sawing through
- Damage on the humeral head
- Retrieval difficulty

11) Postop. Rehabilitation
- Icing
- pendulum exe & isometric exe. of deltoid; initial 2 weeks
- postop. 3 weeks; remove arm sling, passive exe., inhibit ext.rotation
- postop. 6 weeks; ext.rotation start, progressive strengthening exe.
- postop. 3 month; swimming
- postop. 4 month; full range exe., functional activity

12) Complication
- Recurrence
- Loss of motion
- Nerve injuries
- Capsulorrhaphy arthropathy
- Anchor arthropathy

B. Post. Instablility of shoulder

- Difficult procedure, not generalized
- acute angle of glenoid rim ; difficulty in inserting suture anchor
- Complication
  ; recurrence
  overly-tightened repair
  injury of suprascapular and axillary nerve
  Hardware complication (staple)

C. Multidirectional instablility of shoulder

- Correction of anteroinf. & posteroinf. Capsular redundancy
  —> capsular shift, Rotator interval closure
- Complication
  ; recurrence
  post. Instability
  loss of ext. rotation
  neurovascular injury (axillary, musculocutaneous n, brachial plexus..)
  subscapularis retraction