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# Comparing Short Term Outcomes Of Needle Fasciotomy & Collagenase Injection In The Management Of Dupuytren's Disease

## TITLE

One-year results of needle fasciotomy and collagenase injection in treatment of Dupuytren's contracture: A two-centre prospective randomized clinical trial

*J Hand Surg Eur* 2016; 41:577–82

## AUTHORS

P Scherman, P Jenmalm and L B Dahlin

Multi-centre trial from two hospitals in Sweden.

## RELEVANCE OF THE STUDY

Surgical management of Dupuytren's disease has conventionally ranged from minimally invasive needle fasciotomies to total palmar fasciectomy, wherein the limited subtotal fasciectomy has been the treatment of choice for most surgeons. Needle fasciectomy was the preferred treatment in mild cases until recently, the collagenase injections have been introduced. Though various studies have compared the efficacy of both methods of treatment to fasciectomy, the two have never been compared to each other in any of these studies.

## MATERIAL AND METHODS

*Study Design:* Prospective, non-blinded, randomized controlled trial

- 96 rays in 93 patients with primary Dupuytren's disease, excluding the thumb, with a palpable cord and a total extension deficit (fixed flexion contracture) between 30° and 135°, with less than 60° in the proximal interphalangeal (PIP) joint were included in the study.



- The most affected ray in the hand was randomized using sealed envelopes to either needle fasciotomy or collagenase injection.
- After deducting all patients lost to follow-up due to various reasons, total of 46 rays treated with needle fasciotomy and 40 rays treated with collagenase injections remained for analysis at 3 months. Of these, 42 and 39 patients, who underwent needle fasciotomy and collagenase respectively, were available for follow up at 12 months.

## ASSESSMENT OF OUTCOME

- Mean (median) total passive extension deficits
- QuickDASH score
- URAM score
- VAS score for pain

## RESULTS

- The major contribution to pre-treatment extension deficits were MCP joint contractures.
- Similar outcomes in both groups at both 3 and 12 months.
- Skin ruptures in the collagenase group (8 patients) were more than that of the needle fasciotomy group (4 patients).

## CONCLUSION

The short-term outcome of collagenase injection and needle fasciotomy in the treatment of Dupuytren's contracture with predominantly MCP joint involvement are the same, except for increased risk of skin ruptures with the former technique.

## LEVEL OF EVIDENCE

Level II

## FUNDING / CONFLICTS OF INTEREST

- One of the authors (LD) was a principal investigator in three projects concerning the use of Xiapex® in treatment of Dupuytren's contracture sponsored by Pfizer Inc. and Auxilium Inc. He has also been a member of the advisory board of Pfizer Inc. and Auxilium Inc.

Since symptoms from painful vertebral fractures might improve over time, a common approach is to allow the fracture to heal and intervene only in patients with persistent pain. But standard therapy, consisting of rest, analgesia, and mobilisation, is often poorly tolerated in elderly people, with the adverse effects of analgesia and immobilisation leading to additional health problems, including poor cognition, increased risk of falls, constipation, and nausea. While commonly performed in many centers, the safety and efficacy of percutaneous cement augmentation procedures such as



vertebroplasty and kyphoplasty for acute and painful vertebral compression fractures is unclear. The authors hypothesised that vertebroplasty provides effective analgesia for patients with poorly controlled pain and osteoporotic spinal fractures of less than 6 weeks' duration.

## MATERIAL AND METHODS

*Study Design:* Prospective, double blinded, randomized placebo controlled trial

- 120 patients with one or two osteoporotic vertebral fractures of less than 6 weeks' duration and Numeric Rated Scale (NRS) back pain greater than or equal to 7 out of 10 were enrolled.
- 61 patients were randomly assigned to vertebroplasty and 59 to placebo. Vertebroplasty was done with the adequate vertebral fill technique and the placebo procedure with simulated vertebroplasty.
- Automated telephone randomisation service was used to randomise patients (1:1; stratified according to age, degree of vertebral compression, trauma, corticosteroid use, and hospital) to either vertebroplasty or placebo, immediately before the procedure.

Follow-up - minimum 6 months.

## ASSESSMENT

The primary outcome was the proportion of patients with NRS pain below 4 out of 10 at 14 days post-intervention in the intention-to-treat population.

## RESULTS

- 24 (44%) patients in the vertebroplasty group and 12 (21%) in the control group had an NRS pain score below 4 out of 10 at 14 days ( $p=0.011$ ).
- Three patients in each group died from causes judged unrelated to the procedure.
- There were two serious adverse events in each group, related to the procedure (vertebroplasty group) and the fracture (control group).

## CONCLUSION

Vertebroplasty is superior to placebo intervention for pain reduction in patients with acute osteoporotic spinal fractures of less than 6 weeks' in duration.

## LEVEL OF EVIDENCE

Level II

## FUNDING

The study was funded by Carefusion corporation, which makes the vertebroplasty kit (AVAMAX) used in this study.

## REFERENCE

1. [http://thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)31341-1/abstract](http://thelancet.com/journals/lancet/article/PIIS0140-6736(16)31341-1/abstract)

## Is Single-bundle anterior cruciate ligament reconstruction better than double-bundle reconstruction?

### TITLE

Single-bundle versus double-bundle anterior cruciate ligament reconstruction: a comparative 2-year follow-up

*Journal:* Arthroscopy. 2016 Jan;32(1):34-42

### AUTHORS

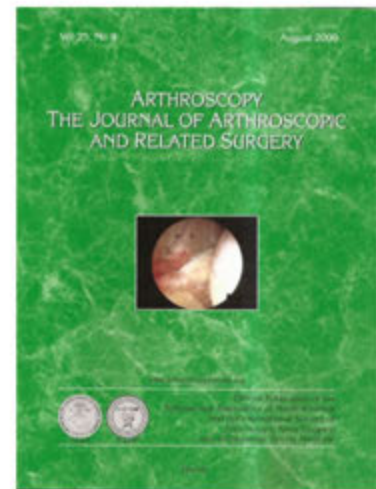
Mayr HO<sup>1</sup>, Benecke P<sup>2</sup>, Hoell A<sup>3</sup>, Schmitt-Sody M<sup>3</sup>, Bernstein A<sup>4</sup>, Suedkamp NP<sup>4</sup>, Stoehr A<sup>5</sup>.

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## RELEVANCE OF THE STUDY

Anterior cruciate ligament reconstruction is one of the most common ligament reconstruction surgery carried out for a significantly injured ligament. Single-bundle reconstruction or a double-bundle ACL reconstruction for optimum results continues to be an ongoing research topic. Mixed results have been obtained in studies comparing rotational laxity between the two reconstruction techniques.

This randomized controlled trial was carried out to evaluate and determine the possible outcomes between the two operative techniques.

## MATERIALS AND METHODS

*Design:* Prospective randomized controlled clinical trial Level I

*Population:* 64 patients planned for ACL reconstruction were randomized and divided into 2 equal groups of single-bundle or double-bundle reconstruction.

*Intervention:* Double Bundle group. Anteromedial bundle was created by the gracilis and semitendinosus was used to create a posterolateral bundle.

*Comparison:* Single Bundle group. The semitendinosus and gracilis, together, were used to create a quadruple-stranded graft.

*Outcome Measures:* International Knee Documentation Committee (IKDC) 2000 assessment, Laxitester (ORTEMA Sport Protection, Markgröningen, Germany) measurement of anteroposterior translation regarding rotational stability, and radiographic evaluation was performed at the end of 2 years following surgery. Statistical analysis and power calculation were performed ( $P < .05$ ).

## RESULTS

Results demonstrated no significant differences between groups in clinical outcomes. There were also no significant differences between groups in anterior knee laxity or internal rotational laxity, though there was significantly lower external rotational laxity in the DB group compared to the SB group.

- 1) In both IKDC subjective and objective scoring at 2 years postoperatively no significant difference was observed.
- 2) At 2 years follow-up, single bundle group showed significant difference ( $p=0.022$ ) in side-to-side difference (SSD) for external rotation laxity and no difference ( $p=0.134$ ) in internal rotation laxity between the injured knee and contralateral knee compared to the DB group
- 3) Anterior knee laxity in a neutral position, internal rotation position, or external rotation position no significant difference was observed between the two groups. (All  $p>0.05$ ).

## CONCLUSION

Between the two techniques at the end of 2 years no significant difference in terms of internal rotation knee laxity or anterior knee laxity was observed. However external rotation knee laxity was found lower for double bundle reconstruction as compared to single bundle reconstruction

## TAKE HOME MESSAGE:

In short term follow up (2 years) the outcome between the two techniques seems comparable without much significant differences. Whether the only significant difference in external rotation laxity is of any clinically relevant benefit to patients remains to be determined.

Further long-term follow-up is necessary to come to some valid conclusion.

## REFERENCE

1. [http://www.arthroscopyjournal.org/article/S0749-8063\(15\)00540-X/abstract](http://www.arthroscopyjournal.org/article/S0749-8063(15)00540-X/abstract)
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# Ponseti Treatment of Rigid Residual Deformity in Congenital Clubfoot After Walking Age

Journal of Bone & Joint Surgery - American Volume: 19 October 2016  
- Volume 98 - Issue 20 - p 1706–1712

doi: 10.2106/JBJS.16.00053

## AUTHORS

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## BACKGROUND

- There is no consensus for management of residual deformity of idiopathic congenital clubfoot (CCF) after walking age.
- Various soft tissue and bony procedures and use of external fixators have been described but with variable results.
- The authors reviewed the result of Ponseti's method for residual clubfoot in children of walking age.

## MATERIALS AND METHODS

- Fourty four children (68 feet) treated by the authors from 2004 to 2012 and who followed up routinely were enrolled into the study.
- Fifty one feet with CCF were classified with Pirani's score 4 to 6 and Dimeglio's class IV whereas 17 had severe deformity.



- Children were divided into three groups based on the treatment modality initially followed since birth.
  - First group: 19 children (28 feet) treated with manipulation and long leg casts followed by long leg splint (15 feet) up to the age of 1 year and shoes with a bar and brace (13 feet) for 6 to 19 months.
  - Second group: 20 children (30 feet) treated with short leg plasters followed by long leg splint and extensive soft tissue release at 7 to 10 months of age. Twelve of these underwent posteromedial release with additional osseous procedures at 12 to 28 months of age.
  - Third group: 5 children (10 feet) treated by French method till 6 months of age.
- Assessment of CCF was done by International Clubfoot Study Group Score before and after treatment by two senior authors.
- Ponseti's method was done under sedation for most of the children. Plantar fasciotomy, percutaneous heel cord tenotomy, 3 cut percutaneous lengthening or open posterior release was performed whenever necessary. A long leg cast was worn each for a period of 4 weeks.
- Children younger than 2.5 years were given a Mitchell-Ponseti brace and those over 2.5 years underwent tibialis anterior transfer to third cuneiform (TATT) at the end of cast treatment.
- Radiographic measurements were done once a week for 3 consecutive weeks.
- Clinical assessment was done by hand goniometer.

## RESULTS

- Thirty three boys and 11 girls had a mean age of 4.8 +/- 1.6 years at the time of treatment with 24 bilateral and 20 unilateral cases.
- Sixty six feet had residual adduction, 57 cavus, 53 varus, 33 equinus and 10 feet with supination deformities.
- Children who were over 6 years old and who underwent extensive soft tissue release required a mean of 3.4 +/- 0.6 casts, while those treated conservatively and were less than 6 years had a mean of 2.1 +/- 0.4 casts.

- Six feet underwent percutaneous heel cord tenotomy, 22 had percutaneous lengthening, 5 feet had open posterior release, 30 percutaneous plantar fasciotomy and 60 had TATT procedure.
- Six children (8 feet) below 3 years of age were managed with a brace for a mean of 16 months.
- Mean follow up was for 4.9+/- 1.8 years and mean age at the time of follow up was 9.8 +/- 1.8 years. Eight feet had excellent result, 49 had good result and 11 had fair result with significant improvement ( $p < 0.05$ ).
- Two of the 8 feet managed by bracing were eventually scheduled for TATT.

## DISCUSSION

- A rigid residual CCF is unlike recurrent CCF wherein the deformity reappears in spite of initial correction. Assessment of residual CCF with ICFSGS is more comprehensive compared to Pirani's scoring system as the former evaluates the morphologic, radiographic and functional aspect of the deformity.
- Similar to previous studies, the authors observed that adduction and cavovarus were the most common residual deformities whereas equinus was less frequent and supination was rare.
- Residual CCF has been treated by soft tissue procedures, osseous procedures, correction by external fixators or a combination of these but with foot stiffness, pain and high recurrence rates.
- Ponseti method of correction has shown good results in CCF with recurrent stiffness, older infants with residual CCF and neglected CCF. Garg and Dobbs showed excellent results with this technique in 11 children (mean age 4.6 years) with rigid residual deformity following posteromedial release and all patients underwent TATT.
- Nogueira et al. treated 58 children (mean age 5 years 2 months) with extensive soft tissue release and few cases with osseous procedures. Eighty nine percent of feet were plantigrade, 20% had  $< 30^\circ$  talar motion, some had  $0^\circ$  ankle movement and recurrence occurred in 14% feet.
- The authors modified Ponseti method to some extent for children with very stiff feet and older children.
  - Manipulation time was increased to 5 to 10 min.

- Casts were maintained for 4 weeks as the duration of tissue loading has to be increased according to age related increase in collagen cross links. Also, longer time is needed for the fibroblasts to remodel the elongated collagen fibres.
- Need for additional surgery following cast immobilizations depended on the final correction achieved. TATT was performed in 88% of the feet to avoid recurrence. In 8 feet where the cuneiform ossification center was not visible, bracing was used. Two of these 8 feet had recurrence and were subsequently treated with TATT.
- Eighty four percent of the feet showed excellent or good correction as per ICFSGS rating system.
- Foot radiographs were used to assess cavus and adduction which cannot be objectively graded by clinical means.
- At the time of follow up, none of the children had pain. Dorsolateral subluxation of the navicular was present in 6 feet but these children were asymptomatic. Kuo and Jansen reported need for additional surgery to address this deformity.

## LIMITATIONS OF THE STUDY

- Retrospective study
- Sample size is not very large
- Clinical records of 10 children and radiographs of 16 feet were missing
- Short follow up

## LEVEL OF EVIDENCE

Level IV

## CONCLUSION

- Ponseti method with necessary modifications is effective for the management of rigid residual CCF in children from 2 to 8 years regardless of the previous treatment followed.
- The results of this study have shown better results than those reported for other surgical procedures.



## REFERENCE

1. [http://journals.lww.com/jbjsjournal/Fulltext/2016/10190/Ponseti\\_Treatment\\_of\\_Rigid\\_Residual\\_Deformity\\_in.4.aspx](http://journals.lww.com/jbjsjournal/Fulltext/2016/10190/Ponseti_Treatment_of_Rigid_Residual_Deformity_in.4.aspx) (free full text)
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## Video of the Month

Mid-foot Injuries and Dislocations: <https://youtu.be/tu6sEIIXCnk>

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