Hand Surgery Resource®
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"An Educational Asset of IFSSH"

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ASSESSING TENDON INJURY: CLINICAL EVALUATION AND DIAGNOSIS

Hand Surgery Resource from the IFSSH continues to provide educational content focused on the evaluation and management of hand injuries. This newsletter highlights key principles in assessing flexor tendon injuries of the hand.

Assessing Tendon Injury

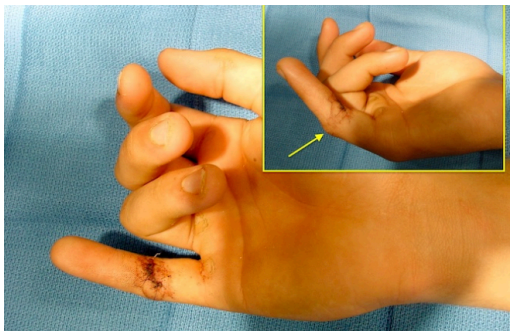
Tendon injuries are frequently encountered in hand trauma and may be overlooked, particularly in the setting of small or seemingly superficial palmar lacerations. Evaluation begins with understanding the mechanism of injury. Sharp lacerations are more likely to result in complete tendon division, whereas blunt trauma may lead to generalized digital swelling, decreased active motion, but rarely completely rupture a flexor tendon.

Clinical examination is essential for diagnosing flexor tendon lacerations. Each digit should be assessed independently for active flexion. Complete or partial loss of active motion should prompt suspicion of tendon injury. Early recognition is critical to restoring function and guiding appropriate surgical management.

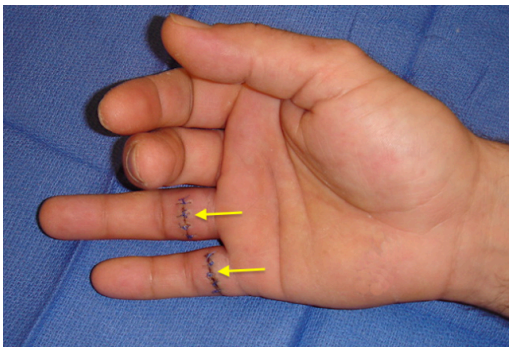
Key Points of Flexor Exam

A detailed examination is recommended:

- The examiner should start with a gentle and calm approach to a bleeding and potentially scared patient.

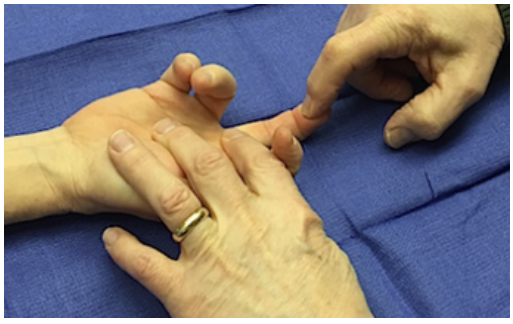


Note the normal resting cascade of the flexed fingers 2, 3, and 4, and the loss of the flexor cascade in the 5th finger where the FDS and FDP are likely cut.

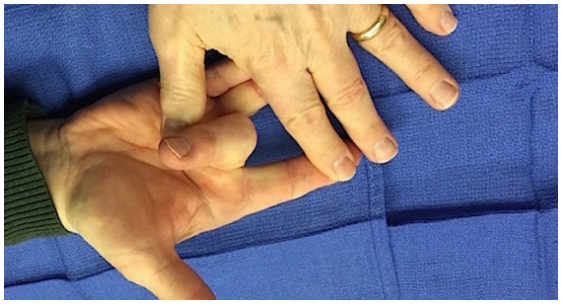


Note the loss of the cascade when the FDP and FDS tendons of the ring and long are all cut.

- Next observe the wound. In severe wounds exposed bone and cut tendon ends may make the flexor tendon status and need for urgent surgery obvious.
- When the flexor tendon status is not obvious, assess active flexion and extension at each joint of the involved digits.
- Isolate individual joints to evaluate tendon function.
- Clinical Tip:
    - Independent intact active DIP flexion indicates an intact flexor digitorum profundus tendon.
    - Independent PIP flexion with uninjured digits held in full extension indicates intact flexor digitorum sublimis tendon.

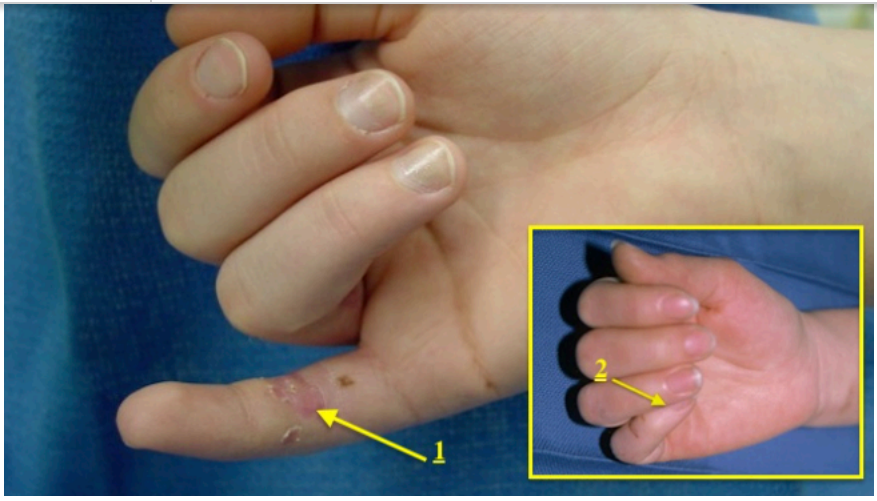


Right long FDP tested by isolating active DIP flexion against resistance.



Isolating right long FDS function by keeping index, ring , and little in extension.

- Always compare normal hand with the contralateral hand.
- Particularly in chronic lacerations and in children be aware the adjacent digit may “finger trap” the finger with cut flexors and give the appearance of intact active flexion.

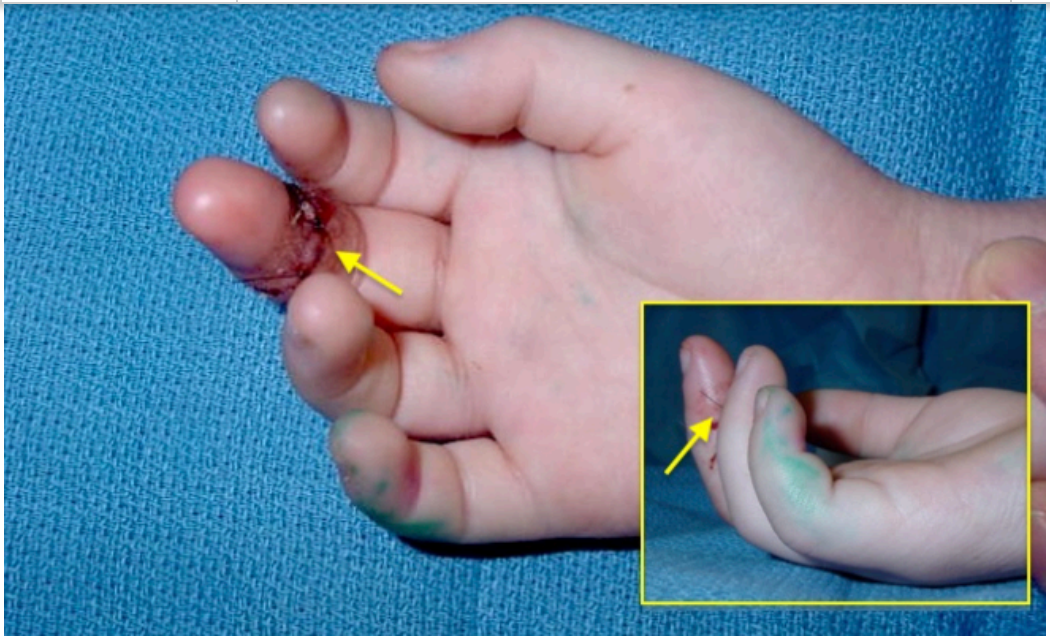


Note the healed laceration (1) and in the insert note the ring finger makes the fifth finger to appear to actively flex.

- Partial tendon injuries may present with subtle findings and should be considered in all cases. Partial flexor lacerations may be suggested by excessive tenderness with resisted active flexion or by weak or limited active flexion. Suspected partial laceration may require a surgical exploration to determine the status of the flexor tendon.
- Flexor tendon lacerations may also involve adjacent neurovascular structures. Note the proximity of the neurovascular bundle to the flexors in the Anatomy at Risk palmar sections 1-5.

Case Example: Loss of DIP Flexion Right Long Finger

A 24 y.o. left handed patient presents with a laceration over the volar aspect of the finger and inability to flex the right long finger distal interphalangeal joint. This finding is consistent with injury to the flexor digitorum profundus tendon.



Note the laceration in DIP flexion crease (arrow) and the lack of normal cascade posture (insert) of the right long finger. Assessment should also include evaluation of digital nerve function and capillary refill. Timely surgical management is recommended.

Using Anatomy At Risk for Tendon Injury Assessment

The Anatomy at Risk website and app provide a structured anatomic approach to evaluating hand injuries by identifying anatomical structures at risk based on injury location on the dorsum or palmar surface of the hand. Users can select the location of injury to access:

- Videos describing the anatomy
- Videos describing the exam of each section's structures
- A list of at-risk structures.
- Relevant anatomy and examination content.
- Supporting images and diagrams.

The website and app supports rapid clinical assessment and decision-making.

Explore More on Hand Surgery Resource

Visit the **Hand Surgery Resource website** or access content through the Hand Surgery Resource and Anatomy at Risk apps, available on the Apple Store and Google Play.

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