

Sports Elbow

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Type of pathologies

- Acute:

- Fractures - dislocation
- Sprain

- Chronic:

- Overload syndrome

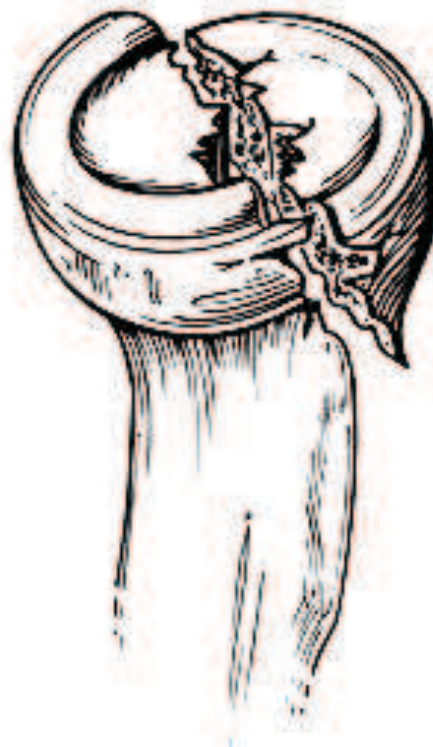
Fractures

- Radial head:

Mason classification



Type I



Type II



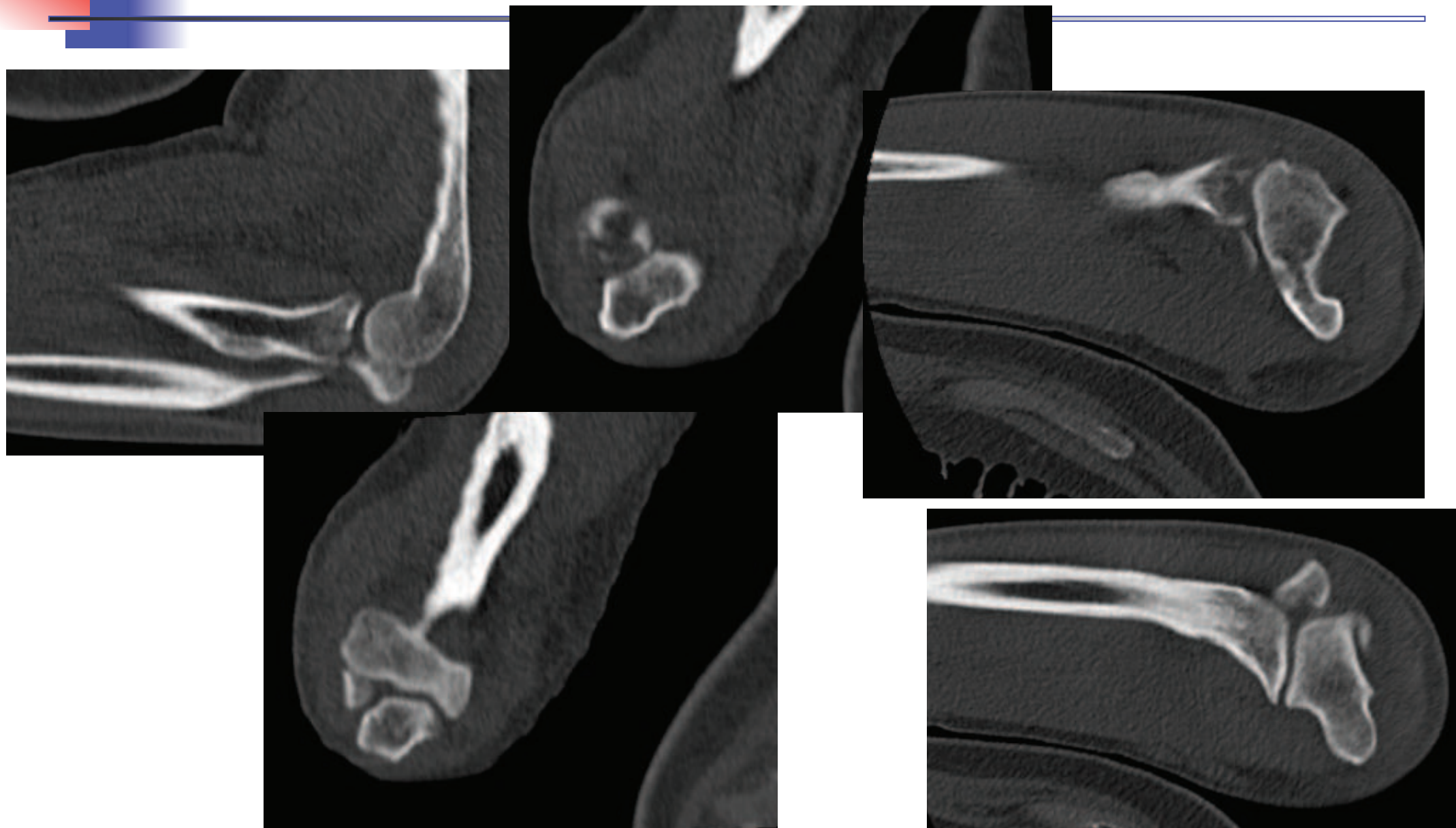
Type III

Mason IV: III + elbow dislocation

Radial head fracture



Ct-scanner



Fractures

- Humerus distal:



Fractures

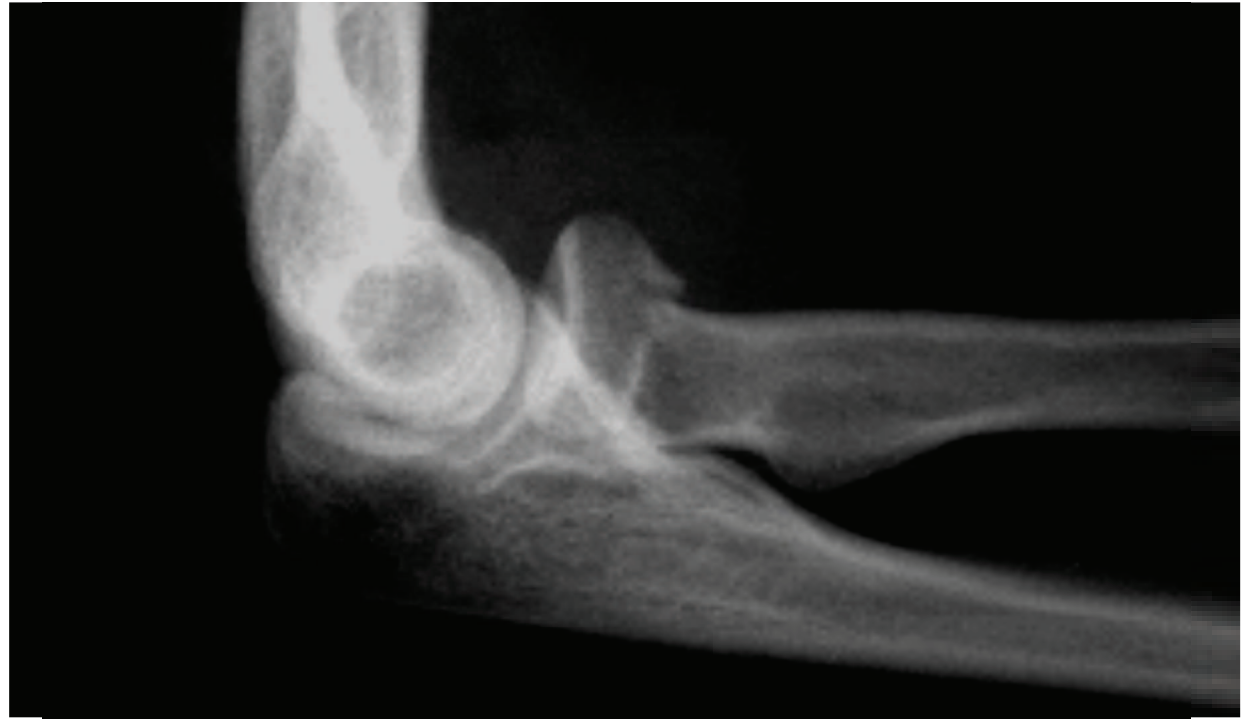
- Olecranon:



Dislocation

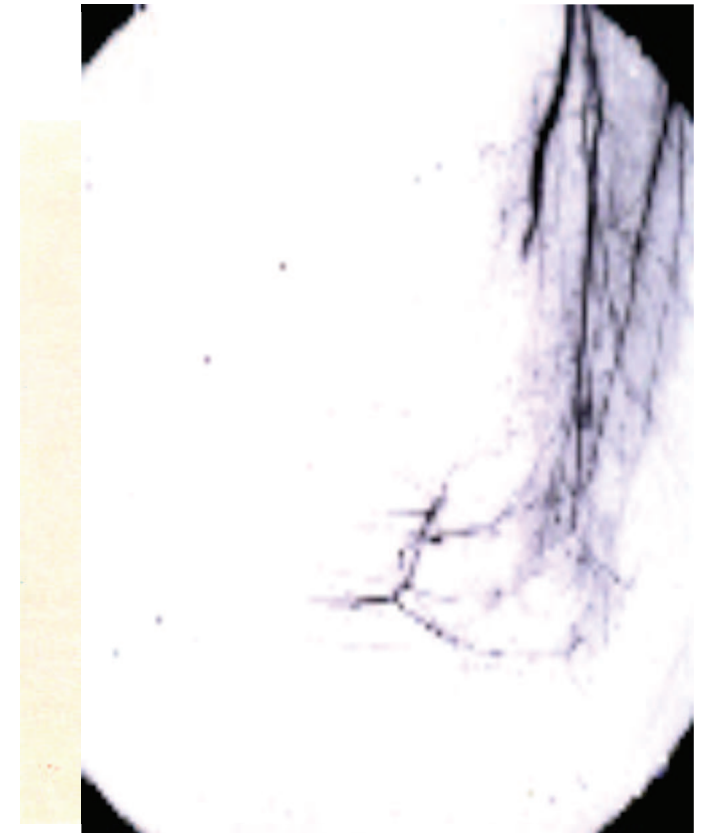
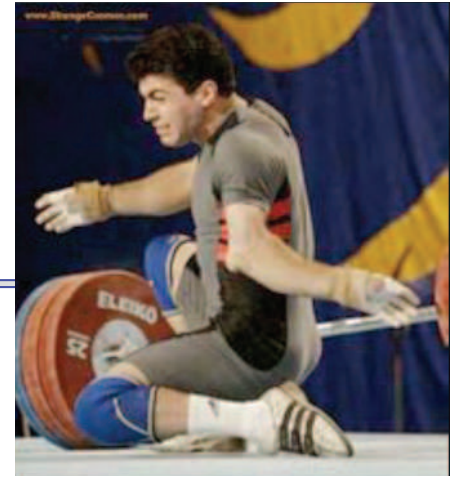


Fracture-dislocation



Strategy

- Postero-lateral
- Neurological and vascular evaluation
- Rapid transfer to the hospital
- Reduction under local or loco-regional anesthesia



Complications

- Ectopic bone
- Stiffness

28 % limitation in ROM
32 % ectopic bone

Farron A & Menetrey J
Swiss Surgery 1997



Early mobilisation under control

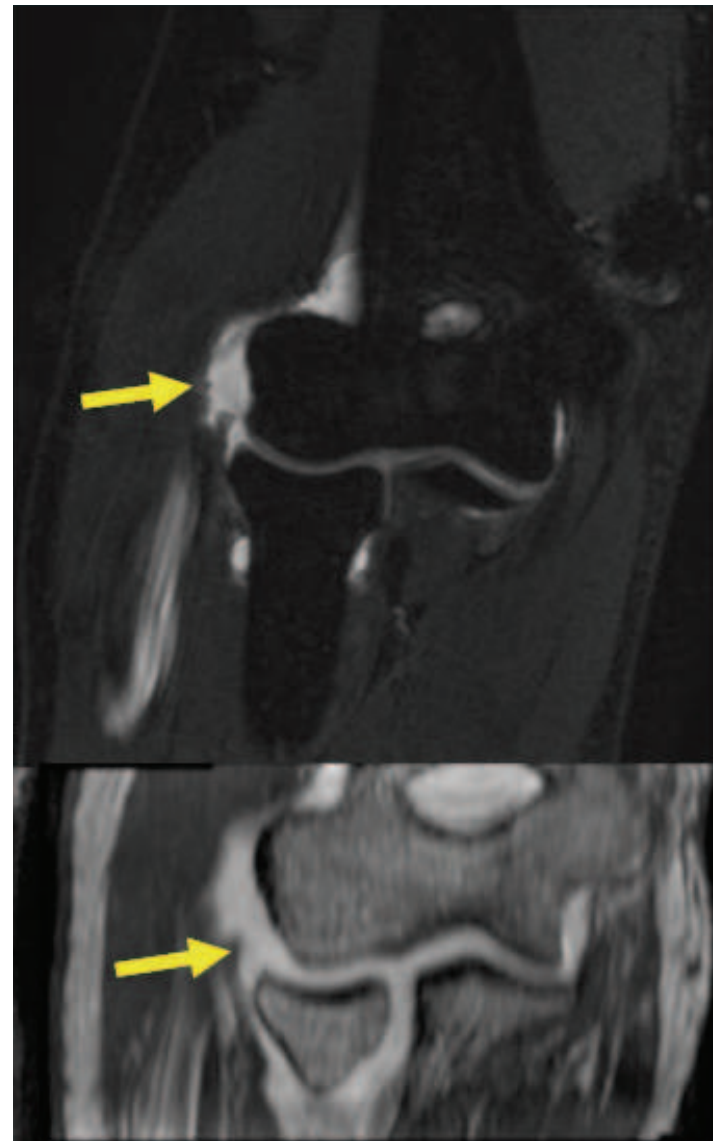


Elbow sprain

- Mechanism of injury
- Clinical examination
- Standard radiographs
- Suspicion bone lesion - Ct-scan
- Suspicion soft tissue - MRI

Elbow sprain investigation

Complete tear of
lateral radial ligament



Elbow sprain treatment



Elbow sprain treatment



Lesions of the elbow in sports



Lesions of the elbow in sports

- *Racket sports*
Lateral epicondylopathy with backhand
- *Golf*
Medial epicondylopathy on downswing with trailing arm
Lateral epicondylitis at impact with leading arm
- *Basketball*
Posterior compartment with follow through on jump shot
- *Waterskiing*
Valgus extension overload of posterior compartment



Lesions of the elbow in sports

- *Bowling* Flexor-pronator soreness
- *Baseball* Valgus stress of pitching
- *Volleyball* Valgus stress at impact of spiking
- *Gymnastic* Radiocapitellar overload and posterior impingement
- *Weight training* Ulnar collateral ligament sprain, ulnar nerve irritation



Lesions of the elbow in sports

- *Javelin* Valgus-extension overload of throwing
- *Canoeing, kayaking* Distal bicipital tendinopathy
- *Archery* Extensor muscle fatigue, lateral epicondylopathy
- *Rock climbing* Brachialis or distal biceps tendinopathy



Pathologies and pain

■ Anterior:

- Brachialis tendinopathy
- Biceps tendinopathy
- Anterior capsular tear
- Distal rupture of the biceps
- Ectopic bone
- Loose body
- Rond pronator muscle syndrome
- Annular ligament tear



Pathologies and pain

■ Posterior:

- Traction apophysitis
- Triceps tendinopathy
- Rupture of the triceps
- Valgus-extension overload syndrome
- Olecranon osteophytes
- Loose body
- Stress fracture of the olecranon
- Olecranon bursitis



Pathologies and pain

■ Medial:

- Medial fracture of the epicondyle
- Medial epicondylopathy
- Flexor-pronator muscles rupture
- “Snapping elbow” syndrome
- Medial instability of the elbow
- Ulnar neuropathy
- Loose body



Pathologies and pain

■ Lateral:

- OCD
- Lateral epicondylopathy
- Radial head fracture
- Radio-capitellar overload
- Radio-capitellar osteo-chondral fracture
- Loose body
- Lateral muscles rupture
- Postero-lateral instability
- Radial neuropathy



Climber's elbow

- Tear of the brachialis muscle
- Pronation and semi-flexion
- ENMG = firing and contractile activity increased in brachialis

Bollen *Br J Sports Med* 1988

- DD: Anterior capsule tear
Distal rupture of biceps muscle

Distal rupture of biceps

- Extension-supination against resistance
- Pain on biceps tuberosity

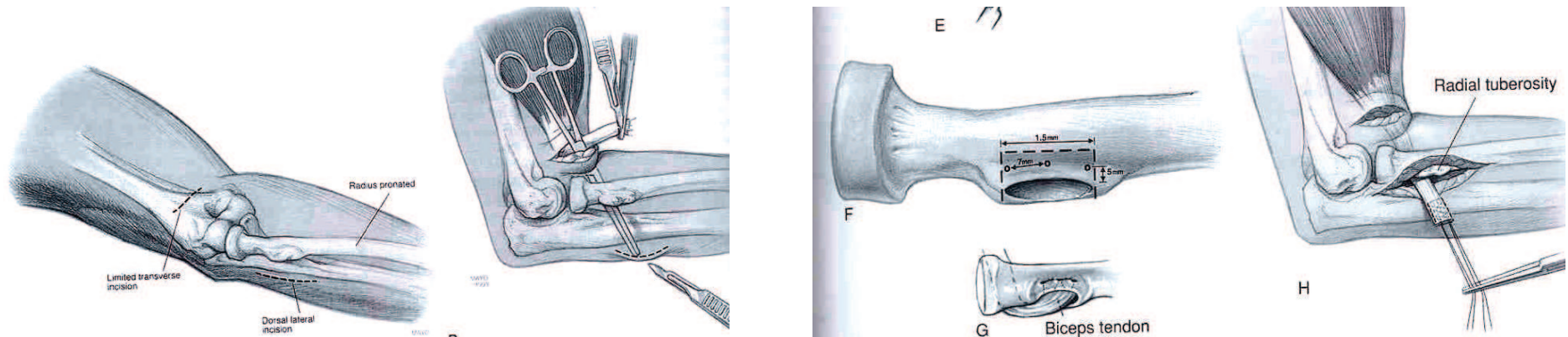
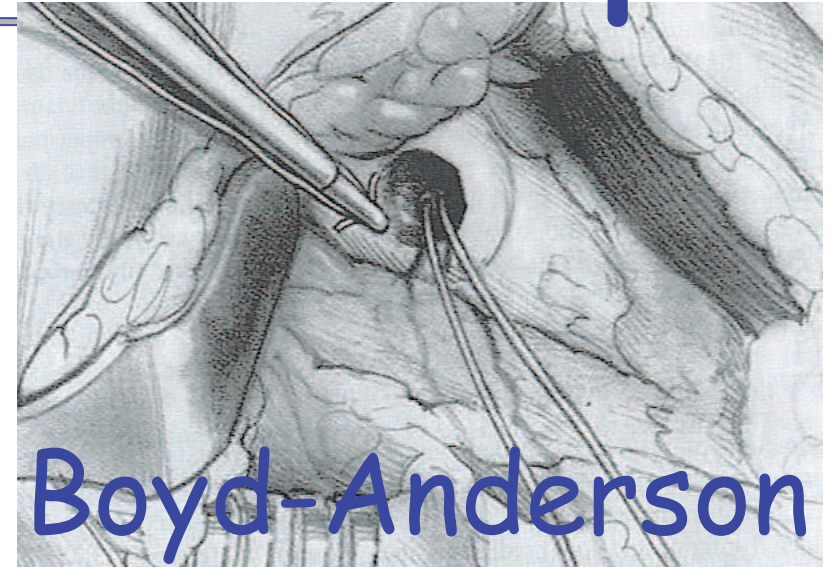


Distal rupture of biceps



Distal rupture of biceps

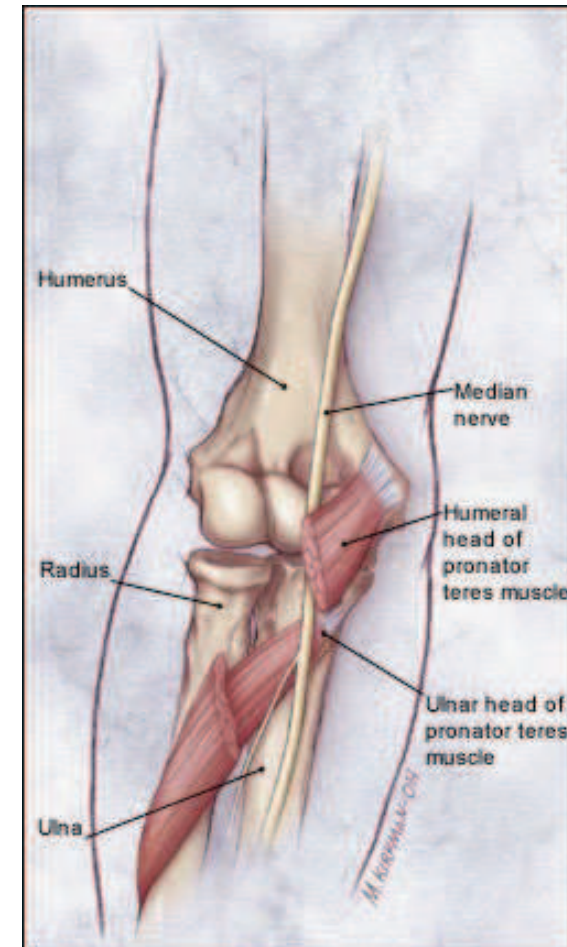
- Surgical repair
- Anchors
- Re-insertion according Boyd-Anderson



Boyd & Anderson *JBJS* 1961

Pronator teres syndrome

- Compression of the median nerve
 - under Struthers ligament
 - between the two bundles of the teres pronator muscle
 - under the fibrous fascia of the FDS
- Pain in pronation
- Tinel + on pronator





“Snapping elbow”

- Sliding of the ulnar nerve over its tunnel followed by reduction
- Passage of the medial head of the triceps on the medial epicondyle

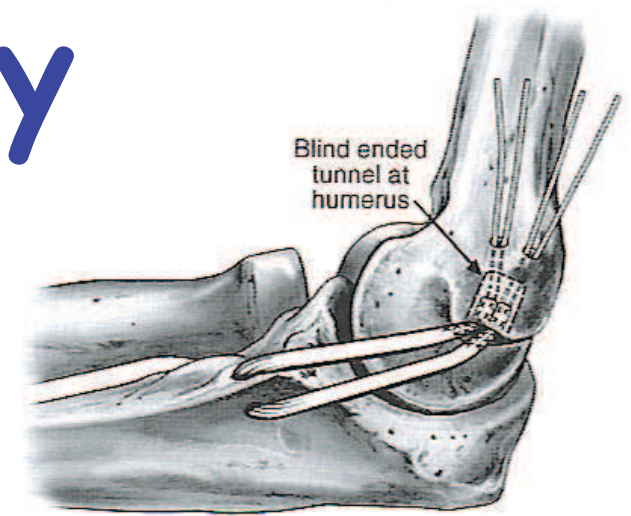
Dreyfuss et al. *JBJS* 1978

Observation

Nerve transposition

Medial instability

- Acute and chronic
- Pain 2 cm epicondyle
- Laxity in valgus

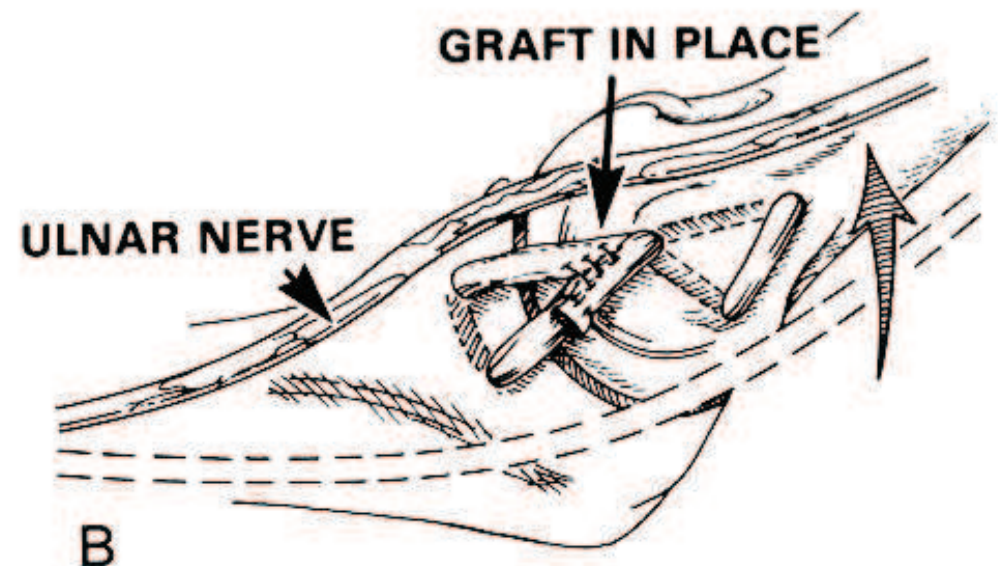


Safran et al *Sports Med Arthrosc Rev* 2003

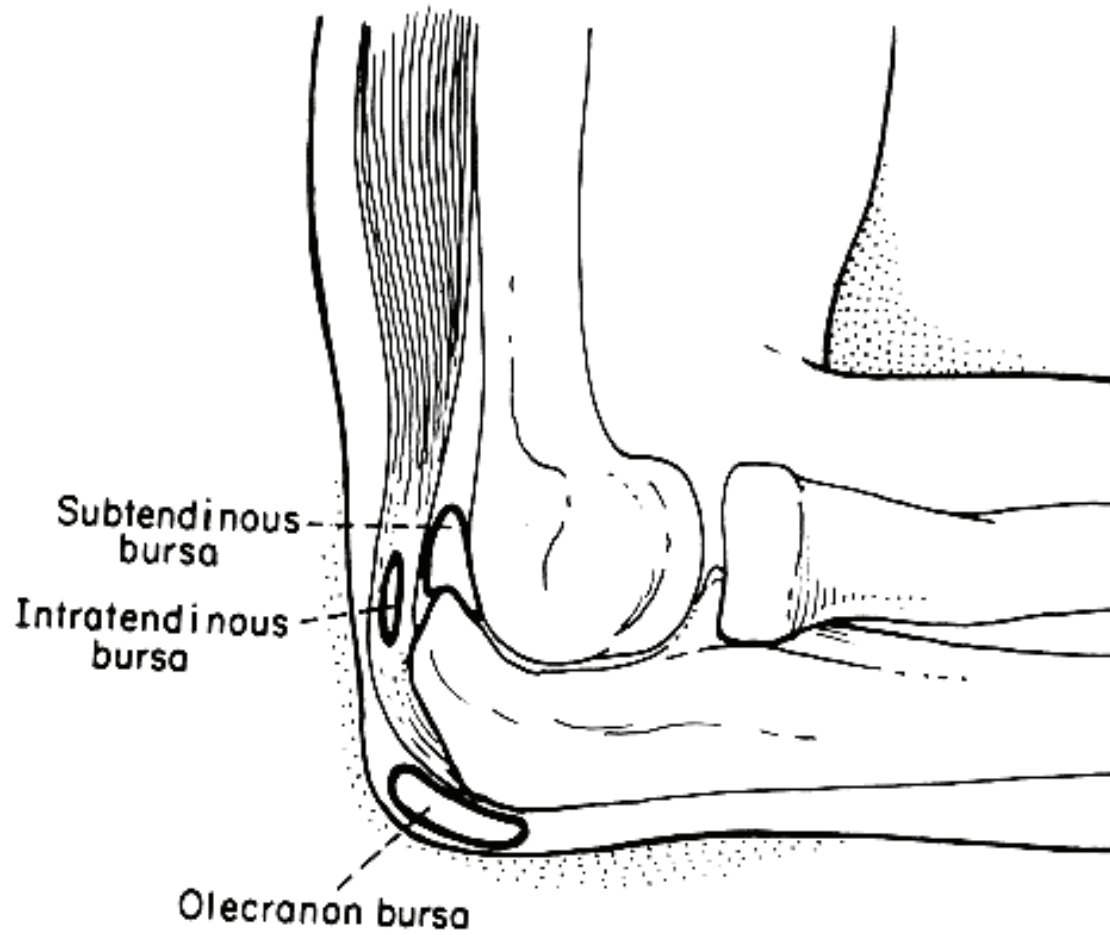
Conservative treatment

Ligament reconstruction

Jobe et al *JBJS* 1986

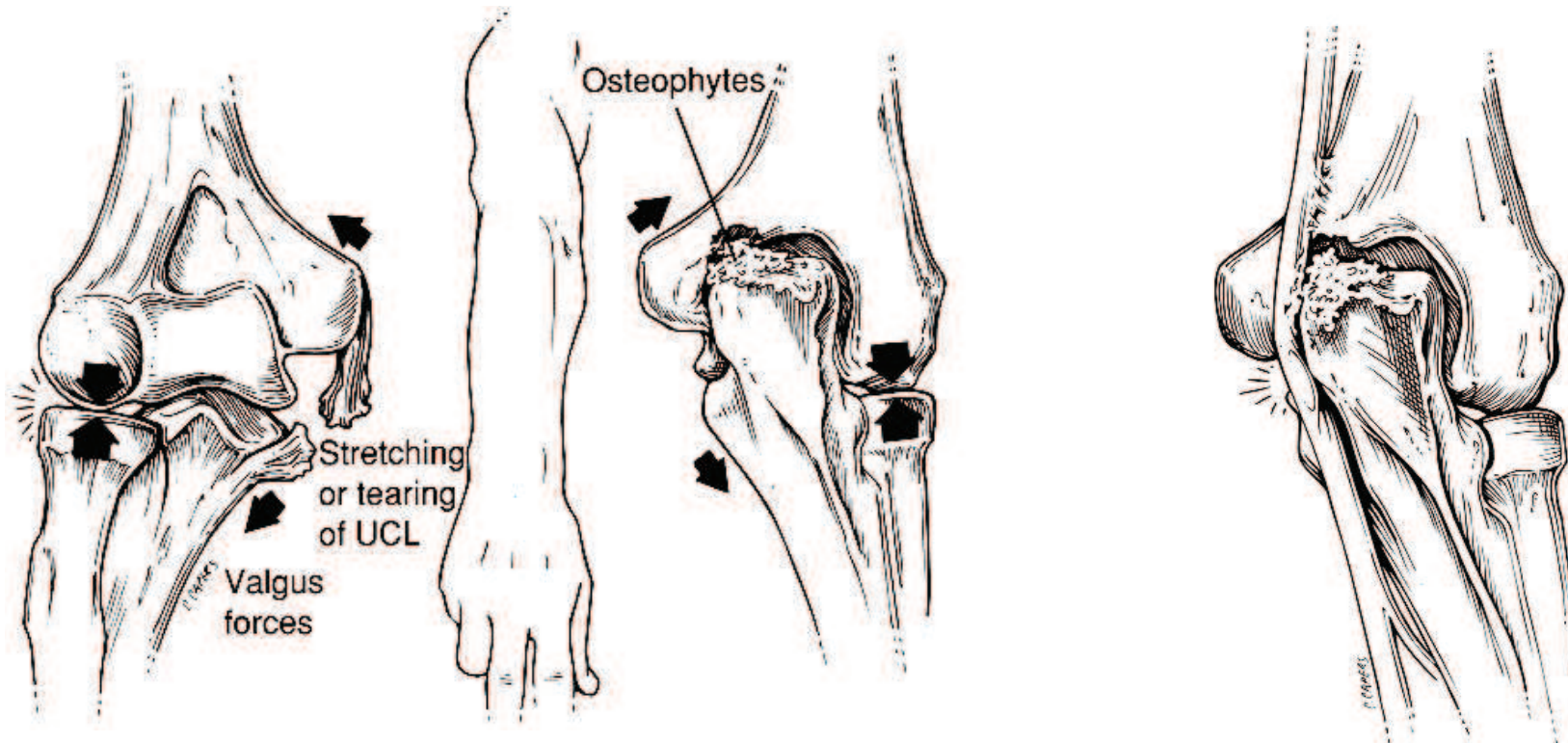


Olecranon bursitis



Valgus-extension overload syndrome

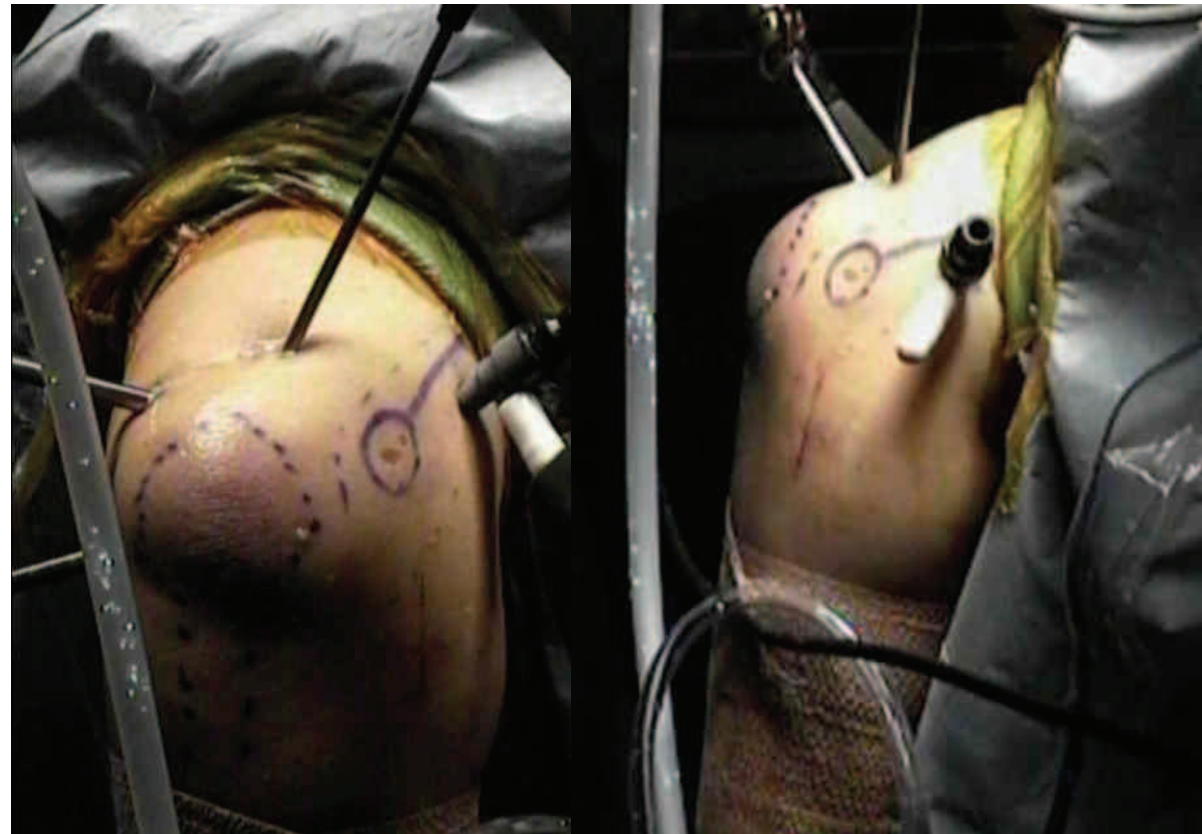
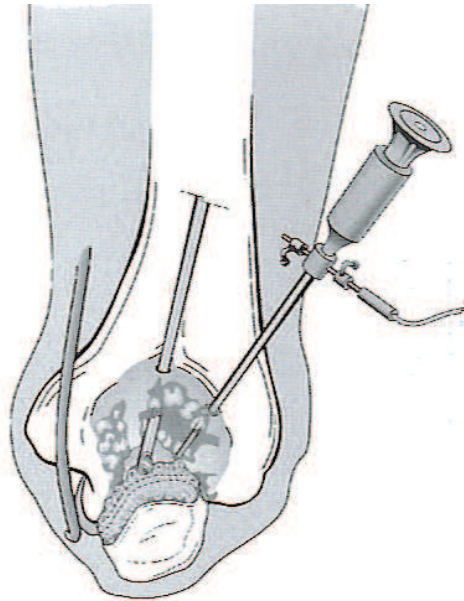
- Throwing sports
- Pain in extension + valgus stress



Valgus-extension overload syndrome

■ Treatment:

- 1) Strengthening of flexor-pronator muscles
- 2) Arthroscopy





Epicondylalgia - ...pathy lateral

- 7-20 x more frequent than medial
- 50% tennis players > 30 years
- Leisure players 35-50 ans (6 months-2,5 years)
- Insufficient physical conditioning
- Bad technique
- Inadequate material

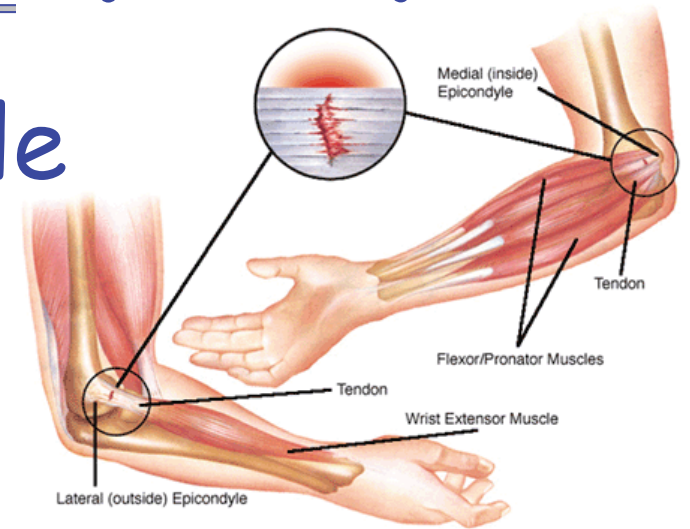


Etiology

- Tendinopathy (Extensor carpi radialis brevis)
- Humero-radial joint (Plica synovialis, loose body, chondral lesion)
- Neuropathy n. interosseous post. (n. radial)
- Cervical origin : C6

Epicondylalgia - ...pathy

- Pain 1-2 cm of the epicondyle
- Prehension (coffee cup)



- 22 % patients - calcifications

Nirschl RP in Morrey BF: *The elbow and its disorder*

- Extensor carpi radialis brevis
- Extensor digitorum communis
- Extensor carpi radialis longus

Treatment

■ Brace:



- Inhibition of the maximal contraction of wrist and fingers flexors and extensors
- Decrease the activity and muscle expansion
- Decrease the energy to be absorbed by the joint
- Solidarise the muscles to surrounded tissues



Treatment

Prevention !!

- Physical conditioning
- Force - endurance
- Warm-up
- Stretching
- Progression
- Material
- Technique



Treatment

- Rest - no sports activity (aggravating activities)
- Physical therapy (Deep friction, ice massage, stretching, grip strengthening, extracorporeal shock wave therapy?)
- Acupuncture
- PRP (Platelet-Rich Plasma)
- NSAID ???
- Technical correction of the sporting act



Surgical treatment

- Needs for an anatomical diagnosis
- Failure of a well-performed conservative treatment
- At least a year
- Open surgery
- Arthroscopy



Surgical treatment

- 60% HEALED - NO MORE PAIN
- 20% IMPROVED
- 20% UNCHANGED, EVEN WORSE

Regardless treatment modalities, up to 1 year, epicondylopathy will resolve in most patients



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