

Infected Flexor Sheath (Pyogenic Flexor Tenosynovitis)

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What you're feeling

You may notice your finger or thumb feels stiff and swollen. The swelling often looks uniform, wrapping evenly around the digit. This can make it hard to tell if you have this infection or another type of finger swelling. You might feel pain along the palm side of your finger. The area may feel warm to the touch.

Simple tasks become difficult quickly. You may find it hard to grip objects firmly. Picking up a mug or holding a phone can feel awkward because bending the finger causes discomfort. You might struggle to button your shirt or zip a jacket. Even light pressure on the palm side of the finger can feel sensitive.

The pain often flares up at night. You may wake up feeling that the finger is tight or throbbing. Activity during the day can make the stiffness worse. Resting may provide slight relief, but the swelling usually remains. Not all typical signs of infection appear at once. You might have some swelling but not all the classic symptoms doctors look for.

Because this is a closed-space infection, pressure builds up inside the tendon sheath. This space holds the tendons that bend your finger. When bacteria enter, often after a small cut or puncture, the area swells. The pressure causes pain and limits movement. You might feel like you cannot fully straighten or bend the finger.

Early treatment helps protect your hand function. Delaying care can lead to more stiffness later. Even with prompt treatment, you should expect some residual stiffness in the finger after the infection clears. This is common even in healthy patients. Your surgeon will guide you through recovery to help you regain movement.

What's actually happening

Your finger has a protective sheath that wraps around the flexor tendon. Think of this tendon as the rope that lets you bend your finger. The sheath acts like a tight sleeve or a sealed tube. It keeps the tendon lubricated and moving smoothly.

In pyogenic flexor tenosynovitis, bacteria get inside this sealed space. This creates a closed-space infection. Because the sheath is tight, pressure builds up quickly. The area becomes swollen and inflamed. You may notice uniform swelling in the finger. This swelling happens because fluid and pus have nowhere else to go.

This pressure cuts off blood flow and irritates the tendon. The result is pain and stiffness. You might find it hard to straighten your finger. The infection can spread if not treated. Early treatment is vital to prevent permanent damage.

We use ultrasound to check for this condition. It helps us see the swelling clearly. We can confirm the diagnosis quickly. This allows us to start treatment sooner.

Treatment usually involves surgery and antibiotics. We perform surgical decompression to open the sheath. This releases the built-up pressure. We clean out the infected area with irrigation. This is called debridement. We then close the wound and start antibiotics.

Even with prompt care, you may experience some residual stiffness. This is common after such an infection. The tendon needs time to heal and regain movement. Early intervention helps improve your final motion and function.

What we can do about it

Dr Kieran Hirpara, an upper-limb surgeon at Mater Private Hospital Rockhampton, starts with the least invasive options that suit your condition. We begin by confirming the diagnosis, as signs of this infection can sometimes be subtle. If the infection is caught very early and there is no visible pus, we may manage it at the bedside with a small incision to drain the fluid. This is followed by a course of antibiotics to clear the bacteria. We monitor your progress closely to ensure the swelling and pain reduce. If you do not improve quickly, or if there is clear pus, we move to the next step.

Patients are generally referred to our clinic by their GP; if a physiotherapist has suggested you see us, you will still need a referral from your GP in order to be eligible for the Medicare rebate. A clinic assessment, including examination and imaging where needed, establishes the diagnosis. For acute infections, we usually do not rely on non-operative care alone. Early diagnosis and drainage through small incisions, along with continuous postoperative irrigation, appear to lead to the best functional outcome. We use ultrasound in the emergency department to help confirm the diagnosis quickly. This allows us to start treatment without delay. Expediency in surgical decompression potentially improves your final motion and function.

When conservative care has reached its limit, or if the infection is advanced, surgery is considered. We take patients with frank purulence immediately to the operating room for incision and drainage and a thorough washout of the flexor tendon sheath. Surgical decompression is the treatment of choice for nearly all cases. Even with aggressive and prompt antibiotic therapy and surgical intervention, otherwise healthy patients can expect some residual digital stiffness following flexor tendon sheath infection. We discuss this openly so you know what to expect. In rare cases involving specific types of infection, a standard two-stage flexor tendon reconstruction may be a reasonable option once the infection is fully treated. We aim to restore your hand's function while keeping the infection under control.

What to expect

Pyogenic flexor tenosynovitis is a closed-space infection affecting the tendon sheath in your finger or thumb. You may notice uniform swelling, though this symptom alone does not distinguish this condition from other finger infections. Early treatment provides clear clinical benefits. We recommend prompt management to improve your final motion and function.

If managed well with surgical decompression and systemic antibiotics, the procedure can provide lasting benefit, provided the infection does not return. A typical approach involves a single open debridement with irrigation and primary wound closure, followed by ten days of antibiotic therapy for uncomplicated cases. This pathway aims to resolve the infection quickly and effectively.

However, even with aggressive and prompt treatment, you should expect some residual digital stiffness following the infection. This is a common outcome, even in otherwise healthy patients. Without timely intervention, the infection may persist or worsen. The presence of pus within the flexor sheath is the only significant predictive factor for needing repeated tendon washouts.

Your outlook depends largely on how quickly you seek care. Early diagnosis and treatment offer the best chance for a full recovery of movement. While stiffness may remain, the goal is to prevent further damage and restore function. We will monitor your progress closely to ensure the infection is fully resolved and to guide your rehabilitation.

When to see someone

Pyogenic flexor tenosynovitis often follows a penetrating injury. It causes uniform finger swelling, but this alone does not distinguish it from other infections. Not all classic signs appear in every case. Because this is a time-critical infection that can spread to nearby sheaths, do not wait. Go to an emergency department if you suspect this condition. Your surgeon will use clinical examination and imaging, such as ultrasound, to confirm the diagnosis. Early assessment is vital to prevent serious complications.