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LATERAL EPICONDYLITIS

- Misnomer
- Degenerative process; not inflammatory
  - “Angiofibroblastic dysplasia” (Nirschl)
- Enthesopathy involving the ECRB
- Common condition in patients 40 - 60 years old
- Repetitive grasping/lifting, prolonged wrist extension
- Can cause debilitating pain

LATERAL EPICONDYLITIS

- Laterally based elbow pain
- Exacerbated by wrist extension
- Tenderness just anterior/distal to lateral epicondyle

LATERAL EPICONDYLITIS

- Natural history: 90-95% cases resolve
- Initial presentation should be treated non-operatively
- What if symptoms persist?
  - Injection: PRP (Mishra, AJSM 2006)
  - Surgery: ECRB debridement
    - open vs. arthroscopic

LATERAL EPICONDYLITIS TREATMENT

- Activity modification
- Orthotics
- Physical therapy
- Ergonomics
- Injections
LATERAL EPICONDYLITIS

- Failure to respond to surgery:
  - Wrong diagnosis (PIN, PLRI, OA, plica)
  - Inadequate debridement
  - Introduction of new pathology (iatrogenic instability)

MEDIAL EPICONDYLITIS

- Much less common than lateral epicondylitis
- Tendinosis of the conjoined tendon of the pronator teres and flexor carpi radialis

MEDIAL EPICONDYLITIS

- Dx: Tenderness anterior to medial epicondyle, pain provoked by resisted wrist flexion/forearm pronation
- Exercise restraint with repeated corticosteroid injections
- Ulnar neuritis may coexist with medial epicondylitis in up to 50% cases
- Operative results less successful than lateral epicondylitis

TRICEPS TENDINOSIS

- Degeneration/partial tearing of triceps insertion
- Secondary to repetitive forceful elbow extension
- Tender at olecranon insertion
- Resisted elbow extension exacerbates symptoms
- Radiographs - frequently an enthesophyte at olecranon
TRICEPS TENDINOSIS

- Non-op tx: activity modification, physical therapy
- Do not inject corticosteroids
- Operative tx: excise enthesophyte, olecranon bursectomy, debride degenerative tendon; repair high grade partial tears

OSTEOARTHRITIS

- Male prevalence
- Dominant arm
- Laborers
- Usual complaint: loss of motion, pain at end range
- Symptoms develop insidiously
- Loss of 30° ext or flexion may necessitate surgery
- Elbow OA is not treated with arthroplasty
ELBOW TENDON RUPTURES

- Distal biceps
- Triceps

DISTAL BICEPS RUPTURE

- Due to eccentric overload of flexed elbow
- Usually heavy lifting involved
- Male predominance, 40 - 60 years
- Causes weakness in forearm supination

Diagnosis:

- Acute tearing sensation
- Visibly distal arm deformity
- Supination accentuates deformity
- Lack of palpable biceps
- Abnormal hook test

Treatment: surgery within 4 weeks

- Restores supination strength
- Risk of nerve injury, heterotypic ossification

“Hook test”
TRICEPS RUPTURE
- Rare injury
- May be caused by traumatic fall
- Associated with chronic renal disease and anabolic steroid use
- Acute loss of active elbow extension, palpable tendon defect
- Requires surgical repair for restoration of function

ELBOW FRACTURES/DISLOCATIONS
- Radial head
- Olecranon
- Distal humerus

ELBOW FRACTURES
- Radial head fracture
  - Due to fall on outstretched hand
  - Treatment is based on displacement of fracture
    - <2mm displacement - non-op
    - >2mm displacement - ORIF
  - Comminuted - radial head replacement

RADIAL HEAD FRACTURE
- Minimally displaced fractures - early range of motion to prevent stiffness
- Initial splint for 7 - 10 days
- Sling for comfort, physical therapy to restore motion
- Activities as tolerated by 6 weeks
- Motion loss is not uncommon
**OLECRANON FRACTURE**
- Can be due to a direct or indirect trauma
- Non-displaced fracture can be treated closed (long arm cast for 6 weeks)
- Displaced fracture - surgery to reduce joint and restore active elbow extension

**DISTAL HUMERUS FRACTURE**
- Most adult distal humeral fractures are inherently unstable
- Frequently intra-articular
- Usually require operative reduction and stabilization
- Motion of $30^\circ - 130^\circ$ is considered a good result; occurs 75% of time
- Severe fractures in the elderly treated with elbow replacement

**ELBOW DISLOCATION**
- Classified as "simple" (no associated fractures) vs. "complex" (associated fractures)
- Common large joint dislocation (2nd behind shoulder)
- Occurs in younger patients (teens - 30)
- Usually due to axial loading combined with varus and rotation
- Lateral ulnar collateral ligament usually torn

**ELBOW DISLOCATION**
- Simple dislocation
  - closed reduction under sedation
  - post-reduction x-rays to confirm concentric reduction
  - assess stability
  - splint in $90^\circ$ for 2 - 4 weeks
  - supervised restoration of motion with hinged brace
COMPLEX ELBOW DISLOCATION

- “Terrible triad”
- LUCL rupture
- Radial head fracture
- Coronoid process fracture
- Requires operative repair to stabilize elbow

RECURRENT ELBOW INSTABILITY

- Lateral elbow laxity due to a dislocation or subluxation can cause recurrent instability
- “PLRI”
- Elbow unstable in extension/supination
- Lateral ulnar collateral laxity
- May require ligament reconstruction

PERIPHERAL NERVE COMPRESSION

- Cubital tunnel syndrome
- Pronator syndrome
- AIN compression
- Radial tunnel syndrome

PERIPHERAL NERVE COMPRESSION

- Cubital tunnel syndrome
- Compression of ulnar nerve in cubital tunnel
- Associated with ulnar forearm/ulnar hand paresthesias
- Symptoms worsen with elbow hyper flexion, cell phone
- Night symptoms
- Positive Tinel’s at posteromedial elbow
- Later finding of hand interosseous muscle atrophy
- NCS/EMG confirms diagnosis, documents severity
CUBITAL TUNNEL SYNDROME
- Non-op:
  - NSAIDs, night splint, ergonomics - 50% success
- Operative:
  - Ulnar nerve decompression vs. transposition - 80-90% success when denervation not present

PRONATOR SYNDROME
- Median nerve compression at elbow
- Symptoms similar to CTS except medial elbow/forearm pain, palmar paresthesias (palmar cut. branch)
- Symptoms exacerbated with forearm pronation
- More common in women in 50s
- Associated with medial epicondylitis
- Tx: rest, NSAIDs, splint

AIN COMPRESSIVE NEUROPATHY
- Motor-only neuropathy
- Weakness in FPL, FDP (index, long), pronator quadratus (“okay sign”)
- Associated with brachial neuritis
- EMG can help with diagnosis
- Usually improves with rest and elbow flexion splinting; surgical decompression unusual

RADIAL TUNNEL SYNDROME
- Compression of the PIN in the radial tunnel
- Causes dorsal forearm pain
- More common in laborers
- Resisted supination worsens symptoms
- May cause weakness in MCP extension, wrist extension in radial deviation
- Dx: EMG, lidocaine test
OCCUPATIONAL INJURIES OF THE ELBOW

- Brief overview of the most common degenerative and traumatic conditions encountered in the workforce
- Degenerative tendinosis: non-op
- Tendon ruptures: repair
- Fractures/dislocations: mixture of operative and non-op
- Neurologic: non-op

Questions?

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