Complications of Treatment for Dupuytren Disease

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KEYWORDS

• Dupuytren • Contracture • Complication • Nerve injury • Wound healing

KEY POINTS

- Many treatment options exist for Dupuytren contracture, including collagenase injection, fasciotomy, and fasciectomy; each has its own complication profile.
- Complications should be recognized: digital nerve and arterial injuries should be addressed immediately, whereas wound-healing complications are often treated nonoperatively.
- A thorough preoperative discussion is imperative to optimize the risk/benefit tolerance before intervention.
- In severe, long-standing contractures, complete correction may not only be impossible but may also be imprudent. It is vital that patients be counseled suitably about this via a thorough preoperative discussion.

INTRODUCTION

Dupuytren contracture is a progressive disorder involving collagen within the palmar fascia of the hand. It is most often attributed to the French anatomist and military surgeon Baron Guillaume Dupuytren from his description in 1831,[1] and occurs primarily in individuals of Northern European descent.[2,3] It is a condition of great interest to hand surgeons, as it is one of the few genetically associated hand conditions with an onset in adulthood. The precise etiology is still largely unknown.

There are multiple patterns of disease progression; some patients have gradual development of the characteristic nodules and cords of the disease but do not progress to severe contracture, whereas others develop a rapidly progressive disease that causes significant functional impairment. Although the patterns and progression of Dupuytren contracture have been studied,[4] it is often difficult to predict the natural history for an individual patient.

Intervention is traditionally considered for patients with functional impairment and contractures of the metacarpophalangeal (MCP) joint more than 30° or any degree of proximal interphalangeal (PIP) joint contracture.[5,6] Options for treatment are numerous and include percutaneous and open fasciotomy,[7–9] injection of collagenase *Clostridium* histolyticum,[10–12] radiation therapy,[13] and subtotal or complete palmar fasciectomy.[14–17] Each treatment option has utility and may be used for specific patients depending on their degree of contracture and the functional requirements for treatment.

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Dupuytren contracture often has minimal functional impairment until it limits sufficient extension of the digits and prohibits prehension. For this reason, the objective criteria used when deciding about intervention may vary significantly between surgeons and between patients. There exists a paradox regarding surgical intervention for Dupuytren contracture: surgeons and patients desire to avoid intervention for as long as possible, but durable correction becomes increasingly difficult with advanced disease and fixed contractures. Given the potential complications of intervention, one must thoughtfully consider both the risks and benefits before deciding about intervention.

A thorough preoperative examination is critical, including specific measurements of both active and passive ranges of motion of the MCP, proximal interphalangeal (PIP), and distal interphalangeal (DIP) joints. A precise sensory examination is also recommended to determine baseline sensibility of the affected digits. In long-standing and/or severe PIP contractures, radiographs are recommended to evaluate the articular surfaces of the involved joints. Radiographic findings of degenerative changes must be communicated with the patient, because they have a bearing on the degree and durability of final correction.

COMPLICATIONS OF TREATMENT

There are many potential complications in the treatment of Dupuytren contracture. The nature of these complications depends on many factors, including the degree of contracture, rapidity of development, duration of disease, involvement of the PIP joint, and the intervention chosen.[18]

Contracture Recurrence

Contracture recurrence is nearly inevitable following treatment for Dupuytren disease, particularly when patients are followed carefully over an extended period of time. This general category of complication includes both disease and contracture recurrence, which often coexist but may be independent. Disease recurrence involves return of fascial pathology, which may involve increasing flexion of the digit; contracture recurrence specifically entails progression of MCP or PIP joint contracture independent of recurrent fascial disease.

As most patients will develop some degree of recurrence, an objective definition of this complication is essential. Depending on the definition, the recurrence rates after treatment may vary between 0% and 100%,[11,19,20] which underscores the importance of a uniform definition when describing the rate of recurrence. Even within a single patient cohort, recurrence rates after treatment can vary widely, from 2% to 86%, depending on the exact definition used.[21] With a lack of overall consensus about the precise definition of recurrence, it is difficult to accurately compare results between different studies. A clear definition of recurrence is needed.[22]

For this reason, in 2017 Kan and colleagues[23] used expert consensus and the Delphi method[24] (at least 70% agreement among experts) to determine the definition for recurrence. In this article, the investigators agreed that recurrence should be defined as "more than 20° of contracture recurrence in any treated joint at 1 year posttreatment compared with 6 weeks posttreatment." Although imperfect, this may be the best definition to date, and may be used for future comparative studies (**Fig. 1**).

Hindocha and colleagues[25] described 5 risk factors for Dupuytren recurrence after treatment: family history, bilateral disease, ectopic lesions, male sex, and age of onset less than 50 years. Contracture recurrence may be evident within 6 months after surgery.[26] Although comparative studies are still being performed, there appears

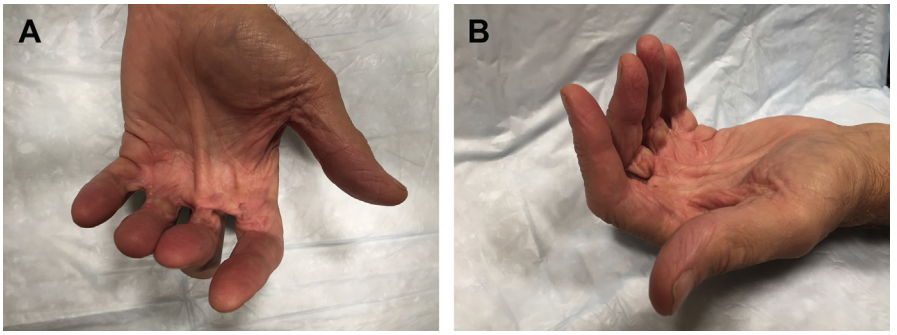

Fig. 1. (*A*, *B*) A 68-year-old man demonstrating recurrence 13 years after open fasciectomy and 4 years after collagenase injection to the ulnar 3 digits of the left hand. Complete correction was achieved after both procedures. (*Courtesy of* C. Mudgal, MD, Boston, MA.)