Open Surgical Approach of the Shoulder

고려대 의대

박 정 호

1. Anterior approach

- Indications
  i. Anterior shoulder stabilization
  ii. Fracture fixation
  iii. Prosthetic arthroplasty

- Positioning
  i. Beach chair with full access to posterior aspect of shoulder
  ii. Holding shoulder in flexion, will relax shoulder and facilitate exposure
  iii. Consider McConnel shoulder positioner

- Incision
  i. Deltopectoral - oblique incision begins inferior to clavicle, proceeds over coracoid and extends distally toward deltoid insertion
  ii. Anterior axillary - vertical incision begins lateral and inferior to coracoid and extends distally into axillary crease

- Superficial dissection
  i. Skin must be mobilized by undermining a full thickness layer of subcutaneous tissue overlying the fascia
  ii. Identify deltopectoral groove and cephalic vein
  iii. In most cases, the cephalic vein is retracted laterally along with the deltoid because it is more adherent to the deltoid preserving the deltoid s venous drainage and because deltoid branch of thoracoacromial artery lies and parallel and lateral to cephalic vein and supplies blood to deltoid
  iv. In most cases, there is no need to detach deltoid from clavicle
  v. In upper 1/3 of deltopectoral interval, branch of thoracoacromial artery and lateral pectoral nerve this bundle is cauterized and transected
  vi. Incise the cephalad 1~3 cm of pectoralis major tendon in order to achieve better exposure of the inferior portion of the subscapularis tendon and better visualization of inferior capsule and better protection of the

axillary nerve
vii. If the shoulder has a severe internal rotation contracture, consider release of the entire tendon
viii. Use the long head of the biceps to help locate the insertion of the pectoralis
ix. The long head of the biceps can be injured when the pectoralis insertion is partially incised
x. Release subdeltoid adhesions - beware of axillary nerve on undersurface of deltoid as it passes inferior to neck of humerus

• Deep dissection
i. The lateral edge of the clavipectoral fascia is differentiated from the deeper tissues because it will not move with internal and external rotation, then the fascia is divided vertically just lateral to the conjoined tendon up to coracoacromial ligament
ii. Mobilize conjoined tendon using blunt and sharp dissection
iii. Identify/preserve coracoacromial ligament, in patients with arthritis the shoulders may be tight and the coracoacromial ligament can be partially incised for better exposure of the upper portion of the subscapularis
iv. Musculocutaneous nerve can usually be palpated on deep surface of coracobrachialis, nerve enters posterior of coracobrachialis about 5 cm distal to coracoid tip but can be as close as 1 to 2 cm
v. Palpate axillary nerve as it passes along the anterior-inferior aspect of the subscapularis
vi. Visualize entire subscapularis tendon from its superior border at rotator interval to inferior border
vii. Ligate/cauterize anterior circumflex vessels

• Exposure of the glenohumeral joint
i. Subscapularis takedown vs. split
ii. Subscapularis tendon is divided approximately 1 cm medial to the lesser tuberosity
iii. Medial retraction of the tendon will expose the joint capsule
iv. Capsular incision

2. Posterior approach

• Indication
i. Posterior capsulorrhaphy

- Incision
  i. Position the patient in the prone or lateral position
  ii. Incision in Langer s line from posterior aspect of AC joint superiorly to posterior axillary line inferiorly

- Superficial dissection
  i. Undermine subcutaneous tissue
  ii. Deltoid split in interval between middle and posterior portions intersecting scapular spine approximately 2 cm medial to posterolateral corner of the acromion
  iii. Confirm location by palpation of joint
  iv. Incise deltoid fascial and split deltoid no more than 5 cm from scapular spine to avoid axillary nerve injury

- Deep dissection
  i. Remove fascia overlying infraspinatus
  ii. Identify fat stripe
  iii. Identify infraspinatus-teres minor interval and note location of axillary nerve
  iv. Note excessive inferior retraction or inferior dissection may injure axillary nerve which enters the muscle from below
  v. The teres minor is incised vertically 2.5 cm from its insertion allowing exposure of the shoulder joint capsule, be sure not to injure the capsule during the dissection
  vi. Incise infraspinatus at the fat stripe taking care not extend incision too far medially (1.5 cm) to avoid injury to the suprascapular nerve

- Exposure of the glenohumeral joint
  i. Develop interval between infraspinatus and underlying capsule
  ii. Incise posterior capsule horizontally at the equator

3. Rotator cuff disease

- Position
  i. Position the patient in the lateral or beach chair position
  ii. The upper limb must be draped completely free

- Incision
  i. Incision in Langer's line along lateral border of acromion from anterolateral corner of acromion

ii. Undermine subcutaneous tissue and expose deltoid muscle
iii. Deltoid split between anterior and middle part or deltoid takedown from anterior acromion
iv. Identify acromion, subacromial bursa, rotator cuff

4. Suprascapular nerve

- Indications
  i. Suprascapular nerve entrapment

- Spinoglenoid notch approach
  i. Incision in Langer s lines - 2 cm medial to AC joint to distal 1/3 of scapular spine
  ii. Deltoid split as for posterior approach
  iii. Identify superior edge of infraspinatus and retract inferiorly
  iv. Identify suprascapular nerve (<2 cm) from posterior glenoid rim