Göteborg, 2018

On minimally invasive treatment of Dupuytren's contracture

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademin, Göteborgs universitet kommer att offentligen försvaras i R-aulan, Mölndals sjukhus, den 18:e maj 2018, klockan 9.00

av

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Avhandlingen baseras på följande delarbeten

I. Strömberg J, Ibsen-Sörensen A, Fridén J.
Comparison of treatment outcome after collagenase and needle fasciotomy for Dupuytren contracture: a randomized, single-blinded, clinical trial with a 1-year follow-up.
Journal of Hand Surgery (Am) 2016: Vol 41: 873-80

II. Strömberg J, Vanek P, Fridén J, Aurell Y.
Ultrasonographic examination of the ruptured cord after collagenase or needle fasciotomy for Dupuytren's contracture.
Journal of Hand Surgery (Eur) 2017: Vol 42:683-688

III Strömberg J, Ibsen-Sörensen A, Fridén J.
Percutaneous needle fasciotomy versus collagenase treatment for Dupuytren´s contracture- a randomized, controlled trial with a two-year follow-up.
Accepted for publication in The Journal of Bone and Joint Surgery

IV Vanek P, Strömberg J, Fridén J, Aurell Y.
Morphological patterns of the pretendineous cord in Dupuytren's disease - a predictor of clinical outcome?
Submitted.

SAHLGRENSKA AKADEMIN
INSTITUTIONEN FÖR KLINISKA VETENSKAPER

GÖTEBORGS UNIVERSITET

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On minimally invasive treatment of Dupuytren's contracture

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Abstract

Dupuytren's disease is a common, benign disease in which myofibroblasts in the aponeurosis of the hand start to proliferate, contract and produce pathological collagen. This results in a Dupuytren cord, which eventually tethers the involved finger and reduces the extension of the involved joints. The Dupuytren cord can be divided either mechanically through percutaneous needle fasciotomy (PNF) or by chemical digestion using injectable collagenase *Clostridium Histolyticum* (CCH). The latter treatment is considerably more expensive.

Aim

The overall aim of this thesis was to compare the clinical and morphological results after percutaneous needle fasciotomy and collagenase treatment for Dupuytren's contracture.

Methods

A randomized, single-blinded controlled study was designed and enrolled 156 patients with a Dupuytren contracture of at least 20° in the metacarpophalangeal (MCP) joint in a single finger. Between 2012 and 2014, 78 patients were randomized to needle fasciotomy, and 78 to treatment with collagenase. A single surgeon administered all the treatments, and all the patients were seen after one week and blinded to further follow-up.

Between November 2013 and October 2014, 39 patients were also examined by ultrasound before and after treatment in order to compare the morphological appearance of the cord rupture. The patients were assessed after six months, one year and two years by a single physiotherapist who was blinded to the treatment each patient had received. Outcome measures included measurements (joint motion, recurrence, prevalence of a Dupuytren cord) and patient reported outcome measures (URAM, Quick-DASH and VAS scales).

Study I reported the immediate results after treatment and at the one-year follow-up in 140 of the patients (71 treated by needle fasciotomy and 69 by collagenase), while Study III reported the final results at the two-year follow up for all 156 patients. The ultrasonographic evalutation before and after treatment in 39 patients was reported in Study II and these results were correlated to the clinical results in 38 of these patients after two years in Study IV.

Results

The ultrasonographic evaluation of the cord showed no significant difference in the rupture length of the cord between the CCH and PNF groups (Study II). The patients treated by CCH had significantly more pain and larger skin ruptures than the patients treated by PNF, but there were no other significant differences between the two methods after one year (Study I). Ninety-seven percent of the patients were examined after two years and 58 patients (76%) treated by CCH and 60 (79%) treated by PNF still had a straight MCP joint in the treated finger. In over 50 percent of the patients, no cords were detectable after two years. There were no significant differences in the reduction of PIP contracture, range of motion and patient reported outcomes between the two treatments (Study III) Correlations between the ultrasonographic properties of the cord before treatment showed that the vast majority of patients with recurrence of residual disease had iso-or hypogenic cords with nodular components at treatment two years earlier (Study IV).

Conclusions

To summarize, there were no significant differences between PNF and CCH in terms of treatment effect at any time during this study, except for significantly larger skin ruptures and higher levels of pain reported by patients in the CCH group immediately after treatment. Both treatments disrupt the Dupuytren cord in a similar way and most patients were satisfied and retained a straight finger after two years. CCH was not found to have any superior results that could justify the difference in cost in a government-funded health-care system.

Keywords

Dupuytren's disease, Dupuytren's contracture, Dupuytren cord, percutaneous needle fasciotomy, collagenase *clostridium Histolyticum,* ultrasound

ISBN: 978-91-629-0428-9 (PRINTED)
ISBN: 978-91-629-0429-6 (PDF)

http://hdl.handle.net/2077/55378