ELBOW ARTHROSCOPY: MY TOP 5 PEARLS FOR SUCCESS

Larry D. Field, M.D.
Mississippi Sports Medicine and Orthopaedic Center
Jackson, Mississippi

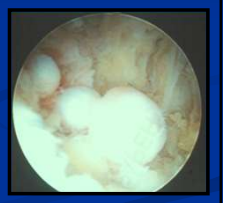
DISCLOSURES

The following relationships exist:

1. *Royalties and stock options*
   - *None*
2. *Consulting income*
   - *Smith & Nephew*
3. *Research and educational support*
   - *Arthrex*
   - *Mitek*
   - *Smith & Nephew*
4. *Other support*
   - *None*

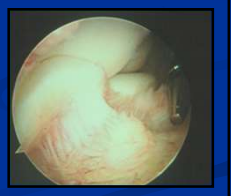
ELBOW ARTHROSCOPY

- More commonly performed
- Indications expanding
- Elbow difficult to arthroscope
- Very congruent
  - Proximity of neurologic structures
  - Most "at risk" for serious complications
  - Neurologic complications devastating



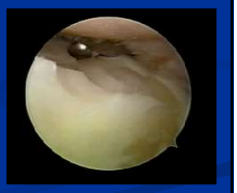
ELBOW ARTHROSCOPY COMPLICATIONS

- Anecdotal cases of nerve injury
- Severe damage reported
  - Ulnar nerve
  - Radial nerve
    - PIN
  - Median nerve



ELBOW ARTHROSCOPY COMPLICATIONS

- Almost all reported cases of severe nerve injury occurred during "at-risk" procedures
  - Bony procedures
    - Radial head resection
  - Arthroscopic capsular release

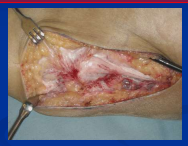


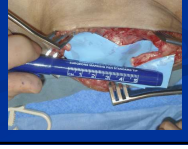
Revision Arthroscopic Contracture Release in the Elbow Resulting in an Ulnar Nerve Transection

A Case Report

JBJS 2010; 92: 1246 - 1249

- Case report of ulnar nerve transection
  - —Revision capsular release





SAFE ARTHROSCOPIC APPROACHES TO ELBOW

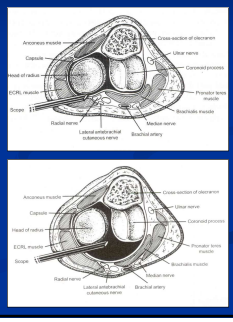
- Nerve injury
  - Significant concern
  - Perceived risk decreases utilization of valuable tool
- 5 pearls to increase safety and reduce the risk of complications

PEARL #1

- *Distend joint prior to initial portal placement*

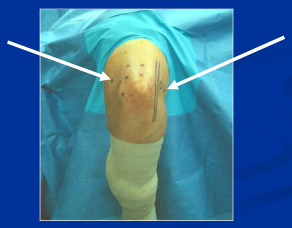
JOINT DISTENTION

- Greatest concern is proximity of 3 nerves crossing joint
- Distention of joint increases distance of nerves from portal sites
  - Does not increase distance of nerves from capsule
- Distention makes capsule penetration (blunt trocars) easier and more reliable



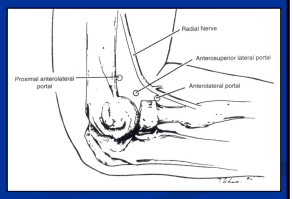
PEARL #2

- *Utilize proximal anterior portals when possible*

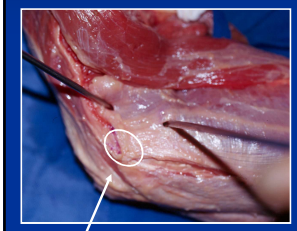


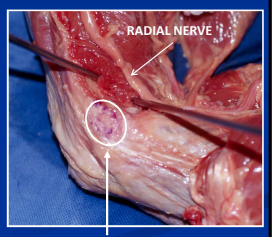
PROXIMAL PORTALS

- Anterior portal placement
  - Proximal portals safer
    - N/V structures further away
    - Proximal portal visualization equivalent
  - Ensure ulnar nerve not subluxated

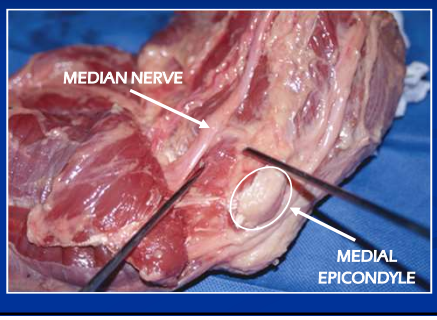


ANTEROLATERAL PORTALS



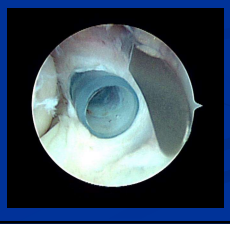


ANTEROMEDIAL PORTALS



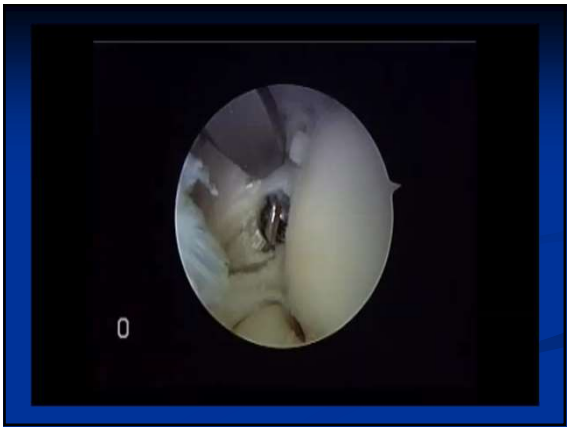
PEARL #3

- *Use retractors to improve visualization and protect vital structures*



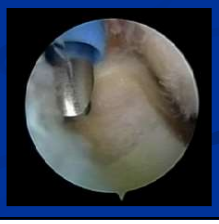
ARTHROSCOPIC RETRACTORS

- Retractors can be helpful and protective
  - Improves visualization
  - Protects vital structures during arthroscopic procedures



PEARL #4

- *Avoid inferior aspect of anterolateral capsule (radial nerve) when possible*

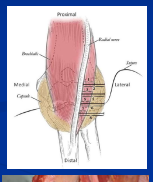


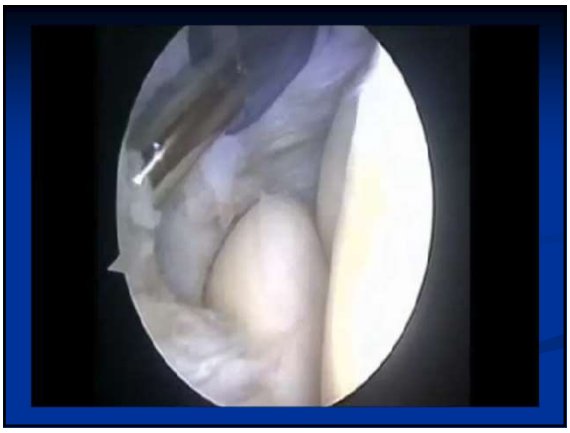
Relation of the Radial Nerve to the Anterior Capsule of the Elbow: Anatomy With Correlation to Arthroscopy

Reza Omid, M.D., Nady Hamid, M.D., Jay D. Keener, M.D., Leesa M. Galatz, M.D., and Ken Yamaguchi, M.D.

Arthroscopy, 2012

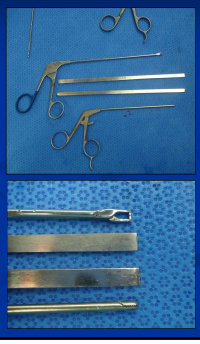
- Radial nerve distance from capsule
  - Arthroscopic correlation in 24 cadavers
  - Brachialis between radial nerve and capsule at joint line and proximal
  - Radial nerve in direct contact with capsule distal to joint line in 50% of specimens
- Recommended avoiding capsule near radial head when possible



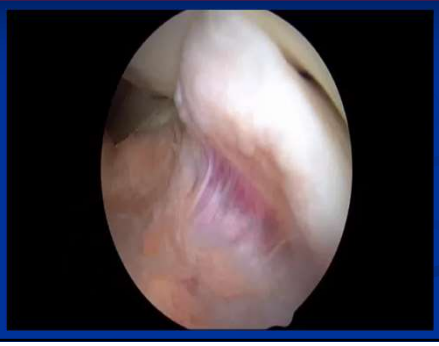


PEARL #5

- *Consider the use of small hand held osteotomes for removal of bony spurs and prominences*

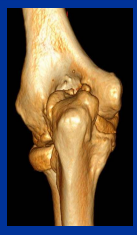


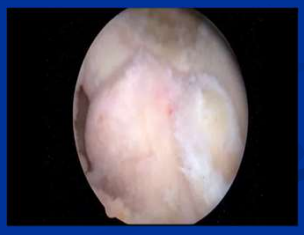
CORONOID OSTEOPHYTES



OLECRANON OSTEOPHYTES

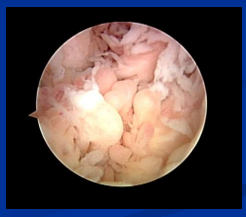
"Mickey Mouse Ears"





SAFE ELBOW ARTHROSCOPY

- No elbow procedure requires arthroscopic management
- Convert to open treatment when technical difficulties arise



SUMMARY

- Elbow arthroscopy proven safe and effective
- Knowledge of arthroscopic neural anatomy very important
- Careful arthroscopic technique reduces risk
  - Joint distention
  - Proximal anterior portals
  - Use of retractors

THANK YOU