

Dupuytren's contracture is a disorder of the palm of the hand and fingers. In the normal hand there is a fibrous tissue called fascia. Fascia covers the important nerves, blood vessels, muscles, and tendons. Fascia also stabilizes the skin. In Dupuytren's disease, this fascia can become abnormal. It becomes thicker, forming cords. These cords are often mistaken for a tendon because they look and feel similar. Unlike a tendon that is moved by a muscle that shortens and lengthens, cord tissue is not connected to a muscle. Cord tissue is static and does not move. There may be a single cord or several. Cords can be separate or connected.

Most people with Dupuytren's contracture will also have nodules or bumps in the hand. When they are first noticed, these nodules and cords may not change for a long time. They can also have a slow or fast change. Cords and nodules may become bigger and thicker over time. They may begin to pull the fingers into a bent (flexed) position so the fingers are bent toward the palm. This makes it impossible to fully open the fingers (Figures 1 and 2). This can become bothersome and limit use of the hand in many people.

Causes

The exact cause of Dupuytren's contracture is unknown and very complex. It is a hereditary disease. This means family history and ancestry play a role. The problem is more common in men, people over age 40, and people of Northern European descent. It is less common in African and Middle Eastern descent. Smoking, diabetes, alcohol, lower body mass index, and aging are also all related to Dupuytren's.

There is no evidence that hand injuries or specific jobs lead to a higher risk of developing Dupuytren's contracture. There may be a mild relationship to trauma in someone who is at risk. Occasionally after a distal radius (wrist) fracture, a patient may develop a single nodule in the palm. This nodule may or may not be tender. It often does not progress to result in a bent finger joint.

Signs and Symptoms

Symptoms of Dupuytren's contracture usually include lumps, nodules, and bands or cords on the

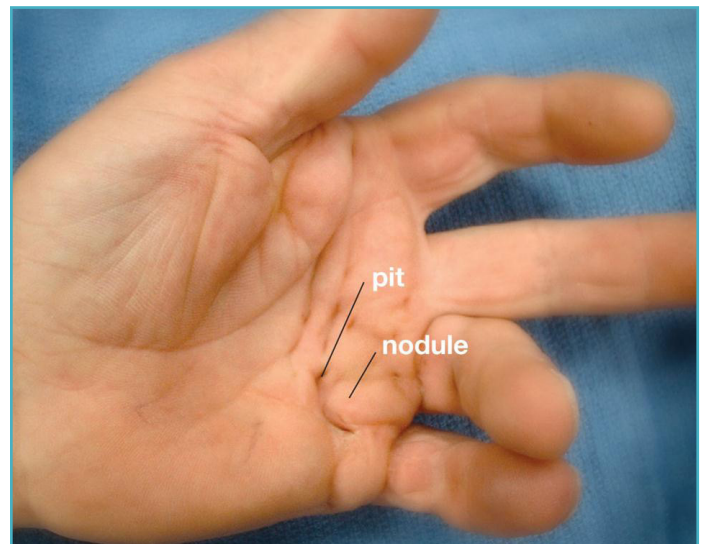


Figure 1: Advanced case of Dupuytren's Contracture with pits, nodules and cords leading to bending of the finger into the palm

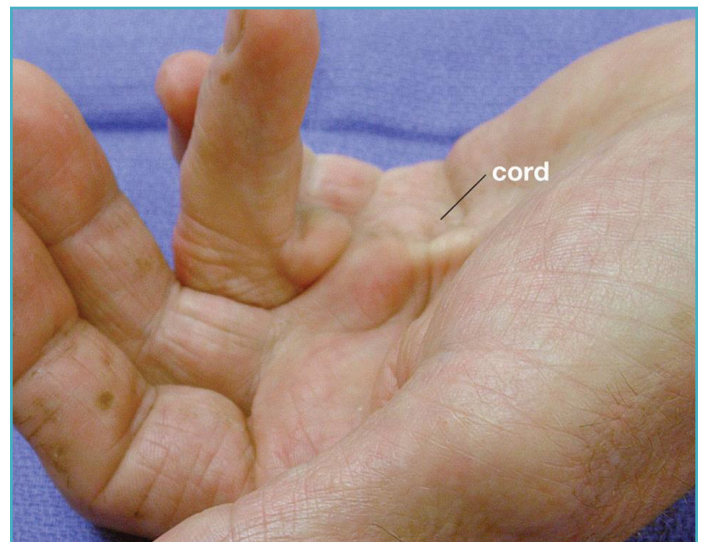


Figure 2: Advanced case of Dupuytren's Contracture with pits, nodules and cords leading to bending of the finger into the palm

palmar side of the hands. The lumps are generally firm and stuck to the skin of the palm. Skin can seem thicker and puckered. Think of the Dupuytren's palm skin like a road. Some areas are swollen and puffy like a speed bump. In other areas the skin is puckered and pulled down like a pothole. Thick cords may develop from the palm into one or more fingers. These cords may cause bending of the fingers.

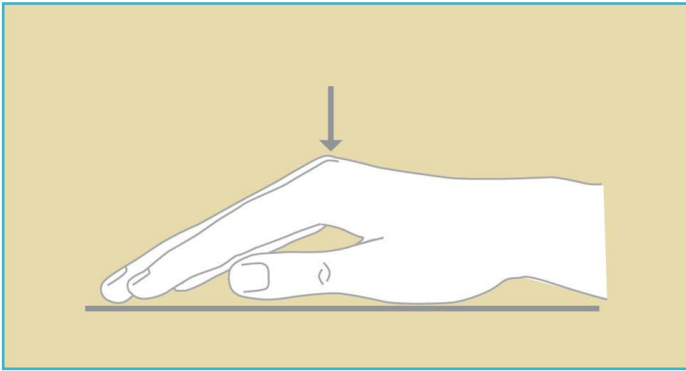


Figure 3: Table top test for Dupuytren's Contracture

The ring finger and little finger are most commonly involved. One or both hands can be affected. Each hand can be affected in a different pattern and at different times.

The lumps can be uncomfortable in some people. However; in most people, Dupuytren's contracture is not typically painful. The disease may first be noticed due to difficulty in placing the hand flat on a surface (Figure 3) or opening the hand fully. It may be more difficult to wash hands, wear gloves, hold large objects, and get hands into pockets. When it involves the right hand, people can find it awkward to shake hands.

It is difficult to predict how the disease will progress. Some people have only small lumps or cords while others will develop severely bent fingers. There are a variety of risk factors. The disease tends to be more severe if it occurs at an earlier age. Men develop more severe symptoms when compared to women. If you have many relatives with the problem, you may be at higher risk for more severe disease. If there are changes in other areas of the body, you are at higher risk. This is called Dupuytren's diathesis. Lumps and cords can develop on the soles of the feet (plantar fibromatosis) or the genital location in men (Peyronie's disease). Occasionally, the disease will cause thickening on top of the knuckles called a knuckle pad (or Garrod's pad).

Treatment

The presence of a lump in the palm does not mean that treatment is required or that the disease will

progress. Also, not all lumps in the palm are Dupuytren's. Therefore, it can be helpful to see a hand surgeon for an examination. Sometimes a history and examination is all that is needed to evaluate a mass. Other times, imaging such as an x-ray, ultrasound, or MRI may be indicated. Some factors that are important in evaluating masses include their size, "feel" (such as firm or squishy), location, presence of pain, movement of mass or skin around the mass, family history, and other medical conditions that may be present. In mild cases, especially if hand function is good, only observation is needed. Splinting or stretching typically does not prevent worsening of the contracture but is safe to try.

For contractures that become bothersome, there are nonsurgical and surgical options. These are typically discussed when the contracture prevents the hand from lying flat on a table. A hand surgeon (either a trained orthopaedic surgeon, plastic surgeon, or a general surgeon) can discuss the most appropriate method based upon the stage and pattern of the disease and the joints involved. The goal of treatment is to improve finger motion and function. Complete correction of the fingers may not always happen. Even with treatment, the disease is not fully curable. The nodules and cords may come back in the same or a different location. Before treatment, the hand surgeon will discuss realistic goals and possible risks. It is important to make sure the patient will understand this problem and both short- and long-term expectations.

Nonsurgical Treatment

One nonsurgical treatment option for Dupuytren's contracture is called needle fasciotomy (or needle aponeurotomy). This can be safely done in the medical office or a procedure room. The patient is usually fully awake. The hand and finger are injected with a numbing medicine. In a few minutes when the skin is numb, a needle is inserted below the skin to cut the cord in several locations. The physician then slowly stretches the hand and fingers to break the cord. This allows the hand to be straight again. It is not unusual to develop small tears of the skin that heal over a few weeks. The recovery is only a few days. The hand can be used as much as the patient is comfortable. The wounds must be protected to reduce risk of infection. This procedure does not remove

the cord fully from below the skin. Roughly one third of patients will see the cord eventually come back after this procedure.

Another office procedure option is a two-step procedure that includes a collagenase injection. This is similar to needle fasciotomy. Instead, it uses an injectable drug called collagenase to dissolve the cord. The physician will inject the cord at the first visit with the medication. Many patients will experience some swelling, bruising of the hand, and pain after the injection. To limit these symptoms the hand is often wrapped in a bulky dressing. The patient is also instructed to elevate the hand and limit use. Sometimes oral medications are advised such as acetaminophen, a non-steroidal anti-inflammatory drug. The second visit is usually one or a few days later. At that visit, the hand and fingers will be injected again. This time a numbing medication is placed for comfort. A few minutes later, the physician will slowly stretch out and straighten the finger joints to break the cord. Some patients may develop small tears in the skin. Similar to needle fasciotomy, the recovery is only a few days to a few weeks. The hand can be used normally almost immediately once the swelling goes down and the numbing medication wears off. This does not remove the cord fully from below the skin, and one third of patients will see the cord come back. Talk to your doctor about your eligibility to receive this injection.

Splinting and therapy may be used to help keep the hand and fingers straight after the treatment is completed. The main reason to undergo treatment is to increase your ability to straighten the finger. However, it is also very important to work on your ability to make a fist during recovery.

Surgical Treatment

There are several surgical treatments for Dupuy-

tren's contracture. Painful nodules can be treated by opening the skin and carefully removing them. There are two procedures to treat the cords. One is called a fasciotomy where the tight cords are cut but not removed. This is less invasive as only a small cut or cuts are used. Because all the tissue is not removed, there is possibly a higher chance the contracture could return. The other type of surgery involves both cutting the cords and removing as much of the nodule, cords, and even diseased skin in the hand. This is called a fasciectomy. This often has longer wounds with more extensive dissection.

A surgical plan will be created that is specific to each patient. Surgery can be performed with the patient asleep or awake using a variety of anesthesia techniques. This is out-patient or same-day surgery. This means you will go home the same day. The skin is usually closed with stitches, but sometimes portions of the skin are left open to prevent any recurrence of the nodules. Because of the surface area cut, having blood on the dressings is normal at the first few dressing changes. The hand and fingers are usually much improved in their ability to straighten (Figure 4). However, this improvement may not be maintained forever.

After surgery, splinting and hand therapy (either physical therapy or occupational therapy) are often very helpful in order to improve function of the affected finger. While surgical treatment may be more effective, the recovery is longer. The recovery time for fasciectomy surgery is usually about 6 weeks. The hand can be used during this time. It is helpful for patients to set aside time multiple times per day to perform exercises, use a splint, or attend therapy sessions. Waiting until weeks or months after surgery to begin therapy may result in stiffness. The more the patient does soon after surgery, the more successful the final result will be.