DUPUYTRENS CONTRACTURE

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Introduction

Dupuytren's contracture is a fairly common disorder of the fingers. It most often affects the ring or little finger, sometimes both, and often in both hands. In the condition a nodule first appears in the palm. This may be of minor irritation. Slowly a finger is drawn down toward the palm or wrist. This problem is caused by the connective tissue (fascia) in the palms and fingers becoming thicken and contracting like a scar until it is too short and thick to allow free movement of the fingers. It is called Dupuytren's Contracture because of the doctor who first described it. Baron Guillaume Dupuytren, a French surgeon, described the surgical treatment for the disease now bearing his name in 1832, and reported it in Lancet in 1834. The cause of it is not understood even today, but some things have been learned in recent years.

What is Dupuytrens Contracture?

Although the exact cause is unknown, it occurs most often in middle-aged, white men. The disease usually doesn't cause symptoms until after the age of forty.

Dupuytren's contracture is seven times more common in men than women. It is more common in men of Scandinavian, Irish, or Eastern European ancestry. Interestingly, the spread of the disease seems to follow the same pattern as the spread of Viking culture in ancient times.

The disorder may cause rapid contraction. However, it more commonly progresses slowly over a period of years.

What Causes It?

Inheritance is the most important factor; Whites, especially those of Celtic origin, have the highest incidence, and is genetic in nature, meaning it runs in families. It is uncommon in pigmented races. The peak incidence is between the fifth and the seventh decades of life.

High blood fats (cholesterol and triglycerides) have been associated with Dupuytren's disease[1]. Several other associated diseases have been observed, including epilepsy, diabetes, alcohol abuse, heart disease, and pulmonary disease. One study showed alcoholics have a higher rate of this disease than others—28 per cent as compared to 8 per cent[2]. Several studies have indicated an association between immune disorders and Dupuytren's contracture in susceptible persons[3]. In type II diabetes (adult onset) with absent or reduced insulin receptors on cells of the palmar connective tissue, with a disturbance of the smallest blood vessels and nerves, (microangiopathy and neuropathy) there is an increased association with Dupuytrens. Also, cigarette smoking, and other factors such as barbiturate use, appear to promote the development of connective tissue disorders[4, 5, 6].

It was once thought occupational trauma was a factor. Yet, the right hand is more often affected, the ring finger (forth) being most often involved, followed by the small, middle, and index fingers. Prognosis is worse if there is a family history, if both hands are involved, if the feet have plantar fibromatoses and if the patients is also suffering from Peyronies Disease (a condition affecting the straightness of the penis). Also, the younger it occurs the more aggressive the condition.

How Is It Diagnosed?

The diagnosis is made on history and examination. In the history the patients is asked about the details described above and other medical details that might affect the treatment offered. The

examination should include an examination of the hands and feet as well as a general examination if surgery is being considered.

How Is It Treated?

The Condition is treated both conservatively and with surgery.

It is my opinion, and that of my colleagues, that surgery should be delayed until the patient can no longer get their hand flat on the table. Until then, there is little to alter the course of the disease.

Figure 1. When the hand can be held with the palm flat surgery is not indicated.

Figure 2. Here the knuckle will not flatten.

Figure 1. Here the finger will not flatten.

Several conservative treatments have been tried in the past but failed, including vitamin E, steroid injections, radiation therapy, ultrasound, and splinting. It has been said that successful conservative treatment is possible only at the very beginning of the disease[7].

The most popular diet tried is a totally vegetarian diet—no meat, milk, eggs, or cheese. Damage from xanthine oxidase, which is found in homogenized milk, was discovered in the palmar connective tissue of patients with Dupuytren's contracture. Xanthine oxidase has also been found in the joints of both normal and rheumatoid joints, suggesting these joints may be the target of damage by free radicals promoted by this enzyme[8]. Patient may be advised to use no free fats—margarine, mayonnaise, fried foods, cooking fats, salad oils, or nut butters. Free fats cause tissue proliferation in certain diseases (cancer and skin lesions). However, there is no evidence there are factors in this disease.

In the early stages of this disorder, frequent examination and follow-up is recommended. Your doctor may inject painful nodules with cortisone. Cortisone can be very effective at temporarily easing pain and inflammation. Heat and stretching treatments given by a physical or occupational therapist may also be prescribed to control pain and to try to slow the progression of the contracture.

The nodules of Dupuytren's contracture are almost always limited to the hand. If you receive regular examinations and follow your doctor's advice, you may be able to slow the problems caused by this disorder. However, Dupuytren's contracture is known to progress, so surgery may be needed at some point to release the contracture and to prevent disability in your hand.

Operative Treatment

No hard and fast rule exists as to when surgery is needed. Once the hand can no longer get flat on the table surgery has the best outcome. In rapidly progressive disease early surgery is recommended as once the joints have

contracted beyond a certain point total correction cannot be achieved as a permanent contracture of the joint occurs.

There are a number of operative procedures that can be done for Dupuytren's contracture. Your surgeon will advise the best for you.

Occasionally you surgeon will stage the procedure beginning with a simple operation to improve the position of your fingers and the skin circulation before definitive surgery[9].

Figure 6. A sever contracture being treated with aponeurotomy (before).

Figure 2. This degree of contracture of the little finger is too late for corrective surgery.

Figure 7. After aponeurotomy.

The operation is done under general anaesthetic with an additional local anaesthetic so that you are pain free when you wake. A tourniquet is used at the level of the upper arm. The procedure usually takes about an hour depending on its complexity. Ocassionally a skin graft is necessary.

You will stay in hospital overnight after surgery with your hand elevated in a sling that maintains the hand above the level of your heart to prevent excessive swelling. It takes approximately 6 weeks for your hand to settle down properly after surgery and you should not expect to have full use of your hand for work during this period.

Your Operation

The operations for this condition are varied and include:

- Percutaneous needle aponeurotomy (Fasciotomy)
- Partial Fasciectomy
- Complete Fasciectomy
- Fasciectomy and skin graft
- Amputation

Benefits and Risks of Surgery

The benefit is to halt the progress of contraction in your hand and restore function. Pre-existing severe contracture may not be relieved even over time. There may be bleeding and formation of a clot under the skin. This often settles with elevation but may require further surgery to release

the clot. Infection occurs in an average 6% of patients because we all have bacteria on our skin and if these bacteria get into the cut they can multiply to produce infection. Infection can be surmised if you develop more severe pain after the first 24 hours. In these circumstances please contact your GP immediately for early suture removal and antibiotic therapy. Scar pain (RSD) is uncommon. Very rarely, nerve damage occurs and the patient reports an area of numbness in the finger. This tends to occur in 1 in 100 patients with first time surgery rising to 1 in 20 for recurrent surgery. If the nerve is going to recover nerves recover at a rate of an inch per month. Finally the condition can recur and the risk of recurrence is higher in some compared with other patients.

After Surgery

Immediately after surgery your hand will be bandaged and will be kept elevated to keep the swelling down. You should maintain the elevation after you are taken home for 72 hours. Before you go home the physiotherapist will reduce your dressing and instruct you on exercises.

The management after surgery is as important as the surgery. You may be given pain relief medications and be told to use an ice pack. It is important to keep the dressing dry so cover it with a plastic bag when bathing or showering. Dark blue or brown discoloration of the hand and wrist after surgery is normal due to bruising. You will be told about exercising your hand by opening and closing your fingers and squeezing exercises.

Treatment also consists of wearing a splint after a week that keeps the finger straight and straightens out residual contracture not amenable to surgery. This splint is usually worn at night.

After the wounds have healed it is often useful to get a sponge ball from a toy department and try to make your thumb meet each finger, one by one, through the sponge ball using a pinching motion. Begin with five repetitions with each finger, and build up to twenty. Then squeeze the ball as firmly as possible, and while holding the squeeze tightly, slowly bend the wrist up and down as if waving goodbye.

If you had a severe case of contracture you may find it useful to soak hands and wrists in hot water four times a day for 20 minutes each time. Keep this up for up to two months. After the hands warm the fingers should be manipulated and stretched by firm massage and pulling or pushing. The use of ultrasound with the heat has proved useful in some cases[10].

Physiotherapy Summary

Postoperatively, the hand may be in a volar splint (depending on the Surgeon), which remains for one week. The splint can be removed for flexion exercises and the patient weaned out of the splint as appropriate. 72 hours of elevation is mandatory.

Standard Fasciectomy Hand and Multiple fingers (T5210)

Day 0

- Elevation Bedford Splint.

- Gentle finger and thumb movement within bandages or splint as able.
- Intrinsic exercises.

Day 1

- Inspect wound – leave tie over dressing if grafted.
- Remove drain if present.
- Discharge home.

Approximately 2 weeks

- Removal of sutures.
- Night splint if further gain in extension expected.
- Lanolin/oil massage.
- Start mobilisation and passive stretching.

McCash-Type Release

Treat as above except…..

Postoperatively (2 – 3 days)

- Daily silicone oil baths, until wound healed. Splintage can be started, if required before the wound is fully healed.

Contact your General Practitioner

If your develop a pale blue or white hand, increasing pain for more than a day not relieved by medication, loss of sensation, throbbing, excessive swelling in the hand, or fever over 100 º F.

References

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