

# Dupuytren's Contracture

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In this issue of *ORTHOPEDICS*, Dr Steven Beldner discusses Dupuytren's contracture and the available nonsurgical and surgical treatments.

## What is Dupuytren's contracture?

Dupuytren's contracture is a fibroproliferative condition in which normal collagen is placed in abnormal amounts. It has different names depending on location. When in the feet, it is referred to as Ledderhose disease. When on the penis, it is referred to as Peyronie's disease. When on the back of the knuckles, it is called Garrod's nodules. Under the microscope, a normal cell called the myofibroblast that is producing normal collagen in abnormal amounts is seen. There is an increase in the amount of type 3 to type 1 collagen. Pathologists refer to this diseased tissue as fibromatosis.

## What causes Dupuytren's contracture?

The exact etiology of Dupuytren's contracture is unclear. It is generally considered an hereditary condition. It has been weakly linked to a mutation in mitochondrial DNA. Dupuytren's contracture has been traced back to the Vikings. It occurs frequently

among northern Europeans and in regions that were populated by Viking conquest. Because its expression is increased in diabetes mellitus, some argue that it is metabolic. Because its expression is increased in human immunodeficiency infection, some argue that it is associated with the immune system. Because its expression is increased with hepatic disease or administration of phenytoin, some argue that it is associated with the cytochrome P450 system. Many patients report that it started after trauma or is accentuated by physical tension placed on the tissue. Therefore, some argue that this is the cause. Most agree that Dupuytren's contracture has a multifactorial etiology.

## What are the symptoms of Dupuytren's contracture?

Dupuytren's contracture is a painless condition. In the early phases, a small area of thickening, usually on the ulnar side of the hand in the palm, may be noted. As it progresses into cords, contractures of the metacarpophalangeal, proximal interphalangeal, and distal interphalangeal joints are frequently seen. Some-

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times, contractures between the commissures of the fingers are also noted. The cords or nodules are sometimes tender on palpation when they are in the active phase, which generally means that the condition is in a stage of progression. Dupuytren's contracture can be associated with trigger fingers and carpal tunnel syndrome.

**How is Dupuytren's contracture diagnosed?**

Dupuytren's contracture is generally diagnosed by physical examination. Ultrasound can sometimes be helpful. Findings on magnetic resonance imaging are usually misleading because Dupuytren's contracture has an appearance similar to that of sarcoma.

**What nonsurgical treatments exist for Dupuytren's contracture?**

Radiation has historically been used. Some nonsurgical treatments have recently been developed. Eaton has popularized needle aponeurotomy in the United States, which was first developed in France. This involves percutaneously cutting the cord into multiple pieces to allow the digit to straighten. More recently, a collagen proteinase has been developed from clostridial bacteria that selectively digest fibrillar collagen.

**What are the surgical options for Dupuytren's contracture?**

The surgical options include partial or complete palmar digital fasciectomy. Most surgeons agree that complete palmar digital fasciectomy results in a significant amount of digital stiffness and unnecessary dissection to remove nondiseased tissue. Most surgeons prefer to remove only the diseased palmar digital fascia. There are multiple types of incisions depending on the location of Dupuytren's contracture, and these can be done either completely open or by leaving skin bridges. Surgery has been associated with hematomas, tissue loss, nerve injuries, reflex sympathetic flare responses, stiffness, and frequent need for long periods of occupational therapy to optimize its results. Recurrence or progression is also common, regardless of which treatment is chosen, and is more dependent on genetic expression.

**How is it determined whether to use surgical or nonsurgical treatment?**

Patient and surgeon preference are key to the decision. Some surgeons strongly believe in needle aponeurotomy, whereas others favor chemical digestion with Xiaflex. Most surgeons are well versed in surgical excision because this has been the treat-

ment of choice since the late 1800s—the time of Dupuytren himself. Both needle aponeurotomy and Xiaflex injection require a palpable cord with a contracture. If the cord does not start within 4 mm distal of the palmar digital crease, Xiaflex is contraindicated because injecting distally into the digit increases the risk of tendon rupture.

Surgery is not necessary unless a contracture has developed. Some patients request excision of the lumps in the palms or digits, but this is frequently associated with high recurrence rates.

**What are the complications of Dupuytren's contracture?**

Dupuytren's contracture is a progressive condition. If left untreated, it leads to difficulties performing activities of daily living due to the malposition of the finger secondary to contracture. Also, hygiene issues, skin breakdown at the contracture, and pressure on the skin can occur. This can lead to infection and possible amputation. The more contracted the digit is on treatment, the more difficult it is to achieve full correction. This is especially true for the proximal interphalangeal joint because it appears to be a more stubborn joint to straighten once contracted.

**Can Dupuytren's contracture be prevented?**

Risk factors for Dupuytren's contracture can be reduced. The cause cannot be eliminated because it is a genetic condition. Good control of diabetes and HIV infection is helpful. Controlling hepatic damage and avoiding medications that increase the cytochrome P450 enzyme are beneficial. Avoiding trauma to the hands can reduce, but not eliminate, the odds of developing Dupuytren's contracture. Once the palmar digital fascia is noted to be thickened, stretching or massaging may increase the risk of progression to a contracture and therefore should be avoided. Because therapy and splinting will most likely excite the tissue and cause it to progress, they should be avoided until after surgical or chemical treatment disrupts the cord.

**What is the prognosis for Dupuytren's contracture?**

The prognosis depends on its genetic expression. Individuals from families with many cases of Dupuytren's contracture requiring surgery will most likely have a difficult course. The younger the individual is when the disease is first noted, the more likely the individual is to have progression and recurrence after treatment. Individuals who have multiple sites involved (eg, the opposite hand, the radial side of the hand with disease, the dorsal knuckle pads, the feet, the penis) are more likely to have progression and recurrence after treatment. 