

ELBOW ARTHROSCOPY FOR LATERAL EPICONDYLITIS

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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

Lateral Epicondylitis

INTRODUCTION

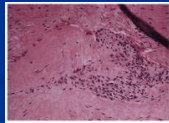
- Most common elbow condition
- Lateral elbow pain
- 30 – 50 year olds
- Dominant arm
- Insidious onset



Lateral Epicondylitis

INTRODUCTION

- Tendinosis of ECRB origin
- Histopathology
 - Vascular proliferation
 - Hyaline degeneration
 - “Angiofibroblastic hyperplasia”



Lateral Epicondylitis

EVALUATION

- History
 - Repetitive gripping
 - Pain localized just below the lateral epicondyle
 - Gradual in onset
 - Weakness complaints
 - Difficulty lifting



Lateral Epicondylitis

EVALUATION

- Physical exam
 - Tenderness over the ECRB origin
 - Pain reproduced with resisted wrist and finger extension
 - Grip strength often decreased

Lateral Epicondylitis

NON-OPERATIVE TREATMENT

- Therapy
- Modalities
- Activity modifications
 - Workplace
 - Sport



Lateral Epicondylitis

NON-OPERATIVE TREATMENT

- Counterforce bracing
 - Transfers ECRB origin
 - Well tolerated
- Local corticosteroid injections
- Extensive organized exercises
- PRP injections



Lateral Epicondylitis

SURGERY

- Surgical indications
 - Pain that interferes with daily activity and occupation
 - Failure of non-operative treatment for 6 months

Lateral Epicondylitis

GOALS OF SURGERY

- Resect pathological tissue
 - Tendinosis (ECRB, EDC)
- Address any intra-articular pathology
- Minimize morbidity

Lateral Epicondylitis

OPEN RESECTION (NIRSCHL)

- 1) Split between ECRL and extensor aponeurosis
- 2) Resect ECRB origin
- 3) Decorticate lateral epicondyle

Lateral Epicondylitis

OPEN RESECTION

- Excellent results
 - Nirschl
 - 95% – 97% success
 - Jobe
 - 88% - 93% success



Arthroscopic Treatment

Why convert to arthroscopic approach for lateral epicondylitis release?

Arthroscopic Treatment of Lateral Epicondylitis

WHY CHANGE?

- Less pain
- Faster recovery
- Easier rehabilitation
- Intra-articular pathology
 - Synovitis
 - Radiocapitellar plica



Arthroscopic Treatment of Lateral Epicondylitis

- Peart et al, Am J Orthop 2004
 - Compared arthroscopic and open release
 - Level III cohort study
 - 46 open vs. 29 arthroscopic
 - Arthroscopic patients had faster return to work and less therapy
- 8 published level IV case series
 - Outcomes of arthroscopic release
 - 189 patients
 - 174 (92.1%) good to excellent
 - Only 1 complication (0.5%)
 - “Forearm paresthesia”

Arthroscopic Treatment of Lateral Epicondylitis

- Baker et al, JSES 2000
 - 37 patients
 - 94% success
 - RTW 2 weeks!
 - No complications
- Baker et al, AJSM 2008
 - 30 patients
 - Follow-up 11 years
 - 87% satisfied
 - Reliable long term results



Arthroscopic vs. Open Tennis Elbow Release

Solheim et al (Arthroscopy, 2013)

Arthroscopic Versus Open Tennis Elbow Release: 3- to 6-Year Results of a Case-Control Series of 305 Elbows

Eirik Solheim, M.D., Ph.D., Jonne Hegna, M.M., and Janneke Øyen, Ph.D.

- Level III comparison of open and arthroscopic release
 - 80 open
 - 225 arthroscopic
- Follow-up 4 years
- Failure rate no different
- No major complications
- **Excellent outcomes higher in arthroscopic group (78% vs 67%)**

Arthroscopic Treatment of Lateral Epicondylitis

ANATOMY

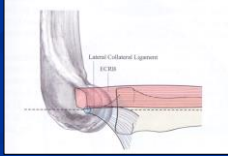
- ECRB
 - Beneath ECRL
 - Blends with capsule



Arthroscopic Treatment of Lateral Epicondylitis

ANATOMY

- Lateral Ulnar Collateral Ligament
 - Inferior to ECRB
 - Below equator of radial head



Arthroscopic Treatment of Lateral Epicondylitis

SURGICAL TECHNIQUE

- Prone or lateral position preferred
 - Better posterior access
 - Easier flexion and extension
- Proximal medial portal
 - 1-2 cm anterior and proximal to medial epicondyle
 - Confirm ulnar nerve in groove



Arthroscopic Treatment of Lateral Epicondylitis

SURGICAL TECHNIQUE

- Visualize
 - Coronoid process
 - Trochlea
 - Radial head
 - Capitellum
 - Lateral capsule
- Look for other pathology
 - Radiocapitellar arthrosis
 - Synovial plica



Arthroscopic Treatment of Lateral Epicondylitis

SURGICAL TECHNIQUE

- Capsule classification
 - Type I – normal
 - Type II – horizontal rent
 - Type III – complete rupture of capsule

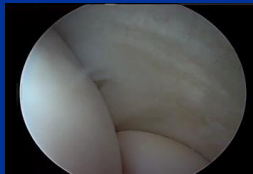


Baker et al JSES 2000

Arthroscopic Treatment of Lateral Epicondylitis

SURGICAL TECHNIQUE

- Anterolateral portal
 - Localize using spinal needle



Arthroscopic Treatment of Lateral Epicondylitis

ARTHROSCOPIC RESECTION

- Create window in capsule
- Exposes the ECRL and ECRB



Arthroscopic Treatment of Lateral Epicondylitis

SURGICAL TECHNIQUE

- Goal
 - Release tendon
 - Debride tendon
- Dissection directly on bone just lateral to articular surface
- Work from proximal to distal



Arthroscopic Treatment of Lateral Epicondylitis

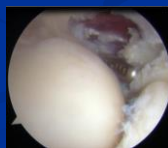
SURGICAL TECHNIQUE

- Arthroscopic retractor may be helpful
 - Improves “working room”
 - Protects vital structures



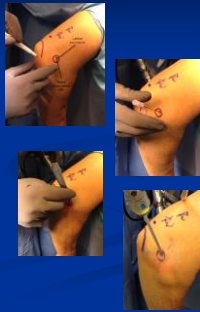
Surgical Technique

- Many variations of arthroscopic release
- “Bayonet” technique
 - 221 consecutive patients
 - 5 year period
 - Technique published 2014
 - Sharp release of ECRB origin
 - #15 blade “Bayonet”
 - Arthroscopic resection of detached ECRB



Bayonet Technique

- “Tennis elbow portal”
 - Very proximal and adjacent to ECRB origin
- Localized with spinal needle
- Knife blindly releases ECRB origin
- Arthroscopic shaver resects ECRB tendon



Bayonet Technique

- No major complications
 - 221 consecutive cases
 - 3 minor complications
 - Portal drainage
 - Responded to po antibiotics
- Potential advantages
 - Quick
 - Complete release of ECRB
 - Simplified resection of diseased tissue
 - 30° arthroscope
 - No retractor necessary



ARTHROSCOPIC RELEASE



BAYONET TECHNIQUE

Arthroscopic Treatment of Lateral Epicondylitis

POSTOPERATIVE PROTOCOL

- No specific limitations or restrictions
- PT for stretching and gentle strengthening
- RTW as tolerated
 - Several days to 3 months

Advantages of Arthroscopic Release

- Common extensor tendon not divided or taken down
- Allows for thorough intra-articular evaluation and treatment
- Patients' recoveries enhanced
 - Less pain
 - Shorter rehab periods
- Cosmetically superior

Summary

- Arthroscopic lateral epicondylitis release effective
 - Excellent long term results
 - Complication rate very low
- Technique well defined and reproducible
 - Arthroscopic retractor helpful
 - Avoid lateral collateral ligament
 - Conversion to open release simple if technical difficulties arise

THANK YOU



ARTHROSCOPIC MANAGEMENT OF ELBOW INSTABILITY

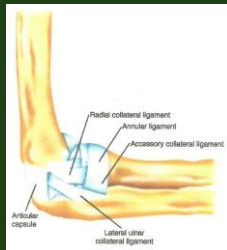
Felix H. Savoie III, MD
Michael J. O'Brien, MD
Tulane University
New Orleans, LA

COI

- Royalties: none
- Stock: none
- Consultant: DePuy Mitek, Smith & Nephew, Exactech, rotation medical

PLRI

- Dysfunction of the RUHL complex
 - Radio-ulnohumeral ligament
 - Annular ligament
 - Lateral collateral ligament



DIAGNOSIS

- Lateral instability causes impairment of ADL
- Shift and pop with supination
- Exam: PLRI (prone) chair lift, IR push-up



Anterior View

- Abnormal radial head shift on the capitellum
- Laxity of the annular ligament: it will be "dropped down"

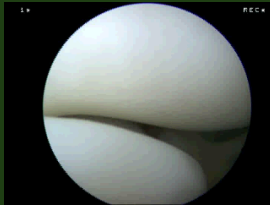


ANTERIOR VIEW

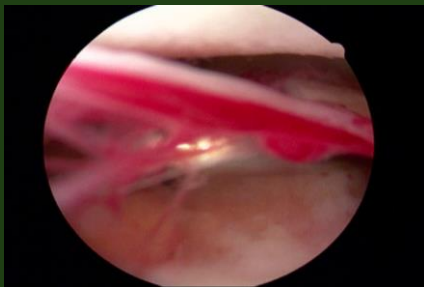


View of posterolateral gutter

- Lateral gapping of olecranon
- Entire forearm "moves away"
- Easy to "drive through" to medial side



ACUTE DISLOCATION



ARTHROSCOPIC REPAIR

- If we can see it we can fix it!
- Requires a 3D conception of where the ligaments are and how they need to be repaired
- Current equipment allows very precise anatomical restoration

DISTAL REPAIR: 1st anchor



DISTAL REPAIR: 1st stitch



LATERAL REPAIR: 2nd stitch



LATERAL REPAIR: 2nd anchor



CONTINUE REPAIR



OUTSIDE VIEW / RETRIEVAL



FINAL VIEW: CHECK A/P

POST VIEW FINAL



FINAL VIEW: CHECK A/P

ANT VIEW FINAL



ADVANCED: TERRIBLE TRIAD FRACTURE AND LIGAMENT REPAIR



TERRIBLE TRIAD: RADIAL HEAD



TERRIBLE TRIAD: CORONOID



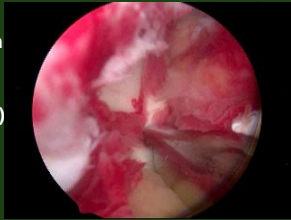
TERRIBLE TRIAD: CORONOID



TERRIBLE TRIAD

Ligament repair

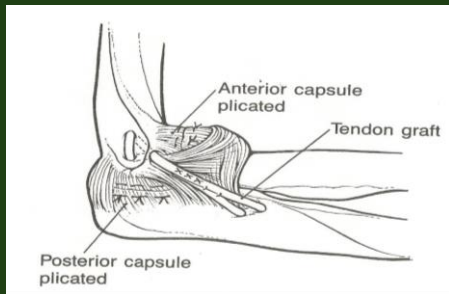
- Localize the RUHL avulsion site (view from posterior)
- Establish anchor insertion portal (lateral)
- Retrograde suture retrieval
- Tie down to repair ligaments



TERRIBLE TRIAD



RECONSTRUCTION WITH GRAFT



VIEW OF GRAFT



Postop Protocol

- Splint 1st week
- Brace 60-90 for 2 weeks
- Brace 30-90° for 2 weeks
- Brace 0- full for 2 weeks
- Progressive therapy for 6 weeks
- Return to activity @ 4 months

RESULTS

- Dzigan, et al: 52 pts: PLRI
 - Acute: 10 Patients: AC score > 190
 - Subacute 12 pts: AC score 188, 1 failure
 - Chronic 30 Pts: AC score 180, 3 failures
- Gurley, et al: mixed open & arthroscopic: 88% satisfactory

SUMMARY

- Elbow arthroscopy is beneficial in instability
- Most lateral instability can be managed by arthroscopy
- Elite athletes may do better with early reconstruction
- Poor tissue quality, especially in revision cases, may require grafting

THANK YOU

Ref: AANA book series: The elbow and wrist: Elsevier

ARTHROSCOPY FOR RHEUMATOID ARTHRITIS OF THE ELBOW

ADVANCED ELBOW ARTHROSCOPY
VUMEDI WEBINAR
SEPTEMBER 2014

Graham JW King MD, MSc, FRCSC



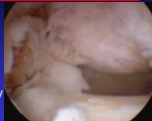
Western

DISCLOSURES

I receive royalties and am a consultant for
Wright Medical Technology and Tornier Inc.

RHEUMATOID ARTHRITIS PATHOLOGY

- Synovitis
- Cartilage destruction
- Bony erosions/deformity
- Secondary capsular contracture



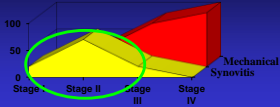
MAYO CLASSIFICATION

Staging - Mayo

- I Synovitis, articulation intact
- II Synovitis, joint narrowing
- III Architectural change:
 - A Moderate
 - B Severe
- IV Gross destruction (mutilans)



DISEASE PROGRESSION



SYNOVECTOMY INDICATIONS

- Synovitis not responsive to medical Rx
- Pain, stiffness, loss of function
- Mayo Stage I & II, IIIa in younger patients

SYNOVECTOMY CONTRAINDICATIONS

- Inadequate medical management
- Severe articular cartilage loss or bony deformity
- Mayo Stage III and IV

ALTERNATIVE PROCEDURES

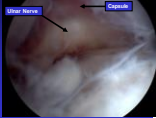
- Open synovectomy
 - Extra-articular pannus, severe stiffness, extensive synovitis, lack of arthroscopic experience
- Interposition arthroplasty
 - Advanced articular cartilage loss, younger with pauciarticular disease
- Total elbow arthroplasty
 - Advanced articular cartilage loss, older and lower demand

ARTHROSCOPY ADVANTAGES

- Less postop pain
- Improved articular visualization
- Better cosmesis
- Decreased morbidity/faster recovery
- Less stiffness

ARTHROSCOPY PROBLEMS

- Close proximity of neurovascular structures to capsule and portals
- Complex anatomy
- Congruent joint
 - limits distraction
 - small capsular volume
 - small working space
- Elbow arthroscopy experience often limited



PATIENT EVALUATION

- Skin quality
- Ulnar nerve location and function
- Elbow and forearm motion
- Elbow stability

TECHNIQUE

- General anaesthesia
- Prone or lateral decubitus
- Avoid antecubital pressure



TECHNIQUE

- General anaesthesia
- Prone or lateral decubitus
- Avoid antecubital pressure
- Sterile Tourniquet



TECHNIQUE

- Release or transpose ulnar nerve if symptomatic or severe loss of flexion
- Resect synovium
- Debride osteophytes
- Excise radial head if symptomatic and restricting forearm rotation (rare)
- Capsulectomy if motion limited



57 Y/O FEMALE RA

40 – 125°, INTRACTABLE SYNOVITIS



ARTHROSCOPIC SYNOVECTOMY

ARTHROSCOPIC SYNOVECTOMY
RHEUMATOID ARTHRITIS



10 DAYS POSTOP

30 - 135°, MINIMAL PAIN

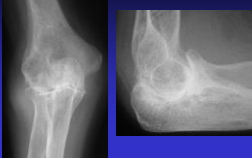


52 Y/O FEMALE RA

30 - 140°, PAINFUL ROTN 50 - 50°, SYNOVITIS



MAYO III ARTHRITIS

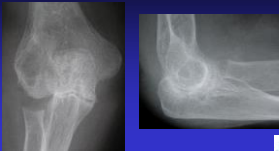


SYNOVECTOMY & RADIAL HEAD EXCISION



SYNOVECTOMY & RH EXCISION

20 - 140°, PAINLESS ROTN 60 - 65°



POSTOP MANAGEMENT

- Synovectomy alone – outpatient
- Synovectomy, capsulectomy and debridement – admit for CPM and pain control with axillary block



SPLINTING

- **Extension splint**
- **Flexion Cuff**
- Worn at night
- Daytime use
- Frequently remolded
- Frequently adjusted



RESULTS: ARTHROSCOPIC SYNOVECTOMY

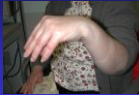
- Horiuchi JBJS 2001
- 71% good to excellent results 2 years
- 43% good to excellent results at 8 years
- 100% and 71% good to excellent results for Mayo/Larsen grade I and II elbows at 2 & 8 yrs

OPEN vs ARTHROSCOPIC SYNOVECTOMY

- Tanaka JBJS 2006
- Mayo grade I and II elbows
- Arthroscopic outcome equal to open surgery overall
- Recurrent synovitis more common with arthroscopy while stiffness/ankylosis more frequent with open surgery
- MEPI 50 preop; 78 at 4 years; 67 for scope and 71 for open surgery at 13 years

COMPLICATIONS

- Nerve injury – posterior interosseous, ulnar, median
- Inadequate synovectomy
- Recurrent stiffness
- Synovial fistula



Kelly, O'Driscoll, Morrey, JBJS 2001

SYNOVECTOMY FOR RA

- Useful procedure – not the starter elbow
- Patients with less articular damage on disease modifying drugs best candidates
- Increasing role with more aggressive approach to joint preservation

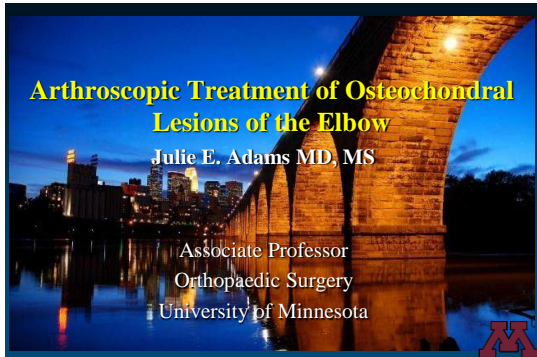
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Western




Arthroscopic Treatment of Osteochondral Lesions of the Elbow
Julie E. Adams MD, MS
Associate Professor
Orthopaedic Surgery
University of Minnesota




Osteochondral lesions about the elbow

*The following relationships exist:
Royalties: Biomet, Arthrex
Consulting: Arthrex, Acumed, Synthes
Other: Elsevier*



Osteochondritis Dissecans

- **Lateral compression injury** in the throwing athlete
- Increased load at the radiocapitellar joint during **valgus stress** - late cocking and early acceleration



Osteochondritis Dissecans

Osteochondritis Dissecans

- Described by Koenig in 1888
- **Osteochondritis** - meaning inflammation of the joint surface
- **Dissecans** - meaning to separate
- Currently accepted that inflammation **does not** play a role
- **More accepted theories include microtrauma and disruption of local vasculature**



Osteochondritis Dissecans Vs Panner's disease

- Lateral compression at the radiocapitellar joint can also result in **Panner's disease**
- Panner's disease first described in 1927
- Radiographic fissure and fragmentation of capitellum
- 90% boys less than 10 years of age



Panner's disease

Treatment

- Alleviation of symptoms
- Reduction in elbow activities
- Immobilization for 3 - 4 weeks/anti-inflammatory medications
- Symptoms may persist for several months but long-term prognosis excellent



	Panner's disease	OCD
Lesion	<ul style="list-style-type: none"> Fissuring, ↓ size & fragmentation entire capitellum 	<ul style="list-style-type: none"> Focal lucency surrounded by subchondral sclerosis
Natural History	<ul style="list-style-type: none"> Natural history is typically regeneration and reconstitution of the capitellum No residual deformity is seen 	<ul style="list-style-type: none"> Classic semilunar demarcation called the "crescent zone" Localized lesion may remain in situ or detach

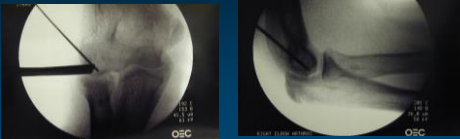
Osteochondritis Dissecans
<p>Classification of OCD of Capitellum</p> <ul style="list-style-type: none"> IA Intact/Stable - no loss of subchondral stability IB Intact/Unstable - impending collapse subchondral bone II Open/Unstable - cartilage fracture/partial displacement III Detached - loose fragments within the joint

Osteochondritis Dissecans
<ul style="list-style-type: none"> Intact Stable lesions: non-surgical - activity modification <ul style="list-style-type: none"> – 6/7 heal Takahara, JBJS 2007 Surgical indications: persistent symptoms Surgical management: excision of loose bodies or partially attached lesions <ul style="list-style-type: none"> -Abrasion chondroplasty or subchondral drilling - Internal fixation/osteochondral grafts - results variable

EXTRA-ARTICULAR OCD DRILLING



EXTRA-ARTICULAR OCD DRILLING



EXTRA-ARTICULAR OCD DRILLING



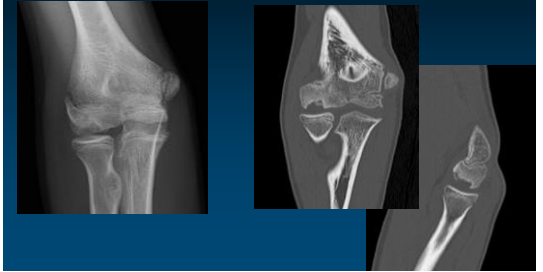
Retrograde Drilling



Lesion debridement and microfracture



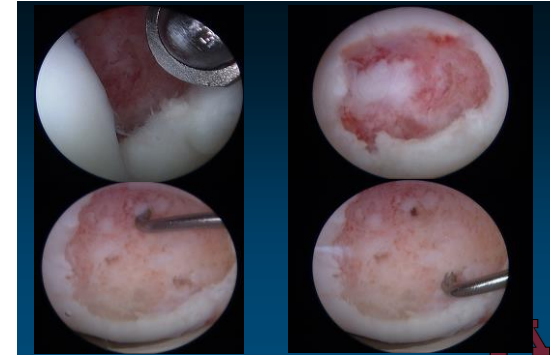
14 yo, 3 y h/o pain. Failed rest. Mechanical symptoms



Distal Ulnar Portal



Van den Ende, McIntosh, Adams, Steinmann;
Arthroscopy, 2011



Results of treatment-OCD

Results of treatment - long-term followup:

- Bauer: 31 patients - 50% incidence of impaired motion/pain at **23 years** F/U (23 with surgery)
- Takahara: 53 patients - 50% limitation of elbow function at **13 year** F/U (18 with surgery)

Bauer et al, CORR, 1992
Takahara et al, CORR, 1999



Osteochondritis Dissecans

Arthroscopic treatment

- 10 baseball players (ave. age 13.8 yrs)
- Symptoms and objective findings **correlated poorly with the radiographic grade** of the lesion
- Overall excellent results
- Follow-up 3.9 yrs average
- **Only 4 patients returned to organized baseball**

Byrd and Jones, AJSM, 2002



Osteochondritis Dissecans

Osteochondral Autograft

- 10 athletes (mean age 14.3 yrs)
- Cylindrical osteochondral bone plugs - lateral femoral condyle (**OATS technique**)
- Open approach - 2 or 3 plugs (5-8mm)
- All with bony union at 3 months
- Results - **excellent 8 poor 2**

Shimada et al, CORR, 2005



Osteochondritis Dissecans

Osteochondral Autograft Transplantation

- 9 baseball players
- Mean age 13.6 F/U 3.5 yrs
- Kocher's interval approach
- Osteochondral grafts 10mm harvested from the intercondylar notch of the **lateral femoral condyle** or lateral patellofemoral joint
- Casted for 2 weeks
- 6 of 9 returned to previous sport level

Yamamoto et al, AJSM, 2006



Osteochondral Transplantation to Treat Osteochondral Lesions in the Elbow

By Patrick Arnold, MD, Stephan Vogt, MD, Peter Uebliacker, MD, Vladimir Martinek, MD, Klaus Wierdler, MD, and Andreas B. Imhoff, MD

Investigation performed at the Department of Orthopaedic Sports Medicine, Technical University Munich, Munich, Germany

- Retrospective review 7 patients grade II/IV lesions (5 capitellum, 1 trochlea, 1 radial head)
- Single osteochondral autograft from knee (9-11mm)
- Mean 5 year follow up:
 - 3/7 pain free
 - 7/7 graft incorporation on follow up MRI and no arthritis on radiographs
 - Normal range of motion in all patients
 - All improved and satisfied with procedure
 - No permanent donor site complications
 - All returned to sporting activity without limitation post-operatively

JBJS 2007; 89:2188-94



Osteochondritis Dissecans

- 12 patients (mean age 14.5 yrs)
- F/U 3.2 years
- Arthroscopic management: partially detached debrided to bleeding cancellous bone
- **No attempt to drill** underlying bone - no short-term advantage seen in this study
- 11 patients with minimal symptoms and **highly satisfied**

Ruch et al, Arthroscopy, 1998



Classification, Treatment, and Outcome of Osteochondritis Dissecans of the Humeral Capitellum

By Masahiko Takahara, MD, PhD, Naoyuki Maeh, MD, PhD, Junji Suzuki, MD, Hiroko Hiratake, MD, PhD, and Toshiaki Ogino, MD, PhD

- Retrospective review of 106 patients with OCD of the capitellum
- Treatment:
 - Non-operative: 36
 - >50% with mod-severe pain and limitation of activity
 - Fragment excision: 55
 - 35% with mod-severe pain and only 50% returned to competitive sports
 - Fixation or reconstruction: 15 (12 fixation/bone graft, 3 osteochondral autograft)
 - 14 patients with mild or no pain, only 1/3 returned to competitive sports
- Author Treatment Recommendation:
 - Stable lesions: open physis, grade I lesion, Normal ROM
 - Activity modification and rest (6/7 Stable lesions healed with rest)
 - Unstable lesions: closed physis, grade II/III lesion, >20 deg contracture
 - Treat surgically (specific treatment depends on size, grade and location of lesion)

JBJS 2007; 89:1205-14



Osteochondritis Dissecans

- 27 female gymnasts (age 9-16 years) with 41 arthroscopic surgeries
- Average f/u 3.5 years (0.5-7)
- Arthroscopic debridement and retrograde drilling
- 2 patients antegrade drilling and grafting with intact cartilage surface (failed-both required repeat arthroscopy)
- 79% of athletes returned to sport
- 40% bilateral
- No differences were seen in lesion size between athletes able or not able to return to sport

Bartkiw,Hastings, Nassar ASSH annual meeting 2012



Conclusions

- The best treatment is prevention and *early detection*
- Arthroscopic debridement is effective treatment of partial or loose lesions
- Adjunctive autograft transplantation may help **but not shown** to be better than simple debridement
- Extra-articular drilling can be considered for patients with capitellar OCD and stable lesions



THANK YOU!



ELBOW ARTHROSCOPY FOR ARTHRITIS

Scott P. Steinmann M.D.
Professor of Orthopedic Surgery
MAYO CLINIC



*Disclosure –consultation- from Arthrex, Elsevier,
Acumed, Biomet, Synthes
Royalty- Biomet, Arthrex*



ELBOW ARTHROSCOPY

- Becoming a more common procedure
- Indications evolving
- Continuing advancement in techniques



ELBOW ARTHROSCOPY

New techniques:

- Contracture release
- Treatment of arthritis

with this... a *potential* for neurovascular injury



Neuroanatomy

- Fear of nerve injury is what makes us most hesitant (appropriate)
- Clearly under reported- only a few cases in the literature
- I have heard of every nerve injured (by good surgeons)



ELBOW ARTHROSCOPY

Indications:

- Undiagnosed pain
- Painful catching or locking (plica)
- Loose bodies
- Stiffness/Arthritis**
- Synovectomy
- Osteochondritis Dissecans
- Lateral Epicondylitis
- Fracture
- Ulnar neuropathy?
- Biceps partial tear debridement?



ELBOW ARTHROSCOPY

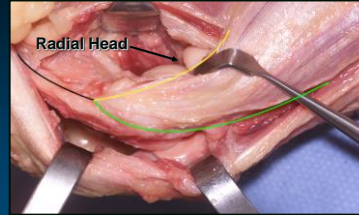
- Preoperative Planning
- Standard Radiographs:
 - Anteroposterior
 - Lateral
 - Oblique
- CT scan (3-D very good for Arthritis and Fracture workup)



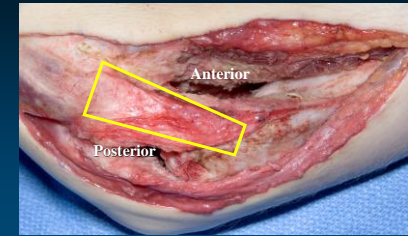
Open Debridement:
Still a good option



Lateral Exposure



Lateral Approach



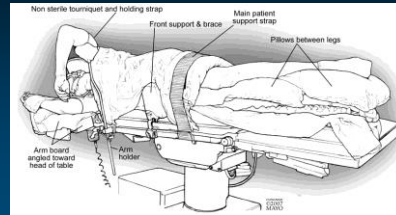
ELBOW ARTHROSCOPY

Surgical Technique:

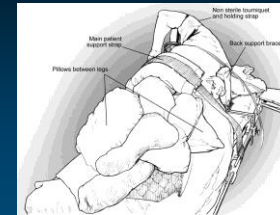
- General Anesthesia- preferred
- Awkward position for an awake patient
- If a block used-you will be unable to ascertain nerve status postop



Operative Set-up



Operative Set-up



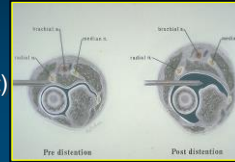
Operating Room Setup



ELBOW ARTHROSCOPY

Surgical Technique:

- Mark out all portals with surgical pen
- Exsanguinate with Esmarch/tourniquet
- Inject 20-25 cc saline (direct posterior or anterolateral is easiest)



Elbow Arthroscopy

Portals

- First there is no *wrong portal*
- Just safe portals
- Okay to start on Medial, Lateral or Posterior
- No limit on the number or portals- use what you need for the job



ELBOW ARTHROSCOPY

Surgical Portals:

Anterolateral

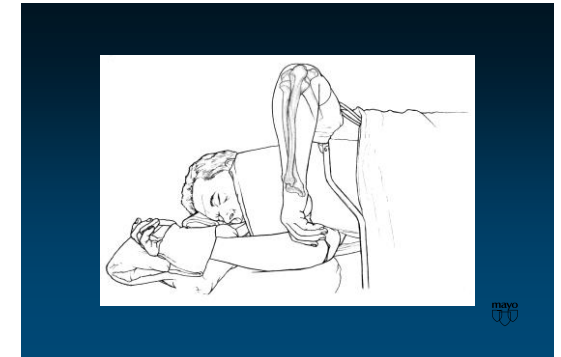
- First portal to establish
- Place a few mm distal and anterior to radiocapitellar joint sulcus
- Incision skin just anterior to RC joint
- Assume you are close to the radial nerve (4 mm)

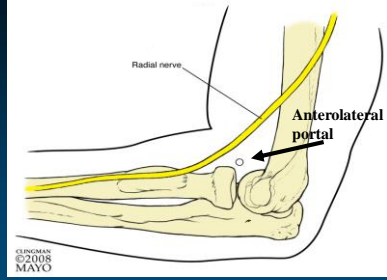
Blunt trocar to enter joint

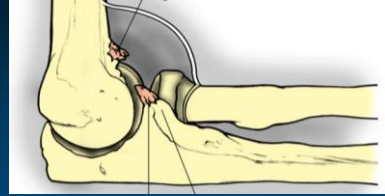


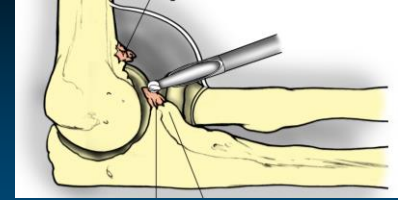
Operative Steps

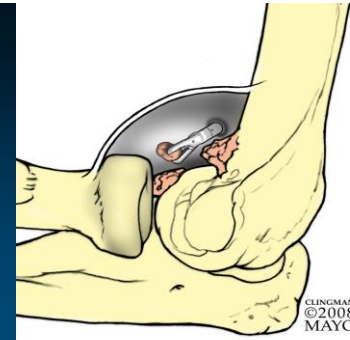
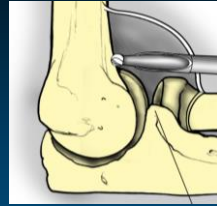
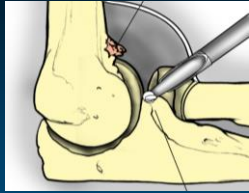
Elbow Arthroscopy



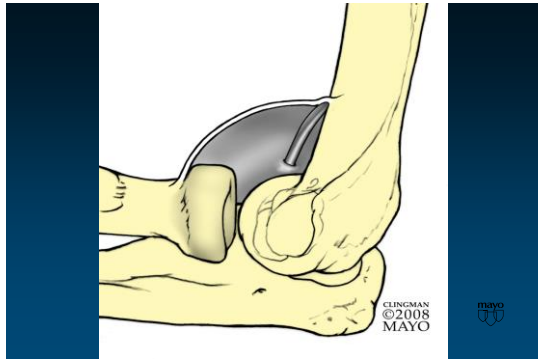


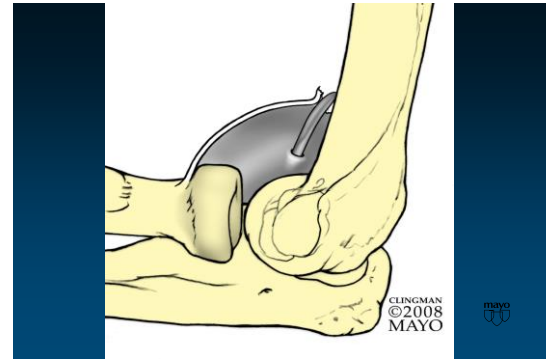


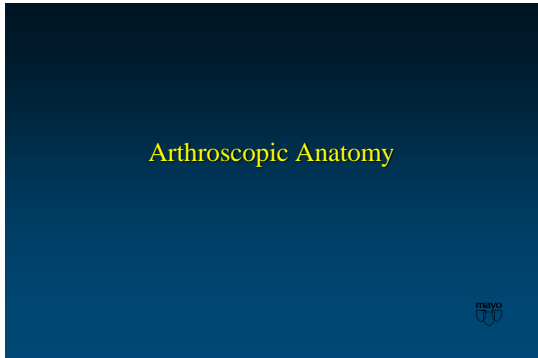
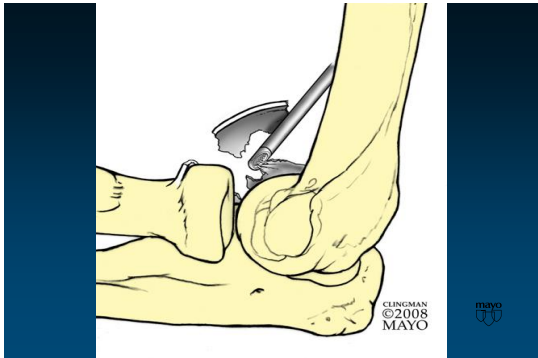
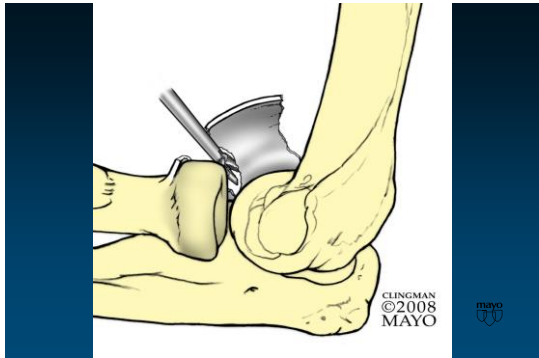


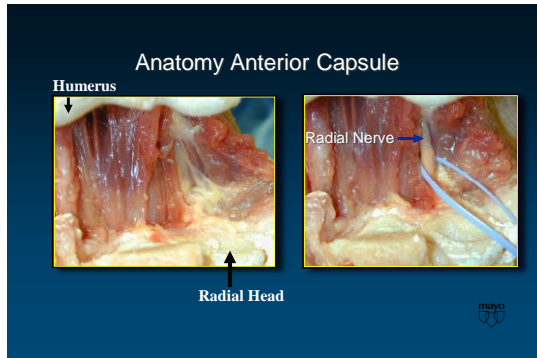


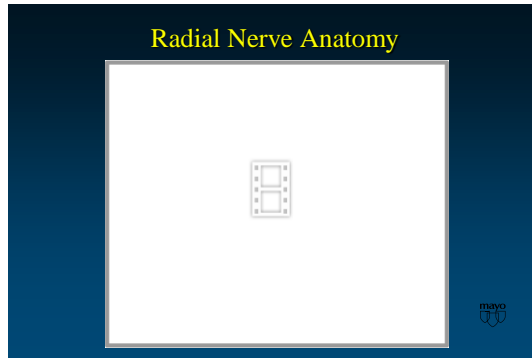


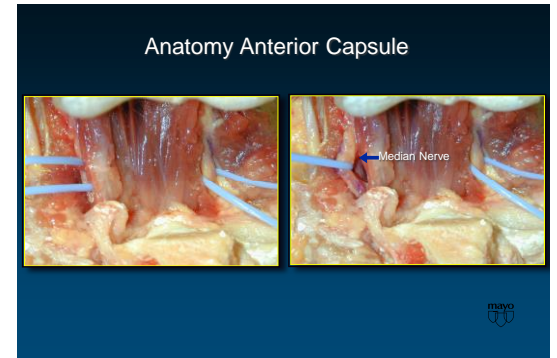




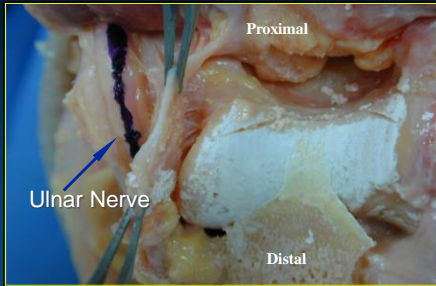








Anatomy Posterior



ELBOW ARTHROSCOPY

Loose Bodies

IMPORTANT:

- Single loose body removal does not help many patients.
- Often a clue to the presence of osteophytes and arthritis.



Clinical Studies

Arthroscopic Treatment of Elbow Arthritis

- 41 patients with Osteoarthritis (42 elbows)
- Follow-up averaged 176.3 weeks (range: 104-272 weeks)
- 37 male, 4 female patients
- Mean age 52.8 years
- 28 dominant extremities
- Single surgeon

Adams, JSES, 2008

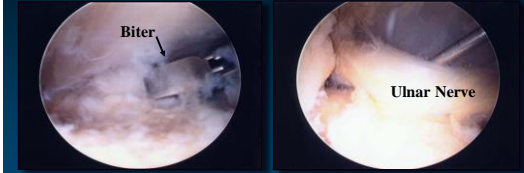


Arthroscopic Treatment of Elbow Arthritis

	Preoperative	Postoperative	P value
Flexion	117.3° (range: 30-145°)	131.6° (range 90-150°)	<0.0001
Extension	21.4° (range 0-50°)	8.4° (range 0-30°)	<0.0001
Pronation	72.7° (range: 30-90°)	80.1° (range 20-94°)	0.0937
Supination	70.7° (range 30-90°)	78.6° (range 40-90°)	0.0056

Adams, JSES, 2008

Elbow Arthritis with Ulnar Neuropathy-Release of Posteromedial Capsule



Arthroscopic Ulnar Nerve Decompression in the Setting of Elbow Osteoarthritis
Kovachevich and Steinmann, JHS, 2012



Posteromedial Capsule Release



Arthroscopic Ulnar Nerve Decompression in the Setting of Elbow Osteoarthritis
Kovachevich and Steinmann, JHS, 2012



Arthroscopic Studies

- 22 patients
- 42 years, mean age
- Arthroscopic release
- ROM flexion 122° → 141°
extension 38° → 18°

Arthroscopic debridement and capsulectomy of the contracted elbow is effective

Results are comparable with those of other reports in the literature in which both arthroscopic and open methods were used

Nguyen D, Proper SI, MacDermid JC, King GJ, Faber KJ
Arthroscopy, 2006.



Arthroscopic Studies

- **Somanchi et al: Acta Orthop Belg 2008:**
 - 26 patients with debridement and capsular release
 - Functional improvement in 87%
 - Improved Elbow Functional Assessment score 48 → 84
- **Schubert et al: Acta Orthop Belg 2007**
 - Improved pain/function at mean 6 yrs in 24 patients
 - DASH 56.01



Arthroscopic Studies

- Krishnan et al JSES 2007
 - Arthroscopic Ulnohumeral arthroplasty at 24 mo
 - Improvement of 73 degrees in f/e arc
 - High rate of satisfaction
- Savoie Arthroscopy 1999: Arthroscopic Ulnohumeral arthroplasty
 - 92% G → E results



Evidence-based indications for elbow arthroscopy

- Fair-quality evidence in the treatment of rheumatoid arthritis and lateral epicondylitis
- Poor-quality evidence for, rather than against, degenerative arthritis, osteochondritis dissecans, radial head resection and loose bodies
- Insufficient evidence for or against posterolateral rotatory instability and septic arthritis

Yeoh et al, Arthroscopy, 2012



Overview of Arthroscopy for Arthritis

- **Similar results** relative to open procedures
- **81-92% G-E results***
- Has **not** been shown to result in sooner return to work, superior outcomes
- Does **not** establish the superiority of this procedure over open procedures

*Adams et al JSES 2008; Kelly Arthroscopy 2008; Savoie JSES 1999; Horiiuchi et al JBJS 2002; Ogilvie-Harris et al Arthroscopy 1995; Redden Arthroscopy 1993;



REMEMBER:

Small Cases ...



...before Big Cases

