Indication, Positioning Portals, Diagnostic Arthroscopy- Shoulder

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Shoulder Anatomy

- Greatest ROM
- No inherent bony stability
- Relies on soft tissues for stability
- Many injuries involve the soft tissues (rotator cuff, labrum)
- Little glenoid bone stock
COMMON PROBLEMS

- Instability - Recurrent dislocation, SLAP
- Impingement
- Rotator Cuff Problems - Tendinitis, Tears
- A-C Joint Arthritis
- Gleno-Humeral Arthritis
- Others - Rheumatoid, Calcific Tendinitis, Infection, Nerve Compression Syndromes, Frozen Shoulder
Shoulder Arthroscopy

Arthroscopic treatment has evolved over the past few years in terms of:

- Better understanding of path anatomy
- Advances in technology
- Improved surgical technique
Management Goal

- Early Return to pain-free function
- Maximize performance
- Avoid future problems
Basic Shoulder Arthroscopy

- Indication
- Positioning
- Anesthesia
- Instrumentation
- Portal Placements
- Diagnostic Arthroscopy
Patient Positioning

- Beach Chair
- Lateral Decubitus

Ease of Set-up
Efficiency & Economics of set-up
Visualisation & Access to surgical site
Risks & Complication
Patient Positioning

Beach Chair
Beach Chair
Lateral Decubitus
Lateral Decubitus
Patient Positioning

Lateral Position
Patient Positioning

- Ease of set-up, efficiency - similar in both set-up

- Cost - special Operating table with mechanical arm holder increases the cost though it's not a must
Patient Positioning

- Orientation, Visualisation & Access to surgical site - depends upon surgical training and experience
- Conversion to open procedure - Easier in beach chair
- Anesthesia - Can consider regional anesthesia in beach chair but not in lateral position
- Complication -
  - lateral Decubitus -
    - traction inj. To brachial plexus & peripheral n.
    - compression of peroneal & digital n
    - decreased limb perfusion
  - Beach Chair -
    - Profound Hypotension & Bradycardia
    - Brain & Spinal cord ischemia
    - Fatal air embolism
    - Not suitable for obese patients
Anaesthesia

- Gen. Anesthesia
- Regional Anesthesia - Beach chair position
- Requisite for good anesthesia
  - Proper positioning
  - Hypotensive Anesthesia -
    - Mean BP - 70-90 mmHg
    - Systolic BP - 100 mmHg
  - Awareness of potential complications & its management
Basic Instrument

- Arthroscope
- Arthroscope sheath with matching sharp and blunt trochars
- Punches, Graspers, Probes
- Arthroscopic Canulas
  - Sizes- 5.75, 6.7, 8.5mm
  - Smooth, Threaded, Transparent, flexible
Arthroscopic Instruments

- Suture Passer devices
- Knot Pusher
Arthroscopy Equipment

- Fluid Management System Arthropump
  - Distends the joints
  - Flushes blood and debris
  - Controls bleeding
  - Controlled I/A fluid pressure – prevents extravasation
Arthroscopy Equipment

- Arthroscopy
- Electrocutery System
- VAPR, Depuy Mitek
- ArthroCare® Coblation

Generator

Surgical Instruments
Arthrosocpic portals

Anatomic Landmarks

- Supraclavicular fossa
- Acromion
- Clavicle
- Coracoid process
- AC joint
- Lateral orientation line
Portals- Anatomic considerations

- **Anterior:**
  - Stay lateral to coracoid to avoid neurovascular bundle
    - Axillary artery
    - Brachial plexus (Musculocutaneous nerve)

- **Inferior:**
  - Stay up and away from the 6:00 position

- **Lateral:**
  - Off posterior/lateral surface of humerus

- **Medial:**
  - At base of Scapular Spine:
  - Careful with Nevaiser portal into joint
Posterior Portal

- 3 cm inferior and 1 cm medial to the posterolateral corner of the acromion
- Passage to the posterior one-third of the deltoid and an interval between infraspinatus and teres minor
**Anterior Portal**

- Located one-half the distance between the coracoid process and the anterolateral edge of the acromion

- Passage through the skin subcutaneous tissue and the anterior one-third of the deltotoid

- Structures at risk
  - Musculocutaneous nerve, normally located 3 cm inferior and just medial to the coracoid process
Anterior Portal
Accessory Portals

･ midglenoid portal - Bankart repair
･ anteroinferior portal (5:00)- low anchor placement
･ Neviaser portal - RTC repair
･ port of Wilmington – posterior SLAP
･ posteroinferior portal (7:00) - posterior Bankart
Accessory Portals for Labral Repair

- Anter-inferior portal
- Postero-inferior portal
Accessory Portals for SLAP repair

- Supra-lateral portal
- Port of Willmington
Lateral Portal

- 2-3 cm distal to the lateral border of the acromion
- Passage through the deltoid muscle
- Axillary nerve-Located approx. 5 cm beyond the acromion
- Structures at risk:
  - Axillary nerve
Nevasier Portal

- Soft spot bordered anteriorly by the posterior margin of the clavicle, lateral by the medial border of the acromion, posteriorly by the scapular spine
- Passage through the trapezius and the muscle belly of the supraspinatus

Structures at risk
- Suprascapular nerve and artery
- Located in the fossa approx. 3 cm medial to the portal
To Conclude- Shoulder Arthroscopy

- Minimal surgical trauma - less soft tissue dissection
- Less pain & Lower morbidity
- Diagnosis of concommitant pathology
- Maximum preservation of motion
- Better rehab & Early return to function
- Better cosmesis
Arthroscopic surgery for shoulder surgery

- 1- Arthroscopic Bankart repair (one row repair)
- 2- Casiope Repair (double Bankart row repair)
- 3- All arthroscopic Laterjat procedure
- 4- Capsular shift
- 5- Rotator interval closure
- Repair of HAGEL lesion
- Repair of SLAP lesion
Arthroscopic Rotaor cuff Surgery
Arthroscopic Subacromion decompression
Arthroscopic Acropmioplasty
rotator cuff repair
   -one row
   -double row
To Conclude

- Minimal Surgical trauma
- Better understanding of concomitant pathology.
- Lower morbidity.
- Less soft tissue dissection
- Maximal preservation of motion.
- Shorter surgical time.
- Improved cosmesis.
Actual DOUBLE ROW Technique
10 Point Shoulder Arthroscopy

Lennard Funk

GLENOHUMERAL JOINT:

1 – LHB (SLAP, tear)
2 – Glenoid & Posterior Labrum
3 – Inferior Recess
4 – Humeral Head, Bare area, Posterior Cuff
5 – Anterosuperior Cuff
6 – Rotator Interval (pulley, LHB in groove, SGHL)
7 – Subscap, MGHL, anterior labrum
8 – Anteroinferior labrum, IGHL

SUBACROMIAL BURSA:

9 – CAL & Acromion
10 – Rotator Cuff - Bursal side
Arthroscopic Brachial plexus surgery

- Suprascapular nerve release
- Brachial plexus nerve release
- Axilary nerve release
- Qaudrilateral and triangular release
Latissmos dorsi transfer for rotator cuff deficiency, irreparable tears
Arthroscopic priscapular bursectomy

Arthroscopic tendon transfer
Arthroscopic AC arthroplasty
Arthroscopic AC instability reconstruction

AC Joint arthroscopic surgery
Modern & Advanced Shoulder Surgery

Pioneers
Contributors to stability

Passive
- Jt conformity
- Jt pressure
- adhesion/cohesion
- ligament
- F-H Offset
- B-C Head thickness
- D-E = 8mm

Top of humeral head is higher than greater Tuberosity
Glenoid: 2° anteversion to 7° retroversion

Humeral Head: 20° - 40° retroversion
Shoulder Anatomy
Shoulder Anatomy

Muscles labeled:
- Supraspinatus muscle
- Infraspinatus muscle
- Teres minor muscle
- Subscapularis muscle
Shoulder Stabilizers

- Rotator Cuff-
  - dynamic stabilizer
  - passive muscle tension
  - ligament tightening
  - compression of
  - articular surface
- GHL-
  - static stabilizer
Ligaments

- SGLH
- MGHL
- IGHL
- PIGHL
- CAL
- CHL
- #11 scalpel blade
- Skin marking pencil
- 18 g. needle
- 20 cc syringe (if insufflating)

- 76 mm plastic cannula with a rubber dam
- Motorized shaver with soft tissue and bone shaving blades
- Suction punch
- Suture punch