Introduction
Dupuytren’s disease is a benign fibroproliferative disease of the palmar and digital fascia, which may eventually cause contracture of the fingers. There is a strong genetic link with several associated environmental factors, including diabetes, alcoholic liver disease and anti-epileptic medication. The treatment of Dupuytren’s disease depends upon the patient’s functional disability, the rate of progression and the preference of the treating surgeon. This article discusses the common treatments for this condition as well as some of the advances in the understanding and treatment of the disease.

The aim of treatment for Dupuytren’s disease is to correct the deformities which are causing functional limitations for the patient. Dupuytren’s disease cannot be cured or prevented at present, so asymptomatic disease only requires diagnosis and discussion with the patient.

Treatments
The treatment of the disease can be subdivided as follows:

- Non-surgical treatments
- Surgical treatment
  - Needle aponeurotomy
  - Segmental fasciectomy
  - Limited fasciectomy
  - Dermofasciectomy
  - Other surgical treatments (skeletal distraction, arthrodeses, amputation)

Needle aponeurotomy
The technique of simply dividing the cords causing the contracture is not new and dates back to the days of Dupuytren. However, subsequent surgical philosophies were aimed at removing the diseased fascia through open techniques. In the more recent past the French rheumatologists popularised the technique of dividing cords and releasing contractures using a percutaneous needle technique. Needle aponeurotomy is a simple and safe technique in the palm but requires a high level of skill more distally, making the treatment of complex cases only feasible in specialist centres.

A small amount of local anaesthetic is injected under the skin over the area of contracture and using the same needle the cords are divided. The fingers are then straightened using gentle passive extension. Despite being a blind technique its safety has been established through several clinical studies. Percutaneous needle fasciotomy results in good short-term improvement but the recurrence rate is often high. In a study looking at a six-week follow-up comparison of outcomes between limited open fasciotomy and percutaneous needle fasciotomy, the authors concluded that percutaneous needle fasciotomy was a good alternative to limited open fasciotomy in the short term in patients with early disease.

Segmental fasciectomy
This technique was described by Moermans for the treatment of contractures. The aim is to interrupt the cords and not to remove the cords completely. Moermans noted that the residual cords softened over time. A prospective study of this technique in 50 hands showed a similar rate of recurrence as limited fasciectomy, and with one digital nerve injury.

Limited fasciectomy
Limited fasciectomy excises the affected tissue and a skin lengthening procedure is often used. A variety of incisions have been described. Skoog originally described a longitudinal midline incision from the digit to the palm which is broken into Z-plasties at the end of the procedure. Bruner’s incisions are also commonly used while skin lengthening can be achieved by V-Y plasties. Radical palmar fasciectomy, where all palmar fascial structures are excised, is no longer generally undertaken because of the high incidence of complications.

Dermofasciectomy
Dermofasciectomy was advocated as a technique for preventing contracture by Hueston. The skin overlying the diseased cord is excised and replaced with a full-thickness skin graft. This is useful when there is extensive skin involvement where raising viable skin flaps is not possible, or where there is recurrent and aggressive disease. There are two ways of using a skin graft in Dupuytren’s disease. First, as a ‘firebreak’ by placing small skin grafts in the gaps. The other is to replace a rectangular piece of skin with a skin graft. Several studies have reported decreased recurrence following this technique. However, a randomised controlled trial of a ‘firebreak’ full-thickness skin graft versus a limited fasciectomy with a Z-plasty did not show a decreased recurrence.

Other adjunctive surgical treatments
In long-standing contractures of the proximal interphalangeal joint (PIPJ), contracture of the collateral ligaments and volar plate...
may prevent full correction after fasciectomy. Extensive arthrolytic procedures may enable full extension, but risk an unstable joint and permanent stiffness. These techniques are becoming less popular because of the associated complications.

Skeletal distraction techniques have been used to pre-operatively correctPIPJ contractures. Skeletal traction for Dupuytren’s disease was first described by Motta, Errichiello and Crovalla in 1989 but they did not report the results of their cases. In the same year Messina and Messina described their technique for skeletal distraction in Dupuytren’s disease and reported the results.16 Continuous distraction weakens and lengthens the cords and there is remodelling of the internal organisation of the tissues. Researchers have shown an increase in newly synthesised collagen after skeletal distraction because of increased turnover. This was confirmed by demonstration of increased levels of degradative enzymes including neutral metalloproteinases and collagenase.17 The disease process progresses once the traction is removed and, therefore, these patients will require fasciectomy once joint correction is achieved. However, this technique does allow correction of the severe PIPJ contracture without the complications involved in arthrolysis.

The alternatives for treating severe PIPJ contractures include arthrodeses and amputations. These options have to be weighed against the patient’s functional limitations from the disease.

**Non-surgical treatment of Dupuytren’s disease**

There are no drugs at present in clinical use to modulate the Dupuytren’s process, although several have been tried.18-20 Enzymatic fasciectomy with collagenase has been shown to be effective through randomised controlled trials, although this procedure is not yet available for clinical use in Europe.

Radiotherapy in low doses, similar to the dosages used for keloid scars, is widely used in Europe to control the progression of Dupuytren’s disease. Generally, it is most effective in early disease in order to prevent progression, or after surgery to prevent recurrence. The long-term results from clinical studies do not suggest any significant complications from this treatment modality and it appears not to make salvage surgery more difficult.21,22

**Newer advances in Dupuytren’s disease**

There is ongoing research into the genetics of Dupuytren’s disease, which has improved the understanding of the condition. A positive association of HLA-DRB1*15 with Dupuytren’s disease in Caucasians has been described.23 An increase in expression of the TGF β-2 gene has been demonstrated in cords from Dupuytren’s tissue.24 Several biomarkers have also been identified in Dupuytren’s tissue which may have implications in future diagnostics and treatments.25

A further recent and significant advance in the treatment of Dupuytren’s disease has been the development of enzymatic fasciectomy with clostridial collagenase. Hurst et al performed a prospective, randomised, double-blind, placebo-controlled, multicentre trial of collagenase from Clostridium histolyticum injection in 308 patients with Dupuytren’s disease, particularly with contractures of 20° or more. Collagenase injections were found to significantly reduce contractures and improve the range of movement in affected joints.26 An eight-year follow-up of a small subgroup of these patients showed recurrence of the disease in four of the six metacarpophalangeal joint (MCPJ) contractures treated and in both of the two PIPJ contractures, although the severity of recurrence in the MCPJ was less when compared with the initial disease.27

**References**


