EDITOR'S CHOICE

# Variation in Treatment Recommendations for Dupuytren Disease

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**Purpose** To examine agreement on Dupuytren disease (DD) treatment recommendations in an international sample of hand surgeons.

**Methods** A survey was developed to determine expertise in needle aponeurotomy, surgery, and collagenase injection to treat DD and to examine treatment recommendations for 16 case scenarios. Case scenarios were predeveloped using expert input. Each case represented a unique combination of 4 dichotomous variables including cord thickness, contracture severity, patient age, and joint involvement. Interrater reliability statistics were calculated and multinomial logistic regression modeling and analysis of variance were used to examine the impact of surgeon- and case-related variables on treatment recommendations.

**Results** A total of 36 hand surgeons from 9 countries (mean experience, 17 years) participated. Average pairwise percent agreement and Krippendorff's alpha were 26% and .012, respectively. Predictors of a recommendation for surgery over multiple options were a total contracture of greater than 70°, a thick precentral cord, involvement of the metacarpophalangeal and proximal interphalangeal joints, and greater years in practice. A greater number of years in practice predicted recommendation for collagenase injection and the presence of a thick precentral cord predicted a recommendation for needle aponeurotomy.

**Conclusions** Little agreement exists on treatment recommendations for common presentations of DD in this sample.

**Clinical relevance** Further investigation into the sources of potential widespread discrepancies in the management of DD may improve the capacity to make evidence-based recommendations.


**Key words** Assessment, collagenase, Dupuytren disease, needle aponeurotomy, prospective.


DIGITAL EXTENSION AND FUNCTIONAL improvement are the primary goals of the hand surgeon treating Dupuytren disease (DD). The management of DD is uniquely challenging for surgeons because of its heterogeneous presentation and progression.[1,2] Although agreement has been observed among physicians regarding diagnosis, measurements of severity, and disease extent,[3] additional clinical factors, patient preferences, and tradeoffs must be considered in providing treatment recommendations. In most regions patients with DD have access to multiple treatment options, including surgery (limited fasciectomy), needle aponeurotomy (NA), and collagenase injection.[4,5] Other procedures such as radiotherapy, massage, placement of an orthosis, and variations of existing techniques or their adjuncts are

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reported in the literature[6–9]; however, further evidence is required to clarify the associated risks and benefits of these treatments.[10,11]

Despite the publication of several reports throughout the past decade comparing DD management modalities, an evidence-based treatment protocol for primary DD contractures has yet to be widely accepted. Evidence showing regional variations in the management of DD[12–14] has suggested that current recommendations may be based on variable combinations of patient preference and expertise, bias, and perception of surgeons.[15] A lack of evidence may introduce undesirable variations in patient care, and in turn, patient outcomes. The detrimental consequences of variable definitions of recurrence for DD have been recognized in the literature.[16] In addition to research studies that are unable to demonstrate the true efficacy of a procedure,[15] the unintended consequences of inconsistent definitions and care include the inability to standardize techniques and suboptimal resource allocation and use.[17] The impact of variations in practice on outcomes of DD treatment is unclear.

A collaborative effort has been made to achieve consensus and create guidelines for the management of DD in Europe,[18] although it is unclear whether this has been incorporated into clinical practice. Although several appropriate indications for each treatment modality were identified using a Delphi consensus strategy in 39 experts, agreement on the best treatment for cases of DD was not examined.[18] High agreement on DD diagnosis, severity, and factors affecting treatment choice among surgeons suggests that clinicians are aligned regarding many aspects of management.[3,18] However, evidence of variations in care by region and by country in Europe[12,13,15,19] and in the United States[14] indicated possible variations in surgeons' perceptions and opinions concerning treatment recommendations.

Many authors cite that there is no generic treatment for patients with DD,[1,5,13,17,20] but little focus has been placed on examining agreement regarding treatment recommendations, particularly in the absence of strong evidence surrounding patient preference and tradeoffs. The objective of this study was to examine current agreement about treatment recommendations given by hand surgeons for 16 clinical scenarios of common presentations of DD. Specifically, this study aimed to (1) determine expertise and agreement among respondents, and (2) examine the relationships between case- and surgeon-related variables and each treatment recommendation.

**TABLE 1. Reported Factors Used to Determine Treatment Modality During Survey Development**

| Checklist Factor | Responses, n |
|---|---|
| Early onset of disease (before age 40 y) | 2 |
| Thickness of cord | 2 |
| Contracture severity | 2 |
| Ectopic disease | 1 |
| Family history | 1 |
| Number of affected digits | 1 |
| Gender | 0 |
| Radial side hand involvement | 0 |
| Diabetes | 0 |
| Little finger disease | 0 |
| Bilateral disease | 0 |
| Tenodesis effect | 0 |
| Other | |
| Recurrent disease after previous treatment | 1 |
| Which joints are affected | 2 |
| Distal interphalangeal joint involvement | 1 |

## MATERIALS AND METHODS

### Survey development

To determine which factors to include in the case scenarios and the number of case scenarios needed to generate an adequate data set, 8 hand surgeons with experience in multiple treatment options for DD identified from the International Dupuytren Society Web site were invited to complete a short checklist. Respondents were asked to identify from a list the most important variables in making a treatment recommendation to a patient in their practice who had DD. A field was included for additional factors not presented in the list. Table 1 shows factors and responses.

Five of the 8 surgeons completed the checklists, indicating that patient age, cord thickness, contracture severity, and the involvement of multiple joints were most important to them in recommending a treatment. Variables were defined with the goal of representing common presentations of DD in case scenarios. All case scenarios involved a single previously untreated ring finger. Contractures of the metacarpophalangeal (MCP) and proximal interphalangeal (PIP) joints were used for cases of multiple joint contractures. Variables comprising the final cases were derived from a combination of the opinions of the 5 surgeons responding to the survey development checklist and factors reported in the literature as being important in