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The consequences of different definitions for recurrence of Dupuytren's disease

Hester J. Kan [a,*], Frank W. Verrijp [a], Bionka M.A. Huisstede [b], Steven E.R. Hovius [a], Christianne A. van Nieuwenhoven [a], Ruud W. Selles [a,b]

[a] *Department of Plastic and Reconstructive Surgery and Hand Surgery, Erasmus Medical Center, 3000 CA Rotterdam, The Netherlands*
[b] *Department of Rehabilitation Medicine and Physical Therapy, Erasmus Medical Center, Rotterdam, The Netherlands*

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Definitions

Summary *Background:* Recurrence rates are important in the evaluation of the effectiveness of treatment for Dupuytren's disease (DD). In the literature, recurrence rates vary between 0% and 100%. The definition of recurrence of DD after treatment is inconsistently used. The aim of this study is to review all definitions of recurrence after treatment of DD and to evaluate the impact of using these definitions on a single cohort of patients treated for DD.
Methods: A literature search was performed in PubMed and Embase to identify studies. Titles and abstracts were analysed to collect all articles that described recurrence rates or definitions of recurrence. Two independent reviewers selected relevant studies and extracted data. The different definitions of recurrence were applied on our data set of 66 patients.
Results: Of the 113 articles reporting recurrent rates of DD, 56 (49%) presented a definition of recurrence. We could categorise the definitions into three groups. By applying the different definition on our data set of a randomised controlled trial, the recurrence rates ranged from 2% to 86%.
Conclusions: In the literature, different definitions of recurrence of DD are used and many authors failed to define recurrence. This study shows that the wide range of reported recurrence rates may largely be contributed by inconsistency in recurrence definitions. As a result, it is difficult or even impossible to compare recurrence rates between different treatments reported in the literature. The study indicates that consensus on a recurrence definition is needed.

* Corresponding author. Tel.: +31 10 70 43292.
E-mail address: h.kan@erasmusmc.nl (H.J. Kan).

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Although the evidence for effectiveness of treatments for Dupuytren's disease (DD) is still scarce, different treatment options are available in clinical practice, such as fasciectomy, aponeurotomy and, more recently, collagenase injections.[1–3] However, since current treatments only remove or alter the symptoms of the disease rather than treat the underlying pathology, recurrences occur. In the literature, reported recurrence rates vary between 0% and 100%.[4–10] Several studies have identified factors that influence these rates, such as follow-up time and diathesis.[11,12] Since treatment type may also influence recurrence rates, it is an important aspect for assessing the effectiveness of treatment.

In a recent review, Becker and Davis[13] concluded that the outcome of surgery is inconsistent and that this inconsistency may be related to the different definitions of recurrence used. Therefore, the first aim of this study was to identify all definitions of recurrence after treatment of DD reported in the literature. Subsequently, we performed an analysis by applying the different definitions to a cohort of patients treated for primary DD, evaluating the effect of different definitions on the recurrence rate of these patients.

Methods

Literature search

To identify relevant articles on the recurrence of DD, we searched for studies published from January 1985 up to April 2011 using PubMed and Embase. Keywords related to recurrent DD were included, such as 'Dupuytren', 'reappear', 'recurrence', 'return', 'predict', 'prognosis', 'residual', 'remain' and 'outcome'. The complete search strategy can be found in Appendix 1.

Inclusion criteria and study selection

The search strategy results from Embase and PubMed were combined and duplicates were discarded. Titles, abstracts and subsequently full text of the articles were analysed individually by two independent reviewers to determine whether they met the following inclusion criteria: (1) the main subject of the article was DD; (2) the study used an original data set of cases; (3) the study population consisted of at least five patients; and (4) patients were 18 years or older. Only articles written in English, German, French or Dutch were included. If disagreement on inclusion of a publication arose, a consensus between the two reviewers was met. If this disagreement persisted, a third reviewer was consulted.

Data extraction

Two reviewers independently extracted the data. Reported recurrence rates, definitions of recurrence and definitions that could be extracted from the text were identified. For example, in some studies, authors defined recurrence as the presence of new nodules or cords, without giving an explicit definition. Furthermore, characteristics such as authors, publication year or type of surgery were extracted.

Comparing definitions using our data set

To evaluate the effect of different definitions of recurrence found in the literature, we applied the different definitions of recurrence on a single data set of the Dupuytren Rotterdam Trial (Du Ro Trial) (NTR1692). This data set consisted of preliminary data from patients who participated in the randomised controlled trial and were treated by limited fasciectomy or extensive percutaneous aponeurotomy and lipografting. This extensive percutaneous aponeurotomy and lipografting technique consists of extensive percutaneous aponeurotomy that completely disintegrates the cord and separates it from the dermis. Autologous fat from the abdomen is injected in the operated area. In a recent study, we described this technique in detail and published data from an initial cohort study.[14] For the present study, we analysed data from patients that were included in the Du Ro trial between May 2009 and October 2010. Medical ethical approval was obtained for this study and all subjects signed informed consent (MEC-2008-264).

We used the passive range of motion (ROM) data of the most affected digit, measured at 2 weeks and 6 months postoperatively. Extension goniometry was measured with all joints (metacarpophalangeal (MP), proximal interphalangeal (PIP), and distal interphalangeal (DIP)) maximally extended. Further, peroperatively, the surgeon visually estimated the passive ROM. Since all joints of the treated digits were measured with goniometry, the total passive extension deficit (TPED) could be calculated, representing the sum of joint angles of the MP-joint, PIP-joint and DIP-joint.

Results

Literature search

The initial search resulted in the identification of 606 studies from PubMed and Embase. After analysing the titles, abstracts and full text, 113 articles were included (Figure 1). One article could not be found online or requested at the medical library of the Netherlands and medical library of England. Therefore this article was excluded from analysis.[15]

Recurrence definitions

Of all 113 included articles describing a recurrence rate, only 56 articles described a definition of recurrence. Definitions found in the articles could be categorised into three groups. Table 1 describes these definition categories, the corresponding studies and the exact definition used in the individual studies. The first category (type I) defines recurrent DD based on the return of disease (nodules or cords) in the operated area or in the operated hand (63% of all studies used this definition). The second category (type II) defines recurrent DD based on the return of contractures, with the minimal degree of contracture required for defining recurrence varying from 1° ('any increase in contracture') to 50° (27%). The third category (type III) is