

TEACHING TECHNIQUES

Hand and Wrist Prolotherapy

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INTRODUCTION

Lisa is a 23 year-old ranch foreman. She has a rough, physical job. Three months before she came to see me she was thrown from a horse and landed on her right hand. She had severe pain and swelling at her wrist. But being tough as she is, she continued her work, roping cattle, and caring for horses and livestock. All this put ongoing stress on the injuries in the wrist. This led to continued pain and very restricted range of motion.

Finally Lisa had so much pain and restriction that she sought medical attention with an orthopedic surgeon. He did imaging studies and told her that in addition to a navicular fracture, she had “disrupted the major ligaments of her wrist and needed surgery right away.” She was further told that the surgery would decrease the range of motion further (which was less than 10 degrees at that time). Lastly, the surgeon told her that if she didn’t have the surgery right away that eventually “the wrist would collapse and the arm bones would protrude through the wrist” and she would be unable to fix it then.

She sought my attention in an attempt to avoid the surgery and in the hopes of regaining her range of motion. After examination, I identified her injured ligaments and scaphoid bone fracture as the source of her pain. She was treated aggressively with Prolotherapy using strong solutions targeting the injured ligaments. She received three treatments by me, one week apart. These were followed by three more treatments, six to eight weeks apart, in her home state, by another practitioner.

I saw Lisa recently (two to three months after her last treatment), and she reported no pain and full range of motion of her wrist! She had no tenderness over the scaphoid. She is back at full duty on the ranch and is a very happy cowgirl!

Hands and wrists are amazing feats of engineering and design. Twenty-seven bones, a sea of ligaments, tendons, joints and muscles work together to make an

“instrument” that can type 150 wpm, serve a tennis ball at 138 mph, and yet, feel the gentle touch of your romantic partner’s hand. With all this complexity it is not surprising that chronic injuries can and do occur. I will review how to avoid unnecessary cortisone shots, surgery and disability by treating injuries of the wrist and hand with Prolotherapy!

WRIST

The carpal bones of the wrist consist of eight bones in two rows with 27 articular surfaces. These are held together with a “sea” of ligaments bridging the articulations giving stability to the wrist. (See *Figure 1*.) We can have a variety of injuries at the wrist and I will look at them separately.

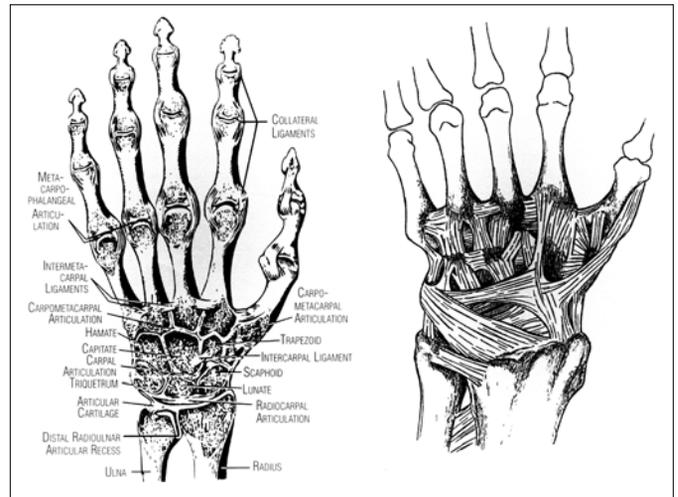


Figure 1. The wrist is comprised of 15 bones, 27 articular surfaces, and a host of ligaments to hold it all together.

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NAVICULAR INJURY

This often presents as “snuff box” tenderness and radial wrist pain. Navicular fracture comprises about 70% of all carpal fractures and roughly one in 10 of these results in avascular necrosis. As physicians, we all know the challenge of diagnosing navicular fracture, especially early. When a person has pain over the navicular bone, while one must consider fracture, a more common cause of navicular pain is injury to the ligaments that surround it. While immobilization should be considered if a fracture is present, as the previous case study shows, aggressive Prolotherapy treatment all around the navicular with strong solution stimulates blood supply,

local immune activity, and of course, regeneration of stabilizing ligaments and tendons. If the pain is from the surrounding ligaments and tendons, then a successful outcome is highly likely.

The patient is positioned comfortably allowing the hand to be alternately pronated and supinated. The skin is cleansed, and the local anesthesia is administered over the areas to be treated. A 5cc luer lock syringe is filled with standard prolo solution. The solution may be supplemented with zinc sulfate or sodium morrhuate as needed (0.5 to 1cc). Injections are given onto and immediately around the scaphoid. (See *Figure 2*.) Care is taken around the volar aspect of the radial wrist to avoid the radial artery and nerve. Four to six treatments, each about four weeks apart, gives excellent results.



Figure 2. Navicular injection.

Attachments at the **hook of the hamate** can be injured by repetitive pressure as in chiropractic compression with the heel of the hand. The injury can be palpated just distal to the volar ulna. Three careful 0.5cc injections to the hook of the hamate from various angles resolves this well in four to six treatments.

True carpal tunnel syndrome is a debilitating condition. It is commonly seen in patients who do a lot of repetitive work including, typing and computer work. Physicians will more commonly see “pseudo-carpal tunnel syndrome” caused from ligament laxity, especially about the elbow, not entrapment of the median nerve which constitutes true carpal tunnel syndrome. In either case, surgery has questionable results. In pseudo-carpal tunnel syndrome, a series of Prolotherapy treatments along the dorsal wrist may provide pain relief. (Editor’s note: A CTRAC device can often be used to avoid surgery

in true carpal tunnel syndrome because it increases the space through which the median nerve traverses.** With pseudo-carpal tunnel pain, often the annular ligament in the elbow and/or the fourth and fifth cervical vertebrae will need to be treated, as these areas can refer pain to the hand.)

The skin is cleansed and local anesthesia is administered. A 10cc luer lock syringe is filled with standard prolo solution and a 25G 1 to 2-inch needle is attached. (The length is not critical, we will only be using the distal 0.25 inch). Injections are given in two or three rows along the dorsal wrist, peppering the injured areas from the radial side to the ulnar side. (See *Figure 3*).



Figure 3. Dorsal wrist injection.

Ganglion cysts respond well to Prolotherapy. The cyst is a dorsal protrusion of the joint capsule containing synovial fluid. If the cyst is merely aspirated or surgically resected it will routinely recur. If, on the other hand, we follow up the aspiration of the cyst with Prolotherapy to the painful wrist dorsally, the underlying cause is stimulated to heal. After a completed series of Prolotherapy treatments the problem does not return.

WRIST COLLATERAL LIGAMENTS

The **ulnar collateral ligament** of the wrist runs from the distal ulna to the proximal carpal bone and beyond to the proximal fifth metacarpal. When injured, there is pain with radial deviation of the wrist and with pressure on the ulnar wrist. Similarly, the **radial collateral ligament** runs from the radial styloid distally to the proximal carpal bone and to the proximal first metacarpal. When injured,

** CTRAC is available at www.ctracforcts.com.

the pain is elicited by ulnar deviation and direct pressure over the radial wrist.

Treatment consists of cleansing the skin and placing local anesthesia. A 3cc luer lock syringe is filled with standard prolo solution and fitted with a 25G 1 to 2-inch needle. Injection is given of 2cc “peppered” (See *Sidebar A.*) along the ligament including the attachment at both ends. (See *Figure 4.*)

A. Peppering is a technique where an area is peppered with injections of 0.5cc of solution. The technique is begun with an injection of 0.5cc into the injured structure then the needle is partially withdrawn and redirected slightly and reinserted around the injured area and another 0.5cc are injected there. This is repeated multiple times thus “peppering” the fibro-osseous insertion of the tendon or ligament.



Figure 4. Radial collateral ligament injection.

HAND

In my experience, arthritis at the base of the thumb, the **metacarpal-trapezoid joint**, is very common. Injury to this saddle joint is debilitating, eventually limiting almost all opposition of the thumb. There is marked tenderness over the joint line all the way around the joint in advanced cases. And when the joint is isolated manually, there is often pain with even slight movement of the joint.

Treatment begins with cleansing the skin and local anesthesia. A 5cc luer lock syringe is filled with standard prolo solution and fitted with a 25G 1 to 2-inch needle. 0.5cc injections are “peppered” along the joint line beginning at the dorsal hand and finishing along the palmar side. (See *Figure 5.*) The injections on the palmar side are especially painful. Therefore, I save them for last.

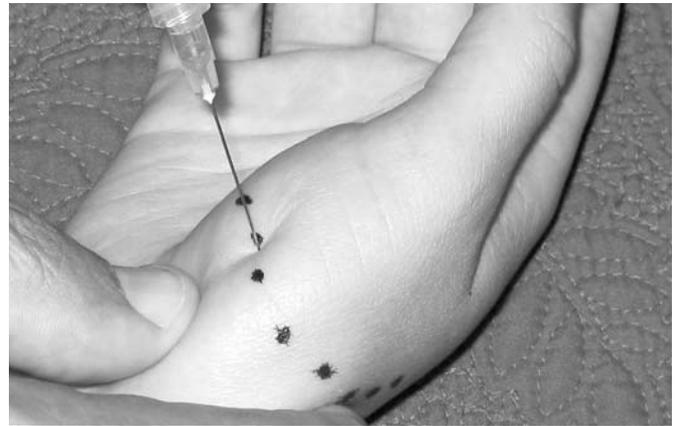


Figure 5. Metacarpal-trapezoid joint injection.

Metacarpal-phalangeal (MP) and **inter-phalangeal (IP)** joints are injured in sports and accidents. Prolotherapy effectively stimulates healing in sprains, arthritis, and tendinosis of these joints. The affected joints are identified and cleansed and local anesthesia is applied. A 5cc luer lock syringe is filled with standard Prolotherapy solution and fitted with a 25G 1 to 2-inch needle. The Prolotherapy is administered carefully, injecting 0.5 to 1cc to the radial and ulnar side collateral ligaments and joint capsule of each injured MP and IP joint. (See *Figure 6.*) The needle does not need to slip into the joint space. The fingers bleed readily after needle puncture and may need light pressure.

De Quervain’s tenosynovitis is a painful inflammatory condition of the wrist and thumb that often requires a traditional steroid injection treatment, if the area shows classic signs of swelling and calor. If there is clearly no heat or inflammation, then the condition can be presumed to be tendinosis or tendopathy, which typically responds well to Prolotherapy. The thumb abductor (abductor pollicis longus) is identified by having the patient abduct the



Figure 6. MP and IP injection.

thumb against light resistance. The tendon tenses and lifts slightly. It can be seen and palpated easily at the radial side of the wrist (it is tender).

The skin is cleansed and local anesthesia applied. A 3cc luer lock syringe is filled with 1.5cc of standard Prolotherapy solution and fitted with 25G 1 to 2-inch needle. With a finger palpating the slightly elevated abductor tendon sheath, the needle is passed through the skin and then enters the tendon sheath to inject around the tendon. (See Figure 7.) When the needle is positioned within the sheath, as the injection is administered, it leads to a “sausage-like” swelling of the tendon sheath. This is seen and palpated. One to 1.5cc is injected into the tendon sheath.



Figure 7. Wrist abductor pollicis longus tendon Prolotherapy injection.

Flexor tendon nodules or “trigger finger,” as it is sometimes called, is caused by a tendon nodule being hung up on, then “popping” past the tendon sheath transverse support sling palmar to the joint line. The tendon nodule can be felt moving under the skin of the palm as the involved finger is passively moved. For some cases of trigger finger, a steroid injection must be used as the first course of action to shrink the nodule. If there is no palpable nodule, but it is clear that the flexor tendon attachment is the problem (either flexor digitorum profundus or superficialis), then these tendon attachments can be treated. (See Figure 8.)

Mallet finger and **boutonniere deformity** are both effectively treated with Prolotherapy. When the distal extensor tendon is torn the distal inter-phalangeal joint is flexed at 90 degrees and lacks ability to actively extend the distal phalanx. In some cases, a piece of the bony attachment is torn off with the tendon. (See Figure 9.) If we have a similar tear of the extensor tendon at the proximal inter-phalangeal joint we have Boutonniere’s



Figure 8. Prolotherapy injection to flexor digitorum tendon.

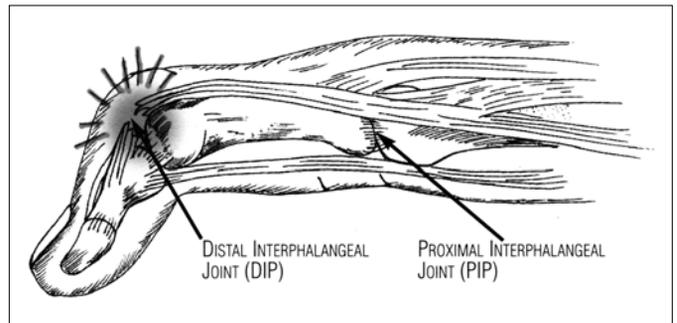


Figure 9. Mallet finger. A severe “jammed” finger can actually cause the distal extensor tendon to tear. Splinting is needed, but Prolotherapy can assist healing and decrease healing time for this condition.

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deformity. These injuries are effectively treated with a full extension splint and Prolotherapy to the torn tendon in the fully extended position. Full extension is maintained continuously for six weeks while Prolotherapy is repeated weekly for the first three weeks.

The skin is cleansed and anesthetized. A 3cc luer lock syringe is filled with 1cc of standard Prolotherapy solution and fitted with a 25G 1-inch needle. The injection is administered at the extensor tendon tear over or just distal to the dorsal inter-phalangeal joint line.

Each of these conditions call for an average of four to six treatments spaced about four to six weeks apart to yield full healing and restoration of function.

The hand and wrist are full of many small joints each of which can be injured and cause pain. Thankfully, Prolotherapy can safely and effectively treat each of them. That is why we smile as we Prolo our patient’s hand and wrist pains away! ■