Sprains and dislocations of the thumb ray

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TM joint

Rare injuries

Clinical diagnosis includes localized pain, swelling, and sometimes laxity in one or two planes or even a deformity

Radiographs (Kapandji’s) are mandatory to eliminate a Bennett’s fracture, much more frequent
Radiographs are sometimes difficult to read, so in case of doubt, Stress radiographs may be helpful.
Treatment

- **Benign sprains:** Strapping
- **Severe sprains:** thumb spica cast
- **Dislocations:**
  - Orthopedic reduction
  - Either K-wires fixation
  - Or ligamentous reconstruction
Thumb metacarpophalangeal injuries

- Frequent injuries
- Clinical diagnosis is rather easy
- Do not miss the severe injuries which are surgical indications +++
Anatomy of the MP joint

- Medial side
- Lateral side
- Anterior (volar plate)
The medial side

- The medial collateral ligament has two bands
- That are covered with the dorsal expansion of the adductor pollicis
The medial MP sprain: is there a Stener’s lesion?

- During a fall (with a stick), the thumb is forced in valgus and flexion.
- The medial ligament is divided distally in 90% of cases.
- When the thumb goes back in extension, the dorsal aponeurosis interposes between the two ends of the ligament which cannot heal +++
- Real frequency is unknown (at least > 50% cases)
Stener’s lesion
Stener's lesion

- Clinical diagnosis is rather easy
- (If X-Rays are normal +++)
- Obvious instability during testing
- The bottle test ++
- > 25° of valgus instability compared to the contralateral side
Radiographs

- Most often normal
- **Indirect signs of severity**
  - Spontaneous joint opening
  - Anterior subluxation
- **Direct signs of the ligamentous injury** (Bony avulsion)
Other imaging techniques

- Sonography:
  - Sensibility 88%, specificity 83-91%

- MRI:
  - Sensibility 63-100%, specificity 50-100%

- Not available everywhere, operator-dependant techniques

- Therapeutic interest?
What to do?

- Benign injury: Nothing or a 10 days strapping for pain relief
- More severe injury (without) Stener's lesions: 45 days in a thumb spica cast
- Severe laxity (or in case of doubt) = Surgery +++
Surgical technique

- Local or regional anesthesia
- V type incision
- Respect the dorsal sensory branch
- Incise the dorsal aponeurosis close to the EPL tendon
Reinsertion of the medial ligament on the phalanx (periosteal suture, anchors,...)

A small bony piece is excised, otherwise fixed

The dorsal aponeurosis is closed over the ligament

Cast immobilization for 1 month, then rehabilitation
Results

- 80-90% are pain-free after 6 months
- Loss of motion of 5-10% (Kapandji 9-10)
- 60-70% regain normal grip and pinch strength
- The MP is enlarged definitively
Is surgery an emergency?

- YES
- Clinical results decline after 8 days
- After 3 weeks, a ligamentous suture may not be possible and a ligamentoplasty may be needed
Lateral ligament injuries

- 10 times less frequent
- No Stener’s lesion
- Postero-lateral (rotatory) instability
- Less impressive clinically
- Very poorly tolerated
- Surgical treatment is mandatory in severe injuries
Surgical principles and techniques are similar.
Posterior MP dislocation

- Clinical diagnosis is easy
- Radiological classification are useless
- Two difficulties:
  - The reduction maneuver
  - Surgical indications
The reduction maneuver

- NO TRACTION
- Under anesthesia
- Described by Farabeuf
- Increase the deformity and push the phalanx against the metacarpal in order to prevent irreducibility
Functional anatomy of the volar plate

- Passive restraints
  - Metacarpophalangeal lgt
- Active restraints
  - Sesamoido-phalangeal lgt
  - Sesamoids
  - Thenar muscles
Indications

- Depend of the ligamentous injuries
- That must be tested under anesthesia with a radiological evaluation
- If there is a lesion of one of the collateral ligament
- Surgery is indicated
Metacarpophalangeal ligament

- The most frequent injury (> 80%)
- Stable after reduction
- During extension, the sesamoids stay with the phalanx
- Orthopedic treatment (cast) for 1 month
If

- Rupture of the sesamoïdo-phalangeal ligament
- Fracture of a sesamoid bone
- Rupture of the flexor pollicis brevis tendon

- Rupture of the active restraints
- Surgical treatment
Diagnosis of a rupture of the active restraints

- The sesamoid bones do not follow the phalanx during extension
- Rupture of the sesamoido-phalangeal ligament
Diagnosis of a rupture of the active restraints (2)

- Fracture of the sesamoid bone
- Difficult to see
Diagnosis of a rupture of the active restraints (3)

- Rupture of the flexor pollicis brevis tendon
- Hematoma, proximal pain, increased pain during resisted flexion if seen late
Conclusion

- Rare injuries
- Severe injuries must be treated surgically
- A thorough clinical examination with a meticulous ligamentous testing is the key to a good treatment option
- Sequelae are very disabling for the sportsmen