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Dupuytren's Disease: A Review with a Surgical Approach

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ABSTRACT

One prevalent fibroproliferative hand disorder is Dupuytren's disease (DD). Observation, non-operative management, and operative management are the three types of DD management. Percutaneous needle fasciotomy (PNF), open fasciotomy (OF), injections of Clostridium collagenase histolyticum (CCH), limited fasciectomy (LF), and dermofasciectomy are examples of operative therapies (DF). A overview is given of the many approaches to treating DD. This page outlines the many DD treatment methods, their advantages and disadvantages, and procedural guidelines.

ARTICLE DETAILS

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INTRODUCTION

Despite all known therapies, Dupuytren's disease (DD) is a benign but progressive fibrosis of the hand and fingers that causes flexion deformities that can be incapacitating for certain people. Surgeons have struggled with DD for decades. While there are many nonoperative and operative treatments for treating DD, limited fasciectomy (LF) surgery is still the cornerstone of care. Dermofasciectomy (DF), injections of Clostridium collagenase histolyticum (CCH), open fasciotomy (OF), and percutaneous needle fasciotomy (PNF) are further therapies. We've outlined the salient features, advantages, and disadvantages of each therapy option in this post. We also discuss useful advice on managing DD surgically [1-3].

SURGICAL MANAGEMENT

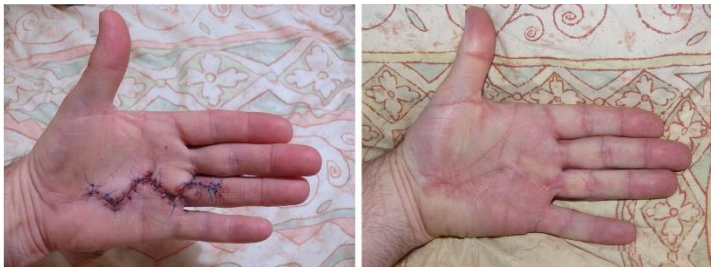

Figure 1. Immediate And Late Post-Surgery In Dupuytren's Disease

PERCUTANEOUS NEEDLE FASCIOTOMY

PNF can be repeatedly done in an office setting while under local anesthetic. PNF offers several benefits, including instant results, quick recovery, minimal cost, and the ability to proceed with any subsequent treatments, such as fasciectomy, despite its high recurrence rate. PNF can be used to treat severe contractures and reduce the severity of the illness. Some patients could experience outstanding long-term outcomes [4, 5].

OPEN FASCIOTOMY

Dupuytren presented the OF. The distal palmer crease and the MCPJ/PIPJ creases were the sites of single, double, or triple open fasciotomies, which were then left to repair secondary intention. At a mean of 46 months, the re-operation rate was just 13.5%, despite the high success rate of 93%. While MCPJ illness only required a single fasciotomy, more severe disorders required triple fasciotomies and had higher rates of recurrence. In 97% of cases, the secondary operation—a repeat OF (13%), LF (33%), or DF (54%),—was successful and there were no problems noted [6].

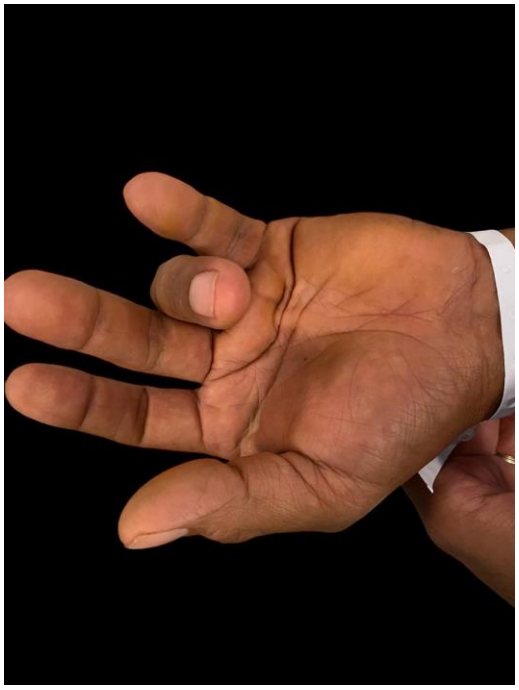

Figure 1. Anterior view preoperative image

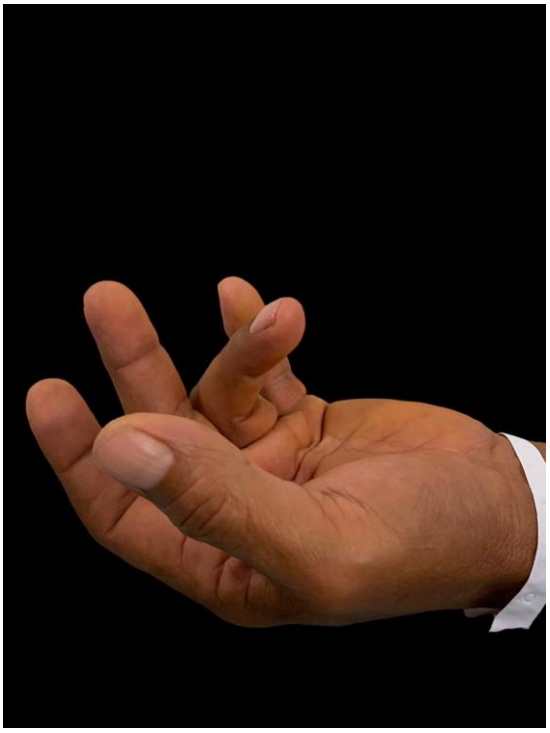

Figure 2. Lateral view preoperative image

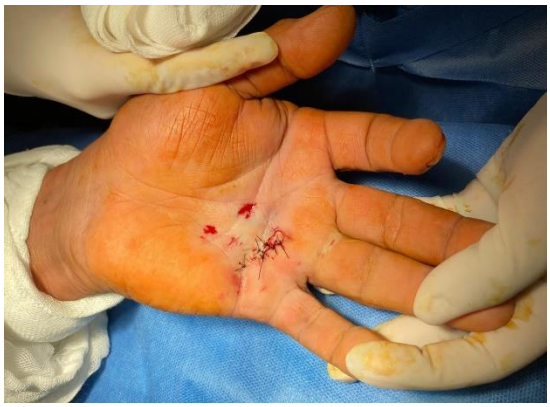

Figure 3. Inmediate postoperative image

LIMITED FASCIECTOMY

The problematic nodules and DD are all removed, and the neurovascular bundle is located and shielded in the LF. The healing process takes longer, and edema during immobilization may cause flexion stiffness. Its recurrence rate is, however, far lower than that of fasciotomy or CCH injections [7].

DERMOFASCIECTOMY

In DF, the DD and skin that are damaged are removed, and a full-thickness skin graft is applied in their place. It is the least likely to reoccur. After a follow-up of 5.8 years, a research by Armstrong et al. examined 143 rays that had received DF treatment and found an 8.4% recurrence rate. Prolonged recovery, skin graft failure, scarring at the donor site, a higher risk of complications, and a poor match in skin tone and texture are among the drawbacks [8, 9].

Amputation: In severe, recurring cases, elective digit amputation may be advised. The most prevalent cause of these cases is developmental delay (DD). In an amputated stump, DD could return and need for further care. Distraction device usage reduces the rate of amputations [10].

COMPLICATIONS

The patient may experience severe side effects from any of the available therapies. Each treatment's complications are enumerated in. With an 8% unintended amputation incidence, fasciectomy following a prior dermofasciectomy is the riskiest surgery. This could be the consequence of cutting through a surgical bed that has scarred, disrupting the digital arteries during surgery. An unexpected 5% of patients with severe PIPJ illness who received LF experienced amputations [11].

The danger of tendon rupture is present in all existing methods. Injections of PNF or CCH frequently result in skin rips. Through a procedure known as diamondplasty, skin rips may occasionally be sutured horizontally, maintaining tissue length. PNF-related nerve damage are uncommon (0.04%–0.6%). The severe side effects of CCH injections might also include anaphylaxis and tendon rupture. CCH causes mechanical neurapraxia but does not permanently damage

nerves because type IV collagen protects nerves, which is why CCH therapies spare them [12].

RECURRENCE

Recurrence is a problem with all of the existing DD therapies, although the term is not well defined. A digital Allen test can be used to evaluate a patient with recurrent DD and identify any relevant vascular issues. The safety and effectiveness of CCH injections are unaffected by prior DD surgery since collagenase destroys both scar tissue and DD cords. Even with a greater extension deficit, repeat LF for recurrent DD is just as successful as the first round of therapy (LOE: III). Long-term relief may be achieved with combination treatment that consists of touch-up CCH injections after the first wide-awake LF. Although percutaneous aponeurotomy with lipofilling (PALF) had outstanding outcomes at one year, the repair was less permanent at five years than those for LF, raising hopes for fat grafting as a means of minimizing DD recurrence. To determine whether fat grating can stop DD from recurring, more research is required [13-15].

CONCLUSION

Older age, a positive family history, male gender, diabetes mellitus, alcohol use (more than three drinks per day), smoking, and manual labor using vibration instruments are all strongly linked to dementia. Being obese prevents DD from developing. Approximately one-fifth of the patients reviewed who were undergoing DD therapy had a history of trauma, such as a prior surgery or fracture. In 11% of people with early DD, spontaneous regression may happen. There is no straight line path from DD to contracture. Following 150 individuals with early-stage DD symptoms, Millesi discovered that 9% of them had advancement at one year, 22% at three, 39% at five, and 48% at six years or more.60 The rates of DD advancement in 113 individuals with unilateral illness who needed surgery were 19% at one year, 37% at three to five years, and 46.5% between six and twelve years.

People with DD should be aware that there are several treatment options available, and that there is hope. Fast recovery with greater recurrence rates vs delayed recovery with lower recurrence rates is the main trade-off of DD therapies.

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