

Updated US of the Hand and Wrist

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1. Tendon tear/rupture

Using linear US transducer (10–18 MHz) or high-frequency US probe (14–33 MHz, hockey-stick transducer)

Both static and dynamic US scanning: assess the gap between the tendon stumps

- exact location of the tear
- tear type: complete or partial-thickness
- partial-thickness tears: the percentage of the tendon involved
- complete tendon tear: the degree of tendon retraction and associated avulsion injury

2. Tenosynovitis

- overuse, local trauma, inflammatory arthritis, and infection
- postoperative tendon impingement with tenosynovitis: distal radius fractures with screw tip impingement
- De Quervain disease: vertical septum in the 1st compartment
- Distal intersection syndrome: secondary to scaphoid fractures, scaphoid lunate advanced collapse (SLAC) wrist

3. Trigger finger

transient locking of the finger during flexion with a painful snapping sensation during extension

mechanical overuse: thickening of the annular A1 pulley, narrowing of the osseofibrous tunnel, stenosing tenosynovitis of flexor tendon

US: diffuse hypoechoic thickening of the A1 pulley, flexor tendon tenosynovitis (swollen flexor tendon)

dynamic US: locking and snapping of the flexor tendon at the MCP joint

4. Mallet finger

Baseball finger or cricket finger

bony mallet finger (bony avulsion injury)

injury of the extensor tendon (terminal tendon) at insertion point of the distal phalangeal base

US: irregular hypoechoic soft tissue lesion over the distal shaft of the middle phalanx

(retracted tendon end)

5. UCL Injuries

Gamekeeper's Thumb, Stener Lesions

hyperabduction of the MCP joint with hyperextension

UCL tear at its distal insertion site, deep in the adductor aponeurosis or displaced to the proximal edge of the adductor aponeurosis

US: thickened and hypoechoic UCL

round hypoechoic mass proximal to the joint and at the level of the metacarpal neck (yo-yo sign)

6. Central slip lesion

closed disruptions of the central slip at the middle phalangeal base

bony avulsion injury

boutonnière deformity

US: lack of tendon echoes at the middle phalangeal base with intact lateral slips

7. Sagittal band disruption

Boxer's Knuckle

closed disruption of an EDC tendon sagittal band after direct trauma to the proximal phalanx or the dorsal aspect of the MCP joint (3rd finger: m/c)

three types:

- local contusion (type-1)
- subluxation (type-2)
- dislocation (type-3) of the EDC tendon to the volar aspect of the MCP joint

US: irregular hypoechoic thickening of the sagittal band

extensor tendon: normal or partial-thickness tear

dynamic US: sub- or dislocation of extensor tendon

8. Pulley injury

rock climber, A2 pulley of 3rd and 4th fingers (m/c)

excessive stress with flexor tendon contraction against the pulley system

strain, partial, complete rupture
involve one or multiple pulleys
variable bowstringing of the flexor tendons: A2, A3, and A4 pulleys

9. Volar plate injury

hyperextension of the joint
avulsion fracture or substantial tear (rare)
avulsion fracture at the phalangeal base, without volar plate injury
US: hypoechoic cleft within a swollen volar plate

10. Dupuytren disease

palmar fibromatosis
1%-2%, bilateral (42%-60%)
4th and 5th fingers (m/c)
subcutaneous nodules, with retraction of palmar aponeurosis
US: hypoechoic nodular thickening of the palmar aponeurosis
dynamic US: palmar fibromatosis with adhesion with the flexor tendon

11. Ganglion cyst

m/c mass like lesion
US: small anechoic lesions with thin walls and posterior acoustic enhancement

12. Glomus tumor

rare benign tumor of the neuromyoarterial glomus beneath the nail or over the palmar aspect of the fingertip
excruciating pain and temperature sensitivity
US: small, solid, homogeneous hypoechogenic hypervascular mass beneath the nail, with underlying bone erosion

13. Tenosynovial giant cell tumor

giant cell tumors of the tendon sheath, localized form of pigmented villonodular synovitis
second m/c soft tissue mass of the hand and finger
US: well-defined hypoechogenic mass, located at the palmar side without posterior acoustic enhancement, cortical pressure erosion (10%-50%)