

견관절 질환의 신체 검사

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History

- 1) Age
- 2) Occupation
- 3) Dominant hand
- 4) Sports activity - overhead sports, collision sports
- 5) Trauma - type and severity of injury
- 6) Presenting complaint
 - pain, loss of motion, sense of loose shoulder, recurrent dislocation, weakness etc.
 - Pain
 - i) character - dull, boring, sharp stabbing
 - ii) onset - recent & remote
 - iii) location - intrinsic shoulder pathology, pain rarely radiate below the elbow
 - iv) aggregating and alleviate factors
 - Instability
 - i) nature of onset (traumatic vs atraumatic)
 - ii) degree (dislocation vs subluxation)
 - iii) character of sx. (apprehension, pain, paresthesia)
 - iv) frequency (daily or intermittent)
 - v) volition (voluntary, involuntary, obligatory)
- 7) Past medical history: DM, depression, anxiety, past treatment, operation

Physical Examination

- Basic principle
 - 1) Examine above and below
 - 2) Undress the patient
 - 3) Compare both side
 - 4) Do a neurovascular exam

1. Basic examination

1) Inspection

- a. Winging
- b. Shrugging
- c. Muscle atrophy
- d. Spine- excessive cervical rodosis, thoracic kyphosis, scoliosis

2) Palpation

- a. Tenderness: Greater and lesser tuberosity, AC joint, SC joint, bicipital groove
- b. Crepitation: GT, biceps
- c. rent sign²⁾: transdeltoid palpation of rotator cuff tear

3) Joint motion

Active and passive ROM

- a. Forward flexion
- b. Abduction
- c. External rotation at side
- d. Internal rotation at back position
- e. External rotation at abduction
- f. Internal rotation at abduction
- g. Cross body adduction

4) Functional strength

Three cardinal plane

- a. Elevation in scapular plane
- b. External rotation
- c. Internal rotation

2. Physical Examination for Rotator cuff disease

Impingement related physical exam.

1) Subacromial Impingement.

- a. Neer impingement sign¹⁶⁾
 - Position: sitting or standing
 - Maneuver: passively forward elevation with stabilization of scapula
 - Positive: pain at anterior shoulder
- b. Hawkins-Kennedy impingement test⁶⁾
 - Position: sitting or standing

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Maneuver: 90° shoulder flexion, 90° elbow flexion, forcibly internal rotation
Contact rotator cuff and CA ligament¹⁷⁾

Positive: pain at shoulder

c. Painful arc sign

Position: standing

Maneuver: arm elevation or bring down in scapular plane with neutral arm rotation

Positive: pain at 60°~100° abduction

d. Neer Impingement test

lidocaine injection into subacromial space

relief pain

2) Internal impingement

a. Jobe's relocation test⁸⁾

Position: supine

Maneuver:

a) Apprehension: arm abducted and externally rotated until pain or instability

b) Relocation: push posterior on humeral head

Positive test: disappear pain or instability

Interpretation:

a) Pain goes away → internal impingement

c) Sense of instability goes away → instability

b. Internal rotation resistance stress test¹⁸⁾

Position: standing

Maneuver:

a) 90° abduction & 80° external rotation

b) Check isometric ER & IR power

Interpretation: relatively weak IR compared to ER → internal impingement

relatively weak ER compared to IR → subacromial impingement

3) Coracoid impingement

a. Coracoid impingement test⁵⁾

Position: standing or sitting

Maneuver: Flex arm, internally rotate and adduct

Positive test: aggravate shoulder pain or click

Interpretation: impingement of humeral head or supraspinatus tendon to coracoid process

Rotator cuff integrity related physical examination

1) Supraspinatus tendon

a. Jobe's test (empty can test)⁹⁾

Position: standing or sitting

Maneuver: abducted 90°, horizontally flexed 30°, thumb down resisted abduction

b. Full can test¹⁰⁾

Position: standing or sitting

Maneuver: abducted 90°, horizontally flexed 30°, 45° external rotation resisted abduction

* Same EMG activity of supraspinatus in full can & empty can Less pain provocation in full can test

2) Subscapularis tendon

a. Lift off test⁴⁾

Position: standing or sitting

Maneuver: parade rest position, move away hand from back

Positive: unable to lift off

b. Belly press test³⁾

Position: standing or sitting

Maneuver: press abdomen keeping wrist extended

* less painful than lift off test

Positive: flex the wrist to push belly

c. Napoleon test

Modification of belly press test

Maneuver: hand on belly with elbow resting the patient's side

push the elbow in front of patient keeping hand on the belly

Positive: unable to bring the elbow anteriorly

d. Bear hug test¹⁾

Position: standing or sitting

Maneuver: bring the hand over the opposite shoulder

push hand down against the shoulder

Positive: pain or unable to push down

3) Rotator cuff tear extended to posterior cuff

a. External rotation lag sign⁷⁾

Maneuver

a) elbow 90° flexion, 20° elevation of shoulder with maximal external rotation

b) Ask the patient to maintain this external rotation position

c. Drop sign

Maneuver:

a) the patient's arm is held 90° scapular plane elevation and full external rotation with 90° elbow flexion

b. Ask the patient to maintain this position

d. Modified Hornblower's sign

Maneuver: arm by the side, bring the hand to the mouth

Positive: unable to do this without abducting the affected arm.

3. Physical Examination for Biceps tendon & SLAP lesion

1) Speed's test

Maneuver: arm flexed 90° and 10° horizontal abduction, then resisted elevation

Positive test: pain during forward elevation

Interpretation: Biceps long head problem (tendonitis, subacromial impingement, SLAP)

2) Yergason's test

Position: sitting with elbow 90° flexion

Maneuver: resisted supination of elbow

Positive test: pain localized on the bicipital groove

Interpretation: biceps tendon problem

3) Biceps instability test

Maneuver: palpation of biceps groove while the arm position of AbER to AbIR

Positive test: painful click on the bicipital groove

Interpretation: biceps tendon subluxation or dislocation

4) Compression-rotation test

Position: supine

Maneuver: arm abducted 90 degrees and grind to capture labral fragment
(McMurray of the shoulder)

Positive test: pain or click

Interpretation: sensitive for labral tear, not specific for SLAP lesion

5) Crank test

Position: supine or standing

Maneuver: arm elevation 160° in scapular plane, humerus loaded axially with maximum IR & ER

Positive test: pain with/without click

Interpretation: glenoid labral tear, not specific for SLAP lesion

6) Anterior slide test (Kibler test)

Position: standing

Maneuver: hand on hip, axial load along arm to create superior shear force

Positive test: should produce click or pain

Interpretation: SLAP

7) Active compression test (Flexion-adduction test, O'Brien test)

Position: standing

Maneuver: arm forward elevation 90° with elbow extension, arm adducted 10~15°, maximum IR (thumb down), examiner applies resisted downward force to arm, patient then maximally supinate arm and the maneuver is repeated

Positive test: pain or click, pain should decrease with palm-up

Interpretation: SLAP lesion, AC arthritis

8) Pain provocation test (Mimori's test)

Position: Sitting

Maneuver: arm abducted approximately 90° to 100°, examiner externally rotates shoulder and puts forearm in maximum pronation and then maximum supination

Positive test: pain provoked only when forearm is in pronated position Interpretation: superior labral tear

9) Biceps Load test¹³⁾

Position: supine

Maneuver: Arm abducted 90°, externally rotated, with the elbow flexed 90°, and the forearm supinated.

Apprehension test is performed.

Apprehension appears, and then performs resisted elbow flexion.

Positive test: The apprehension remains the same or the shoulder becomes more painful

Interpretation: superior glenoid labrum integrity in shoulder with anterior instability

10) Biceps Load test II¹²⁾

Position: Supine

Maneuver: arm elevated 120°, maximum external rotation, elbow flexed 90°, forearm supinated, resisted elbow flexion

Positive test: pain during resisted elbow flexion

Negative test: no pain or pain unchanged or less by resisted elbow flexion

Interpretation: SLAP lesions

4. Physical Examination for Instability

Examination of laxity

1) Generalized laxity sign

Elbow / knee hyperextension

Thumb to forearm

Finger parallel to arm

Touch floor with hand

2) Anterior and Posterior drawer test

Position: supine

Maneuver

Anterior drawer test

Stabilize scapular with the one hand, drawer upper arm anteriorly in 80° ~ 120° of abduction, 0° ~ 20° of forward flexion, 0° ~ 30° of ER.

Posterior drawer test

Stabilize scapular with the one hand

The other hand hold arm 120° elbow flexion, shoulder 80° ~ 120° abduction, 20° ~ 30° flexion

Push the humeral head posteriorly with slightly rotates the upper arm medially and flexes it to about 60° ~ 80°

Grading

I: not over the glenoid rim (no subluxated)

II: over the glenoid rim, spontaneous reduction

III: locks out

3) Load and shift test

Position: sitting of supine

Maneuver: stabilize scapular with one hand, translate humeral head with the other hand

Grading: same as drawer test

4) Sulcus test

Position: standing or sitting

Maneuver: pull the adducted arm at the side, neutral rotation and ER

Grading: amount of translation between acromion and humeral head

I: less than 1.0 cm

II: 1.0 cm~2.0 cm

III: more than 2.0 cm

Interpretation: inferior laxity, if not decrease in ER, supposedly rotator interval lesion

Instability related exam

1) Anterior apprehension test

Crank test, Fulcrum test

Position: sitting or supine

Maneuver: Abduction and external rotation, push anteriorly (fulcrum test)

Positive: apprehension

Interpretation: anterior instability

Relocation test

Combined with apprehension test
 Posterior force on the proximal humerus
 Positive: disappear apprehension

2) Posterior apprehension test

- a. Position: supine or sitting
- b. Maneuver: arm flexed 90 and apply posterior force on elbow
- c. Positive test: pain or apprehension

3) Jerk test

Position: sitting or standing
 Maneuver: initially subluxated position (90° flexion, IR, adduction)
 Then reduced position (with posterior loading, abducting arm)
 Positive test: sudden clunk (relocate shoulder)
 Interpretation: posterior instability

4) Jerk test modified by Kim¹⁴⁾

Position: sitting
 Maneuver:
 Axial force is applied on the arm in
 90° abduction and internal rotation.
 The arm is horizontally adducted while
 maintaining the axial load.
 Positive test: A sharp pain with or without posterior clunk or click
 Interpretation: Posterior instability

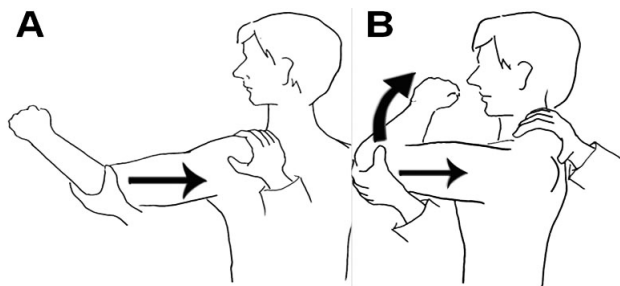


Fig. 1.

5) Kim's test¹⁵⁾

Position: sitting
 Maneuver:
 a. arm in 90° abduction, the examiner holds elbow and lateral aspect of the proximal arm apply

strong axial loading force

b: elevated 45° upward diagonally, apply downward and backward force

Positive test: posterior shoulder pain

Interpretation: Posteroinferior instability

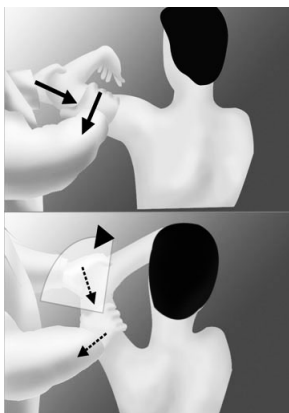


Fig. 2.

5. Physical examination of Scapulothoracic articulation

1) Position

Check symmetry:

Measure the distance inferomedial border and spinous process

→ Consider pathology: Side to side difference > 1.5 cm

→

2) Gross asymmetry of scapulo-thoracic motion

* Scapular dyskinesia system Used to Categorize Abnormal Scapular Motion¹¹⁾

	Resting position	Motion
Type I	the inferomedial border prominent	inferior angle tilts dorsally and the acromion tilts ventrally over the top of the thorax.
Type II	entire medial border prominent	The axis of the rotation is in the horizontal plane. medial scapular border tilts dorsally off the thorax.
Type III	elevation superior border of the scapula, anteriorly displaced	The axis of the rotation is vertical in the frontal plane. shoulder shrug initiates movement without significant winging of the scapulae occurring.
Type IV	symmetrical, dominant arm may be slightly lower.	The axis of this motion occurs in the sagittal plane scapulae rotate symmetrically upward such that the inferior angles translate laterally away from the midline and the scapular medial border remains flush against the thoracic wall. The reverse occurs during lowering of the arm.

3) Push up test

Maneuver: repeat wall or classic push up 15~20 times

Positive test: scapular winging

Interpretation: weakness of S, anterior

4) Scapular stabilization test

Purpose: improvement shoulder function with stabilization of scapula

Maneuver: compress sternum and medial border of scapula, ask to elevation of arm

Positive test: improved ROM and symptom

Interpretation: Trapezius and rhomboideus muscle dysfunction

5) Scapula assistant test: disappearance of Neer test

Manually create more normal scapular motion

Maneuver: one hand stabilized medial border of upper part scapula

the other hand hold inferomedial border of scapular, then assist protraction and superior rotation around chest wall,

Positive test: reduced pain and weakness

Interpretation: Serratus anterior and/or lower trapezius muscle dysfunction

6. AC joint related examination

1) Direct tenderness

2) Cross arm adduction stress test

Maneuver: shoulder flex 90°, then adduct toward opposite shoulder

Positive test: pain at AC joint

- Posterior shoulder pain in tight posterior capsule
- Anterior shoulder pain in coracoids impingement

3) Local lidocaine injection

7. Cervical spine Examination

1) Neck pain with radiation to arm

2) Spurling test

3) ROM

4) Motor/sensory/DTR

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