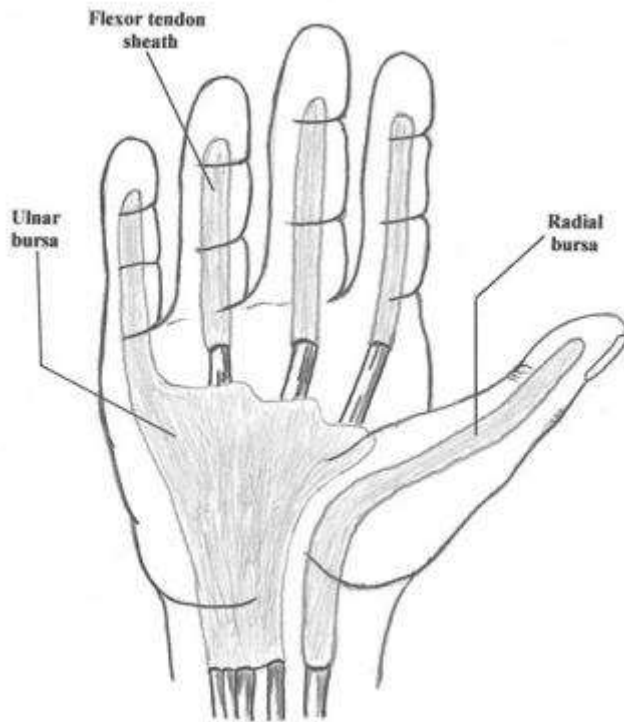


FLEXOR TENDON SYNOVITIS

Tenosynovitis is inflammation of a tendon and its sheath (see the image below). Most acute cases of flexor tenosynovitis (FT)—which involves disruption of normal [flexor tendon](#) function in the hand—result from infection. However, FT also can develop secondary to acute or chronic inflammation from a noninfectious cause, such as diabetes, overuse, or arthritis.



Flexor tendon sheaths and radial and ulnar bursae.

Cases of infectious FT that present early and have no comorbidities have a good prognosis, but patients with fulminant infection, chronic infection, or an impaired immune status have increased risk of long-term complications and impairment.

Signs and symptoms

Infectious tenosynovitis

Patients with infectious FT can present at any time following a penetrating injury, with complaints of pain, redness, and fever. Physical examination reveals Kanavel signs of flexor tendon sheath infection, which are as follows:

- Finger held in slight flexion
- Fusiform swelling
- Tenderness along the flexor tendon sheath
- Pain with passive extension of the digit

Clinical features of gonococcal tenosynovitis include the following:

- Erythema, tenderness to palpation, and painful range of motion (ROM) of the involved tendon(s)
- Fever - A common sign

- Dermatitis - Also a common sign; it occurs in approximately two thirds of disseminated gonococcal infections; it is characterized by hemorrhagic macules or papules on the distal extremities or trunk

Inflammatory flexor tenosynovitis

- Usually the result of an underlying disease process
 - Presentation is indolent but progressive if therapy is not initiated
 - Similar findings to those found in infectious FT eventually present
 - Swelling is the most common initial finding
 - Hallmark is a difference in active, versus passive, flexion
 - As the tissue expands and impingement occurs, pain and restricted motion ensue
- Delayed presentations can have the appearance of fulminant FT with all Kanavel signs or may involve tendon rupture if the patient delays seeking treatment long enough.

See [Clinical Presentation](#) for more detail.

Diagnosis

If infection is suggested, culture of the suppurative synovial fluid is mandatory prior to beginning definitive antimicrobial treatment. These cultures should include the following samples:

- Aerobic
- Anaerobic
- Fungal
- Acid-fast bacilli (AFB)
- Atypical AFB

Diagnostic arthrocentesis is indicated if joint effusion is present with tenosynovitis, because most patients with disseminated gonococcal infection have coexistent septic arthritis.

Hematologic studies

- Complete blood count (CBC)
- Erythrocyte sedimentation rate (ESR)
- Rheumatoid factor - If rheumatoid arthritis is a consideration

Biopsy

Synovial biopsy for histopathologic examination is helpful in diagnosing granulomatous changes observed in *Mycobacterium* infections and in cases of chronic processes.

Imaging

Obtain standard anteroposterior and lateral radiographs to rule out bony involvement or a foreign body.^[1]

See [Workup](#) for more detail.

Management

Infectious flexor tenosynovitis

Prompt medical management of acute nonsuppurative flexor tenosynovitis (FT) may preclude the need for surgical intervention. Nonoperative treatment for infectious FT includes the following:

- IV antibiotics - May be included in initial treatment if the patient presents very early with suspected infectious FT
- Elevation - Initially, until infection is under control
- Splinting - In "safe position"
- Rehabilitation - ROM exercises and edema control, initiated once FT is under control

Inflammatory flexor tenosynovitis

Nonoperative management is the primary treatment for inflammatory FT. The mainstay of therapy for FT caused by overuse syndromes is cessation of the insult by modification of activity. Therapy also includes the following:

- Icing and elevation of the affected area
- Administration of a nonsteroidal anti-inflammatory drug (NSAID) if tolerated by the patient
- Consideration of a short course of oral steroids
- Administration of flexor tendon sheath or carpal tunnel corticosteroid injections to decrease pain and the inflammatory response
- Splinting - If used, splinting should be limited in area to a pain-free ROM
- Rehabilitation - Slow rehabilitation prevents reinitiation of the inflammatory phase

Treatment for rheumatoid inflammatory FT includes ice, NSAIDs, rest, splinting, hydroxychloroquine, gold, penicillamine, and methotrexate.

Drainage

The indication for surgical drainage includes history and physical examination consistent with acute or chronic FT. In certain circumstances when acute FT presents within the first 24 hours of infection development, medical management may initially be used. Prompt improvement of symptoms and physical findings must follow within the ensuing 12 hours; otherwise, surgical intervention is necessary.