

## De Quervain's Disease

Once called "Washer Woman's Sprain," this painful inflammation of the thumb side of the wrist now bears the name of the Swiss surgeon, Fritz de Quervain, who wrote about it in 1895.

De Quervain's tenosynovitis is a painful inflammation of the tendons on the thumb side of the wrist. It produces a painful sensation with pressure over the involved area and when the wrist is moved into certain positions.

Let's look at the anatomy of the forearm and wrist so that we can understand this problem. The muscles on the back of the forearm connect to fibrous structures called tendons, which proceed across the wrist, hand and fingers. When the muscles contract, they pull the tendons toward the elbow and straighten the wrist and fingers. In all, there are 12 straightening tendons – one that pulls the thumb away from the palm, two that straighten the thumb, three that straighten the wrist and six that extend the fingers. At the level of the wrist, these tendons are divided into six lubricated tunnels or compartments and glide beneath a thick fibrous layer called the extensor retinaculum.

The first of these compartments – known as the first dorsal compartment – lies directly over the bony bump at the base of the thumb. It is a thick, tubular passageway about one inch in length, which is firmly anchored to bone. Through this passageway pass the large tendon of the abductor pollicis longus and the small extensor pollicis brevis tendon. These two tendons help spread the thumb away from the rest of the hand and straighten the thumb for grasping. Because the muscles for these two tendons arise on the back of the forearm, the first dorsal compartment serves as a pulley to change the course of the tendons so that they will line up properly on the back of the thumb bones. Normally these tendons glide smoothly through the first compartment that is lubricated by fluid from its lining known as synovial fluid. Because the muscles that attach to these tendons are present just before the tendons enter the sheath, they are drawn into the sheath as the wrist and thumb move downward – increasing the tissue volume within the sheath.

In De Quervain's condition, there is a painful inflammation of the tendons in the first dorsal compartment. The lubricating lining of the compartment thickens and swells allowing the enclosed tendons less room to move and leading to increased friction and inflammation. The tendons, in turn, may swell beyond this constriction. Fine, fibers of scar – adhesions - may form between the sheaths and tendons.

### Causes of De Quervain's Disease

This inflammation may be caused by anything that inflames and narrows the compartment or causes swelling or thickening of the tendons. Repetitive trauma, overuse, or an inflammatory process is likely causes, but frequently, the cause of the condition is unknown.

De Quervain's tenosynovitis occurs most often in individuals between the ages of 30 and 50. Women are afflicted with it 8 to 10 times more often than men. People who engage in repetitive activities requiring sideways motion of the wrist while gripping the thumb (hammering, skiing, some assembly line jobs) may be predisposed to developing this disorder. A common complaint is several weeks or months of pain localized to the thumb side of the wrist aggravated by movement of the thumb and wrist. An account of direct injury or chronic overuse of the wrist or hand also may help in making the diagnosis, although it is not a constant historical feature of the condition.

### Symptoms of De Quervain's Disease

Pain over the thumb side of the wrist is the primary symptom. It may occur "overnight" or gradually, and it may radiate into the thumb and up the forearm. It is worse with the use of the hand and thumb, especially with any forceful grasping, pinching, or twisting. Swelling over the thumb side of the wrist may be present, as well as some "snapping" when the thumb is moved. Because of the pain and swelling, there may be some decreased thumb motion. Tenderness directly over the first dorsal compartment usually is always present, and there is usually some thickening of the compartment. Sometimes the tendons even squeak or crackle when the wrist and thumb are moved. A small cyst occasionally may arise directly from the compartment.

A diagnostic test often used by physicians diagnosing this condition involves simultaneously bending the thumb into the palm and grasping it while making a full fist with the fingers. If the wrist is then flexed and deviated toward the little finger, a greater volume of tendon and muscle will be forced into the inflamed compartment and produce pain. This test has been called Finkelstein's test and can be very uncomfortable in patients with this condition. DeQuervain's tenosynovitis must be differentiated from arthritis of the base of the thumb, and the two conditions may coexist in a few individuals.

### **Treatment Options and Objectives of De Quervain's Disease**

The physician managing this condition may try to reverse the course of the disease with a three to six week trial of an anti-inflammatory medication while the thumb and wrist are rested by wearing a splint. The physician may also try one or more injections of a steroid – cortisone - preparation directly into the first dorsal compartment. These conservative efforts are often very successful in substantially relieving the inflammation and pain of De Quervain's tenosynovitis and long-term may be achieved. Some modification of the activities, which seem to have caused the condition, may also be recommended.

### **Surgical Treatment for De Quervain's Disease**

If the symptoms of de Quervain's stenosing tenosynovitis disease are long-standing, unresponsive to conservative management or return rapidly surgery may be indicated.

Surgery is almost always performed on an outpatient basis under general, regional or local anesthesia. The choice of incisions is a matter of personal preference for the surgeon and may be transverse or longitudinal. Careful exposure of the first dorsal compartment is carried out and the compartment is then divided which allows it to open up and release its hold on the underlying tendons. The surgeon will sometimes discover additional closed tunnels within the main compartment and they will be decompressed as well. Additional procedures may be carried to remove inflamed tissues or small cysts and to ensure that the tendons will remain within the compartment. Postoperative precautions will also be used to protect the stability of the tendons housed in the compartment. The incision will be closed with small sutures and a bulky dressing will be applied containing a splint to correctly immobilize the wrist and thumb. A prescription for pain medication will be provided and some pain, especially the first few three days, should be expected.

The dressing, splint and stitches are usually removed at 10 to 14 days. Some additional protective splinting may be used for several weeks depending on the stability of the decompressed tendons and the surgical site remains tender, hypersensitive and somewhat firm for a month or two. Activities that involve pressure against the incision site or repetitious use of the thumb and wrist should probably be avoided for four to six weeks after the procedure.

### **Possible Complications of Surgery for De Quervain's Disease**

Complications of De Quervain's surgery are rare, but may hamper the ability to achieve a satisfactory result in some patients. Injury to small superficial nerves overlying or adjacent to the surgical site may lead to transient or even permanent numbness, hypersensitivity or pain near the incision in a few cases. Infection could substantially compromise wound healing and could even create adhesions, which limit tendon gliding and wrist and thumb motion. The improved tendon gliding, which is achieved by the surgery, is usually permanent but on rare instances it persists or recurs requiring additional treatment. In a few patients, the tenderness at the surgery site persists for an unusually long time after the procedure.

De Quervain's Disease can be an annoying condition, but rest, injections or surgery may almost always effectively manage it.

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