

BSSH Evidence for Surgical Treatment 1

Dupuytren's Disease

This guide on Dupuytren's disease and contracture is based on evidence and current research; it is intended to inform and guide tertiary referral.

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Definition

Dupuytren's Disease (DD) is a benign proliferative disease that occurs in the fascia of the palm and digits resulting in nodules, cords and contracures [\(McGrouther 1998\)](#). The disease was described by various surgeons but it was Guillaume Dupuytren who clearly described the actual nature of the disease in 183;his name was adopted to identify the disorder [\(Elliot 1999\)](#).

Dupuytren's diathesis describes a more aggressive form of the disease. The original DD diathesis factors have been evaluated and modified. Family history, bilateral disease and ectopic lesions [penile fibromatosis (Peyronie's disease) and plantar fibromatosis (Ledderhose disease)] now include two more independent factors: male gender and age at onset of younger than 50 years. Family history and ectopic disease have now been modified to specify family history with one or more affected siblings/parents and ectopic lesions in the knuckles (Garrod's pads) alone [\(Hindocha et al 2006\)](#).

Epidemiology and Clinical Features

The highest incidence is in Caucasian males of northern European ancestry. There is a greater prevalence in males until the age of 70 at which age sex distribution becomes equal. The disease appears to be genetically determined with an autosomal dominant pattern though the penetrance is variable [\(Saboiero 2000\)](#).

DD is characterised by palmar skin changes (pits, nodules) due to thickening of the palmar fascia and cord like structures which may extend from the palm into the digits. This may progress to cause flexion and/or adduction contracture of the metacarpo-phalangeal joints and progress to involve the digital inter-phalangeal joints. The disease is bilateral in 17% of cases in the United Kingdom [\(Dias 2006\)](#). The most commonly affected digit is the ring finger [\(Makela 1991, Sennwald 1990\)](#)

A number of conditions may be related to DD:

- Diabetes – there is an established link with diabetes mellitus. However, these cases have more nodules and fewer contractures ([Yin 1999](#))
- Trauma – There are clear associations between injury and DD ([Elliot 2005](#))
- Alcohol – there is a higher prevalence of DD in alcoholic patients. ([Attali 1987](#), [Noble 1992](#))

However, recent evidence suggests that there is no statistically significant correlation of DD with diabetes mellitus, severe alcohol consumption, heavy smoking or epilepsy ([Loos 2007](#)).

Evaluation

Generally it must be determined whether the disease is progressing and how the contractures are affecting the patient's activities of daily living ([Bayat and McGrouther 2006](#)).

Examination should include determination of the extent of the disease, skin involvement and the presence (or absence) of joint contractures. Hueston's tabletop test is a useful guide to the need for surgical intervention ([Hueston 1982](#)): the test is positive when a patient is unable to place all the fingers in a flat position on a tabletop.

In general, palmar nodules or pits do not warrant surgery. They may, however, be tender and therefore functionally disabling ([Ketchum 2000](#)). Approximately 50% of patients with isolated nodules will ultimately develop a cord, of whom 9% progress to meet standard surgical criteria for operative intervention ([Reilly 2005](#)).

Historically when the metacarpo-phalangeal joint contracture is greater than 30° or there is any degree of proximal interphalangeal joint contracture, surgical intervention is indicated. There is however no evidence to support this dogma.

Rapidly progressive disease and/or suspicion of the Dupuytren's diathesis may warrant earlier referral.

Classification of Dupuytren's (adapted from: [Dias and Braybrook 2006](#))

- **Mild**
 - No functional problems
 - No contracture.
 - Mild metacarpo-phalangeal joint contracture only (<30°)
- **Moderate**
 - Notable functional problems
 - or moderate metacarpo-phalangeal joint contracture (30° - 60°).
 - Moderate proximal inter-phalangeal joint contracture (<30°).
 - First web contracture
- **Severe**
 - Severe contracture of both metacarpo-phalangeal (>60°) joint and proximal inter-phalangeal joint (>30°).

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Conservative and “Non-operative” Treatment

- Spontaneous resolution does not occur.
- Patients may be managed with observation if the contractures themselves are not functionally limiting. Nodules, in general, do not require treatment.
Occasionally, these nodules may be tender and intra-lesional injection of steroid (triamcinalone) has been shown to soften these nodules. The recurrence rate following such treatment is, however, 50% between 1 and 3 years ([Ketchum 2000](#)).
- Direct injection of clostridial **collagenase** into nodules and cords has been shown to cause lysis and rupture of digital cords, releasing metacarpo-phalangeal joint and proximal inter-phalangeal joint contractures ([Badalamente 2000](#)). This treatment has now completed phase III clinical trials in a Level I multicentre study ([Hurst 2009](#)). This study confirms significant improvement in injected fingers (joints) at 90 days albeit with some concern about potential adverse effects.
- **Percutaneous needle fasciotomy (PNF)** has been popularised ([Foucher 2003](#)) to relieve contracture in the elderly or frail or as a temporising measure to allow skin hygiene prior to definitive surgery. It has evolved from the older concept of *percutaneous fasciotomy* – performed under local anaesthetic in the outpatient setting with a number 11 blade ([Ravan 2008](#)). PNF may be performed on an outpatient basis using an 18 gauge needle by an appropriately trained specialist. A prospective randomised study compared needle fasciotomy with limited fasciectomy and found that passive extension deficit was improved by 63% compared to 79% in the limited fasciectomy group ([Van Rijssen 2006](#)). They reported no complications in the percutaneous group but short follow-up.
- In 2004, the National Institute for Clinical Excellence published guidance stating that percutaneous fasciotomy was safe and effective (www.nice.org.uk/ip177/overview). However, this technique does carry the risks of injury to the neurovascular structures, especially on border digits, tendon injuries, chronic regional pain syndrome, infection and recurrence ([Ravan 2008](#)).
- In a retrospective cohort study, recurrence rates of 65% have been reported following percutaneous fasciotomy ([Van Rijssen 2006](#)).

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Operative Treatment

Surgery remains the mainstay of treatment:

- **Limited Fasciectomy:** In this procedure, only the involved fascia is removed, preserving the overlying skin. This is the most widely used technique and was popularised by Hueston ([Hueston 1961](#)).

- **Radical Fasciectomy:** Involves extensive resection of the palmar and digital fascia. This technique has fallen out of favour as the recurrence rates are similar to limited fasciectomy with significantly higher complication rates ([McGrowther 1998](#)).
- **Dermofasciectomy:** Excision of the fascia and overlying skin. The wounds may be closed using skin grafts or left open. The latter is known as the open palm technique ([McCash 1964](#)). Skin grafts may reduce disease recurrence but not its extension ([Bayat and McGrouther 2006](#)).
- **Amputation:** In severe cases, often those with delayed presentation, recurrence and severe contractures affecting the little finger, amputation may be indicated. A 1% amputation rate of all little fingers that underwent surgery for recurrent disease has been reported ([Macfarlane 1990](#)). Amputation is by no means without complication - neuroma, neurogenic pain, stump sensitivity, reduced grip and cosmetic or psychological issues.
- **Joint Fusion:** PIP fusion is a useful option and an alternative to amputation. The bone ends are slightly shortened to compensate for the tight volar tissues and then fused in a functional position.

Outcome of Surgery

- A recent retrospective audit undertaken by the BSSH ([Dias and Braybrook 2006](#)) indicated that surgery for Dupuytren's disease is successful in achieving full or almost full correction in 75% of cases. Complication rates, including early recurrence, are, however, high at 46% and more common in those with severe initial deformities. The rate of contracture recurrence or persistence is 15% .
- The recurrence rate when the skin is resurfaced with a full thickness graft applied from midlateral line to midlateral line is likely to be substantially lower than closure with a z-plasty or a Brunner's incision.

British Society for Surgery of the Hand recommendations for Treatment

- **Mild**
 - Reassure.
 - Observe
- **Moderate**
 - Needle fasciotomy if appropriately trained; for MCPJ contracture
 - Possibly collagenase
 - Refer for surgery – limited fasciectomy
- **Severe**
 - Refer for surgery
 - limited fasciectomy
 - dermofasciectomy

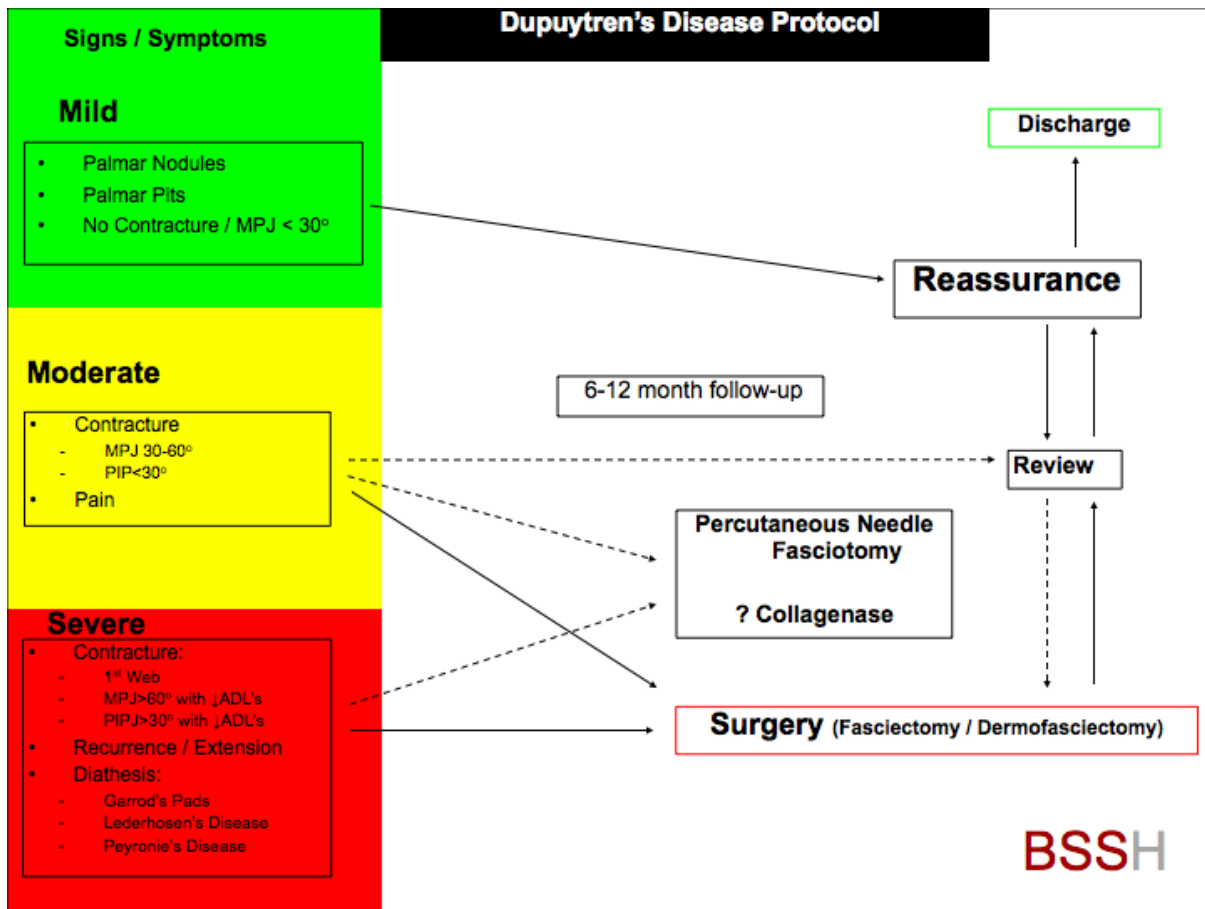
Treatments without evidence:

No effect is demonstrated for the following treatments which are **Not Recommended:**

- Physiotherapy and splinting ([Rayan 2008](#)).
- Calcium channel blockers, azathioprine, procarbazine, prostaglandin ([Rayan 2008](#))
- Radiotherapy ([Hurst 1999](#), [Rayan 2008](#))
- Ultrasound ([Hurst 1999](#))
- Interferon ([Hurst 1999](#))
- 5-fluorouracil ([Bulstrode 2005](#))

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Treatment plan: diagram



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Research Opportunities

- Proper prospective trial of outcomes of surgery
- Phase IV study to confirm the efficacy and safety of collagenase
- Randomised comparison of PNF with fasciectomy

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