How are flexor tendon injuries treated?
Flexor tendon injuries are repaired primarily whenever possible. Repair should be completed within 1 to 2 weeks after injury.

What are the causes of flexor tendon injuries?
Flexor tendon injuries are most commonly caused by a sharp cut to the finger or palm. Rupture of the attachment of the tendon to the finger can also occur and is commonly associated with recreational sports (such as tackling in football when the tackler’s finger becomes entangled in the opponent’s jersey). Flexor tendon injuries can also occur as part of a more severe injury, such as due to power equipment.

What are the long-term outcomes of flexor tendon injuries?
Outcome from flexor tendon injury and repair depends on several factors. These include type of injury (sharp or not, clean or contaminated), concurrent injuries or preexisting disabilities to the affected hand, and compliance of the patient with postoperative therapy.

Describe the ideal repair technique.
Repairs in the fingers and hand are performed with core sutures, most commonly of braided nylon or another polymer. One British study showed no difference between absorbable and nonabsorbable core suture.1 Repairs can involve 2, 4, 6, or 8 strands to the core suture. Strength is increased with more strands, but outcomes are comparable, provided appropriate therapy is used postoperatively. A supplemental suture of the epitendon is often performed as well. This improves the glide of the tendon by decreasing the diameter of the repair site and may also increase the strength of the repair. Core suturing should also be relatively volar within the tendon to minimize disruption of intrinsic tendon vascularity.

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doi: 10.3928/01477447-20110714-13
What are the benefits of postoperative motion?

Postoperative motion therapy helps prevent adhesion of the repaired tendon to the surrounding structures, including the flexor tendon sheath.

What factors affect tendon healing?

Quality of the tendon suture has a major impact on healing. Repairs that gap >3 mm during rehabilitation will go on to rupture. Quality of the wound bed and the proximal and distal ends of the lacerated tendon will also affect healing, with better intrinsic tendon blood supply promoting strength of repair versus extrinsic blood supply, which may lead to adhesions of the repaired tendon to the surrounding tissue. Extensive bench research has investigated the effect of multiple growth factors and peptides on tendon healing. None of these are as yet available for commercial use.

Describe the rehabilitation.

Rehabilitation consists of controlled motion in a supervised setting of hand therapy. Active motion protocols tend to be more popular, but equally good outcomes can be achieved with passive motion protocols. The goal of therapy is to produce tendon motion to prevent adhesion formation while minimizing stress on the repair, which may lead to gap formation and rupture.

What complications are known to occur after treatment of flexor tendon injuries?

In addition to the usual complications of surgery, flexor tendon repairs can be complicated by adhesion of the repaired tendon to the surrounding sheath and rupture. Injury to the A2 and/or A4 pulley, either during the initial injury or the surgical exploration, can lead to tendon bowstringing, which will decrease the recovery of motion for the finger.

What is the effect of Seprafilm on adhesion formation and tendon healing?

Multiple agents, including Seprafilm (bilaminar hyaluronic acid and carboxymethylcellulose) (Genzyme Biosurgery, Cambridge, Massachusetts), have been investigated for their effects on adhesion formation prevention. This agent, and others including glycosaminoglycan gel, have been shown in some studies, primarily animal models, to decrease adhesion formation and work of flexion. There is not yet definitive evidence to advocate use of any agents or the superiority of 1 agent as compared to another.

What does the future hold for the treatment of flexor tendon injuries?

Research is ongoing on the biology of tendon healing and how to positively effect it. Studies have evaluated application of various agents either placed between the repaired tendon ends or incorporated into the repair suture. In the future, as evidence to their effectiveness is generated, these may become available in commercial products.

REFERENCE