

# Dupuytren's Contracture



Dupuytren's disease was a condition that was first recognized in the early 1800s. Paradoxically, it was an English surgeon, Dr. Astlee Cooper who first described the condition and started to treat it. However, Baron von Dupuytren in Paris was much more active in both treating and describing the condition, and as such, had his name attached to the condition.

This clinical problem has received much attention, especially in the latter half of the 20th century, and volumes have been written about it. However, in spite of this, it is still poorly understood. There are many theories as to what is the cause of this condition, which causes abnormal scarring in the hands and sometimes the feet and other areas of the body, which cause the fingers to contract down into the palms. The theories fall into two broad categories; namely, intrinsic theories and extrinsic theories. The intrinsic theories assume that there is something intrinsically wrong with the cellular structures in the hand, which subsequently lead to scarring. The extrinsic theories believe that external factors alter the characteristics of the cells in the palm of the hand and fingers, which subsequently have become scarred and lead to the flexion contractures. There is

evidence to support both lines of thought, and in addition, there are very strong clinical observations that Dupuytren's disease tends to run in families and is usually associated with people who have got Celtic heritage. It is virtually unheard of in Asian and Indian races, and in the Negro groups. It is also more common in diabetics, people who take anti-epileptic medication and alcoholics. In the experience of this practice, there is more often than not, no predisposing factors of the condition. However, my English experience was different, and a vast number of people in England had a family history of the disease, and of course most of these had Celtic genes.

The condition is progressive. Where bands of scar tissue form firstly in the palm and later down the fingers (although the distribution varies). Initially the nodules may be tender and thick, but later on they become non-tender band-like thickenings of scar under the skin, which extend down into the fingers and cause the fingers to curl down into the palm. The two most commonly affected joints to contract, are the metacarpo-phalangeal joint (knuckle joint) and the proximal interphalangeal joint of the finger. The distal interphalangeal joint of the finger can also be involved however. In very rare instances, only the distal interphalangeal joint is involved. All of the fingers and thumb can be involved, but it is far more common to have little finger or ring finger involvement alone. As mentioned above, the condition is progressive and its onset is variable. The earliest reports of this condition in the literature are in the teenage group and this usually falls into the category of Dupuytren's diathesis, where the palms of the hands are involved (as are the fingers), the knuckles of the dorsum of the hands also have thick pads over them. The soles of the feet also get bands of scar tissue extending down into the toes, and occasionally the penis can have a band of scar running down its volar aspect. This diathesis tends to run in families and affects males predominantly, however the normal Dupuytren's disease that is most common, tends to affect elderly men and women. The progression of the disease varies from patient to patient, and it is not uncommon to have palmar thickening for many years before the tight band develops and the finger starts to contract. Finger contracture may take only months to develop, or it may take years. Again, this varies from person to person, and cannot be predicted. Dupuytren's

disease is not cancerous and is not life-threatening, however the flexion contracture, particularly of the little and ring fingers, can be debilitating, and if left untreated, may lead to upper limb injury as the fingers act like a hook. This makes alighting trams and trains potentially dangerous, as the hand can get stuck on a rail and be very difficult to disengage. Nevertheless, many elderly people choose to not seek treatment for this condition, and manage to live normal lives, albeit with the inconvenience of bent fingers.

The treatment of this condition has varied over the centuries. In the pre-anaesthetic era, Baron von Dupuytren used to simply stab the band of scar in the palm, to allow the finger to straighten out somewhat. This treatment is still rarely performed, albeit with greater accuracy and under tourniquet control with an anaesthetic, and is called a palmar fasciotomy. In the 1960s, Jack [Houston] from Melbourne popularized a very aggressive approach to Dupuytren's disease and advocated cutting out not only the scar bands, but also some overlying skin and inserting full thickness skin grafts into the resulting skin defect, which he described as "fibre breaks", which he claimed slowed down the further progression of the disease. Now with over 40 years of experience of this kind of approach behind us, surgeons are realizing that this is not always the best option, as the disease can be progressive in spite of aggressive surgery and skin grafting, and therefore there is a growing trend now to try to treat early Dupuytren's disease conservatively in order to slow down the progression of the condition and reduce the need for surgery. Likewise, more conservative surgery is being performed, particularly in the [old people].

Conservative, non-operative measures aim at reducing or reversing scar tissue changes in the palm particularly, and intra-lesional steroid injections and injections of the hands with chemotherapeutic agents are currently under trial, both in America and Australia. The results of these are not conclusive, but may have a place to play in the armamentarium of surgeons treating this particular condition. The standard surgical treatment of Dupuytren's disease is appropriate when the band starts to contract the fingers and most surgeons would still wait to proceed with surgery, until such time as the flexion contracture is stopping the patient from putting

their hand flat on a table. Many different surgical approaches have been advocated, and basically, all represent a variation on a theme, which is to surgically to remove the band of scar tissue whilst preserving the nerves and the blood vessels to the fingers, and if possible preserving the tendon sheath over the tendons, and subsequently closing the wounds in a fashion that will not leave scars running straight down the fingers. Scars contract, and therefore a scar running straight across a joint crease will contract down and lead to precisely the same deformity as seen in Dupuytren's disease in the first place.

My personal approach is to make an incision directly over the band of Dupuytren's scarring, locate the nerves either in the palm or in the [mundrigal ??] canal (at the base of the fingers), identify the nerves proximally and distally, dissect the band away from the nerves and blood vessels, remove the band and then close the wound with a series of Z-plasties. This has the advantage of changing the direction of the scar, so that the horizontal limbs coincide with the joint creases and there are no vertical limbs to the scar, but rather transverse, running from side-to-side across the finger. It also lengthens the scar, enabling greater straightening of the finger, as well as imports some spare skin from the sides of the finger to counteract the skin shortage which is invariably present in longstanding flexion contractures caused by the disease. The surgery should always be undertaken with the utmost care, and with the greatest respect, as the disease itself causes anatomical disturbance, which may lead to cutting the nerves to the fingers. The surgery can be done under general anaesthetic or an arm block, however, anaesthesia must be adequate to cover the use of a tourniquet which is essential for the safe rendition of the surgery.

The [things] which affect the complexity of the surgery include the age and general health status of the patient, the severity of the disease, whether or not some prior surgery has been carried out and how long the disease has been present for, including how long have the joints been contracted. Surgery ranges from a simple fasciotomy, through to traditional excision Z-plasty closure, to the excision and full thickness skin graft repair, even excision and flap repair, or in the worst cases, particularly involving the

little finger, amputation of the digit may be required. The post-operative recovery tends to be prolonged, almost invariably people with this condition scar aggressively, which affects all aspects of hand recovery. To this end, hand therapy is essential and scan management is incorporated in a regime to get the finger moving again.

Given that this disease commonly affects elderly gentleman, it is quite usual for retired men who enjoy golf to be seeking treatment. Although I try to encourage people back to this game as soon as possible after surgery, as it is an excellent adjunct to hand therapy, most keen golfers say that the fasciotomy interferes with their ability to play golf for a period of up to three to four months, and sometimes even longer. Nevertheless, a modified grip handle can be obtained, and used to enable patients to get back at least to the short-course aspects of golf within three to four weeks after surgery.



As with any surgery, treatment of this condition has a number of complications, albeit they are very rare. The neurovascular bundles can be damaged, and even if they are not cut, it is very common for the fingers to be numb temporarily after surgery, as the nerves have to be teased off the scarred band of Dupuytren's disease, and this renders them dulled for a period of weeks to months. Haematoma formation can occur after surgery, although various technical manoeuvres undertaken at the time of surgery are always performed to minimize the risk of haematoma

formation. Usually bleeding will lead to either subsequent wound infection, or flap necrosis, which may require readmission to hospital for antibiotics and/or debridement of part of the wound. Usually this heals without any further intervention, but in very rare instances, may require skin grafting. Scar abnormalities may occur after surgery for Dupuytren's, but as indicated above, in this practice, scarring is anticipated and various measures are undertaken to minimize this risk. Regional pain syndrome is a rare phenomenon that can occur after any hand surgery or injury, and may occur after Dupuytren's disease has been treated. Flexor tendon weakness and stiffness of the hand may also occur, as a result of surgery for Dupuytren's disease.

On balance however, if surgery is indicated, it is highly successful in over 98% of cases, and although a long recovery period should be expected, during which time intensive hand therapy is undertaken, the end results are excellent. Nevertheless, bear in mind that the condition is progressive and it is not uncommon to require several surgical episodes 10 years apart or so. However, with the advent of new non-surgical preventative treatments, it may be possible to keep early disease under check and the need for surgery for this condition hopefully will diminish as our ability to manipulate cells improves.



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