



The "three flaps" technique after aponevrectomy in Dupuytren's contracture: a retrospective study about 36 fingers

Yoan-Kim de Almeida¹, Hélène Le Gall², Lionel Athlani¹, François Dap¹, Gilles Dautel¹

1 . Department of Hand Surgery, Plastic and Reconstructive Surgery. Centre Chirurgical Emile Gallé CHU de Nancy, Nancy, France

2 . Department of Maxillo Facial, Plastic, Reconstructive and Esthetic Surgery. Hôpital Central, CHU de Nancy, Nancy, France





Introduction

- ▶ Common disease
- ▶ Affecting northern european
- ▶ France : prevalence ranging from 2 to 3%

- ▶ Severity : classification of Tubiana
 - ▶ Grade I : total ROM $< 45^\circ$
 - ▶ Grade II : total ROM $45 - 90^\circ$
 - ▶ Grade III : total ROM $90 - 135^\circ$
 - ▶ Grade IV : total ROM $> 135^\circ$



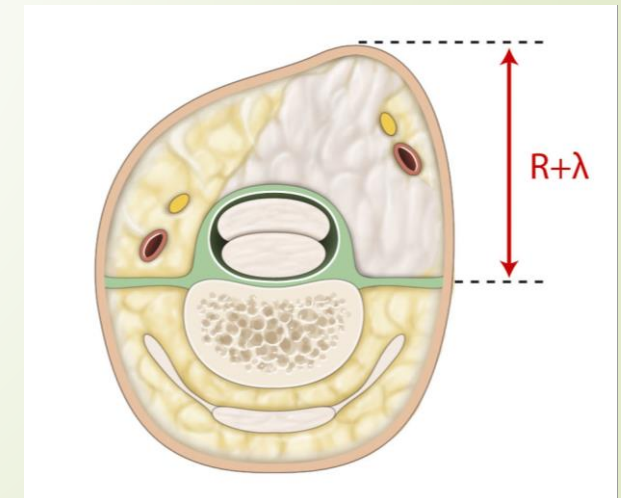
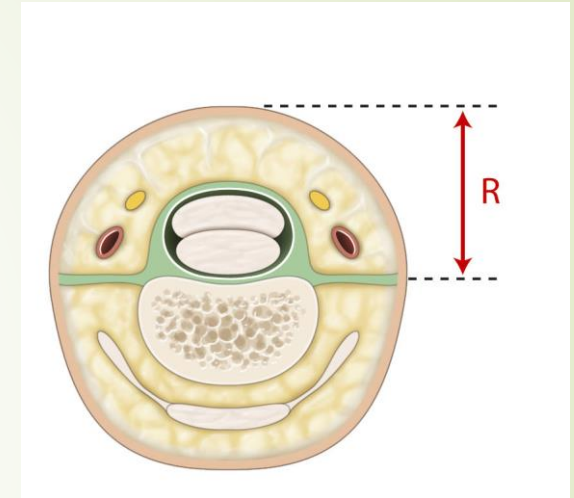
Introduction : technique

- Grade I : Brüner approach
- Grade II / III / IV: skin defect after aponevrectomy
 - Multiple coverage solution
 - Open palm technique
 - Skin graft
 - V-Y flap
 - Latero digital flap
 - Jacobsen flap
 - Malingue plasty
 - Cross finger
 - ...

⇒ No perfect technique

Introduction : objective

- New approach
 - Excess of antero posterior skin
- Three flap technique :
 - Quadrangular palmo digital flap
 - Latero digital flap
 - Commissural flap



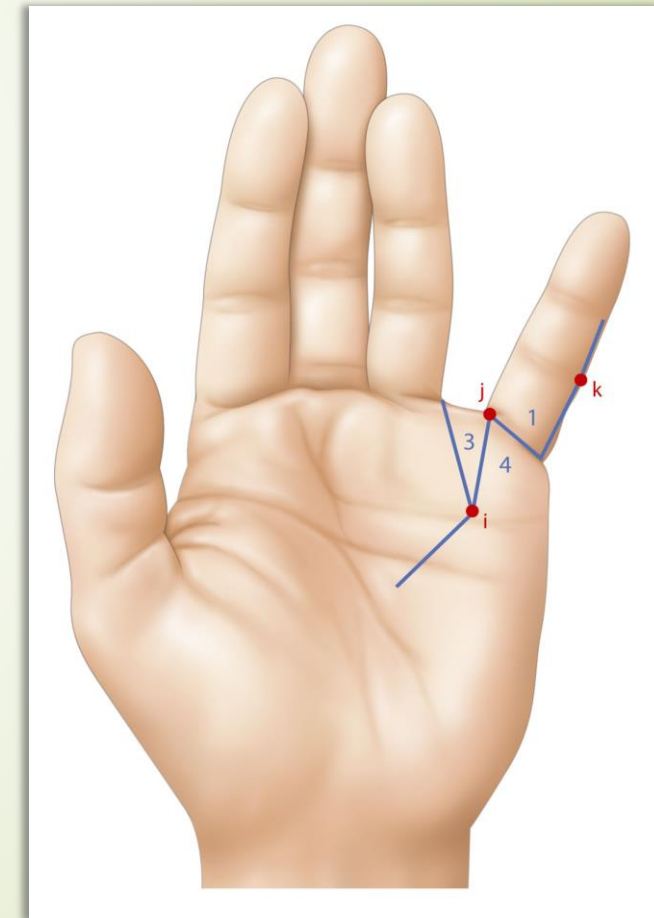
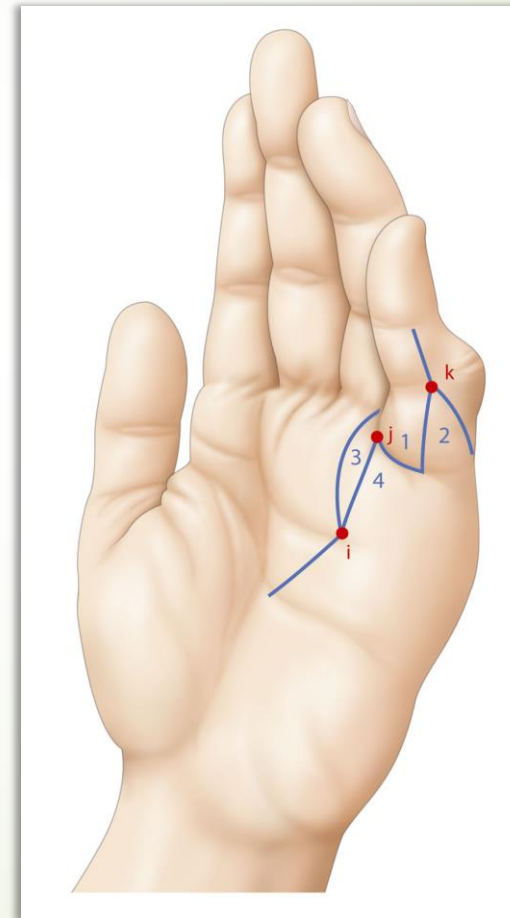
Material and method

- Retrospective / monocentric study
- Single senior surgeon
- Minimum follow-up : 5 months



Material and method

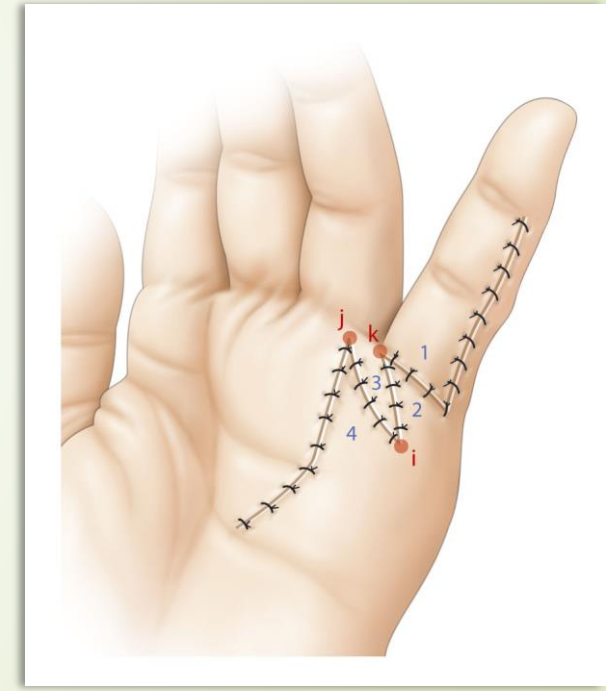
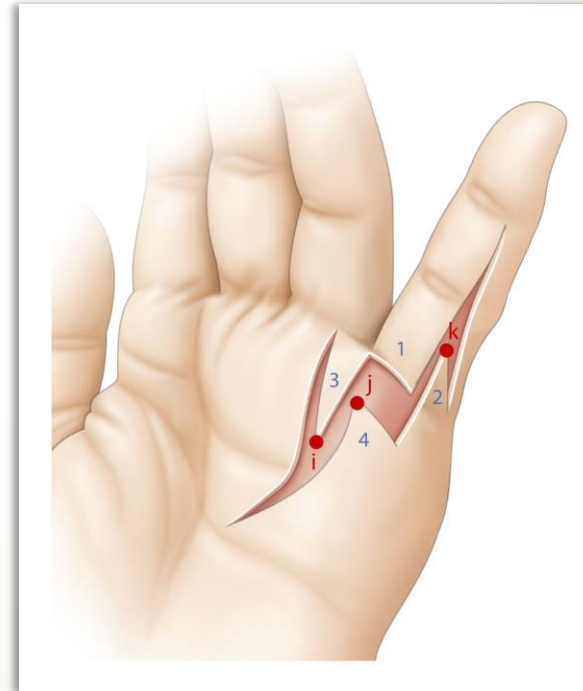
- Surgical procedure
 - Axillary brachial plexus block
 - Pneumatic tourniquet
 - Loupe magnificence
- Flap design
- Aponevrectomy



Material and method

- Surgical procedure

- Absorbable suture
- Suction drain
- 3 months post operative night orthosis



Material and method

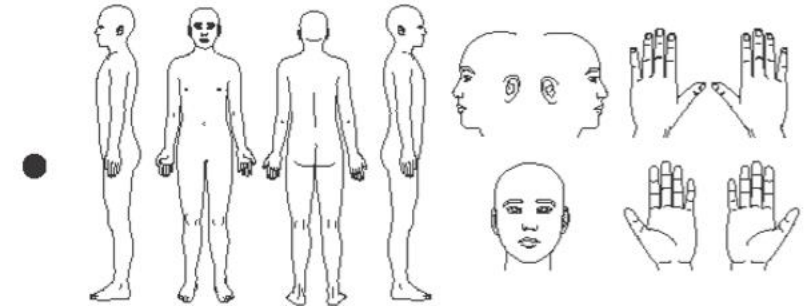
► Evaluation

- Independent observator
- Pre operative, immediate and last combined extension lag (CEL)
- Subjective evaluation of the scare using the POSAS (Patient and Observer Scar Assessment Scale) and PSAS (Patient Scar Assessment score) scores
- Additional procedure : check reins section, FDS tenotomy, IPP pinning, skin graft
- Complications : flap necrosis, infection, paresthesia, recurrence ($> 30^\circ$), nerve / artery injury

POSAS Observer scale

The Patient and Observer Scar Assessment Scale v2.0 / EN

Date of examination:	Name of patient:
Observer:	Date of birth:
Location:	Identification number:
Research / study:	



PARAMETER	1	2	3	4	5	6	7	8	9	10	CATEGORY
VASCULARITY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	PALE PINK RED PURPLE MIX
PIGMENTATION	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	HYPO HYPER MIX
THICKNESS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	THICKER THINNER
RELIEF	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	MORE LESS MIX
PLIABILITY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	SUPPLE STIFF MIX
SURFACE AREA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXPANSION CONTRACTION MIX
OVERALL OPINION	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Explanation

The observer scale of the POSAS consists of six items (vascularity, pigmentation, thickness, relief, pliability and surface area). All items are scored on a scale ranging from 1 ('like normal skin') to 10 ('worst scar imaginable'). The sum of the six items results in a total score of the POSAS observer scale. Categories boxes are added for each item. Furthermore, an overall opinion is scored on a scale ranging from 1 to 10. All parameters should preferably be compared to normal skin on a

Explanatory notes on the items:


• **VASCULARITY** Presence of vessels in scar tissue assessed by the amount of redness, tested by the amount of blood return after blanching with a piece of Plexiglas
 • **PIGMENTATION** Brownish coloration of the scar by pigment (melanin); apply Plexiglas to the skin with moderate pressure to eliminate the effect of vascularity
 • **THICKNESS** Average distance between the subcuticular-dermal border and the epidermal surface of the scar

Appendix 2. Échelle de satisfaction du patient : cicatrice chirurgicale*

Encerlez le chiffre correspondant à votre opinion pour les 6 questions.

	aucun problème, normal					→	pire situation imaginable catastrophe, anormale				
1. La cicatrice est-elle douloureuse?	1	2	3	4	5	6	7	8	9	10	
2. La cicatrice pique-t-elle?	1	2	3	4	5	6	7	8	9	10	
3. La couleur de la cicatrice est-elle différente?	1	2	3	4	5	6	7	8	9	10	
4. La cicatrice est-elle plus ferme?	1	2	3	4	5	6	7	8	9	10	
5. L'épaisseur de la cicatrice est-elle différente?	1	2	3	4	5	6	7	8	9	10	
6. La cicatrice est-elle irrégulière?	1	2	3	4	5	6	7	8	9	10	
	Total: /60										

*La PSAS-Fr.



Results

- ▶ 29 patients : 3 ♀ / 26 ♂
- ▶ 36 fingers :
 - ▶ Fifth finger : 25
 - ▶ Fourth finger : 7
 - ▶ Third finger : 4
- ▶ Recurrent contracture :
 - ▶ 1st : 14 cases
 - ▶ 2nd : 1 case
 - ▶ 3rd : 1 case
- ▶ Mean follow-up : 14,5 months (5-34 months)

Results

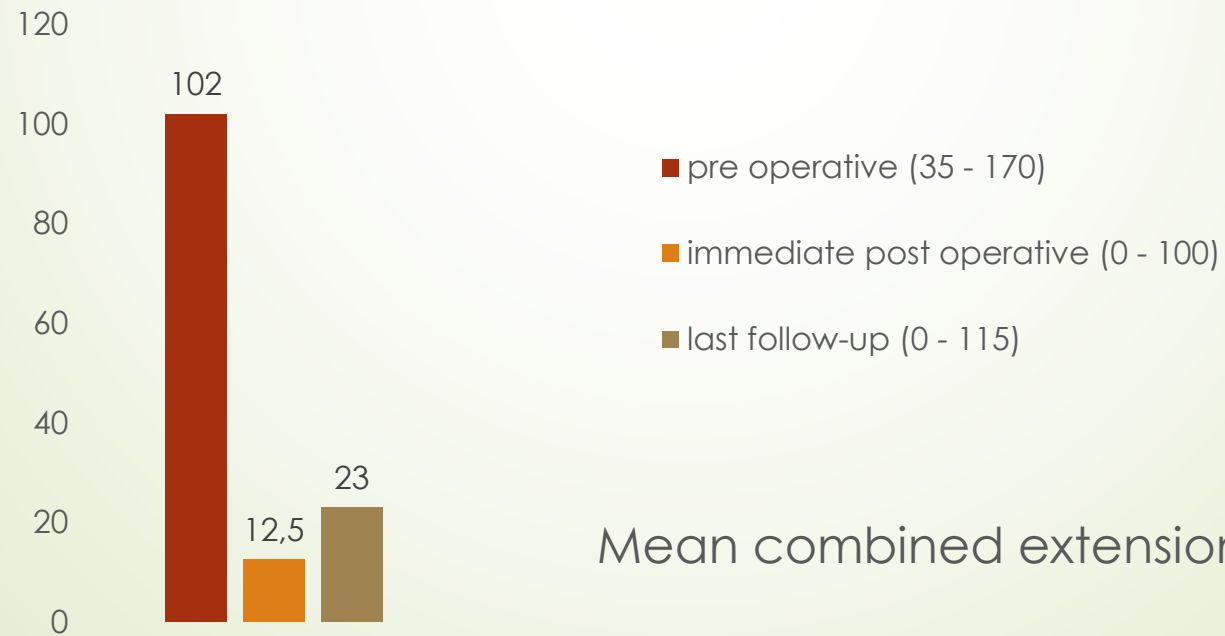
Pre operative status

Grade I : 4


Grade II : 8

Grade III : 13

Grade IV : 11




Mean combined extension lag (°)



Results

- Associated procedure
 - Skin graft : 4/36 (11%)
 - grade IV contracture in all
 - No graft skin for grade III or less
 - PIP pinning : 6/36 (17%)
 - MCP pinning : 2/36 (6%)
 - FDS tenotomy : 1/36 (3%)
 - Check reins section : 5/36 (14%)

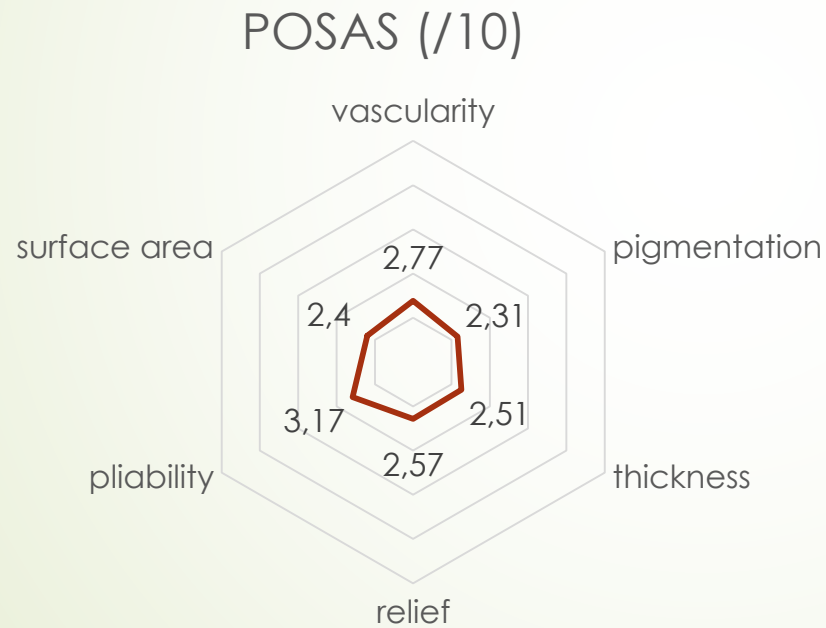


Results

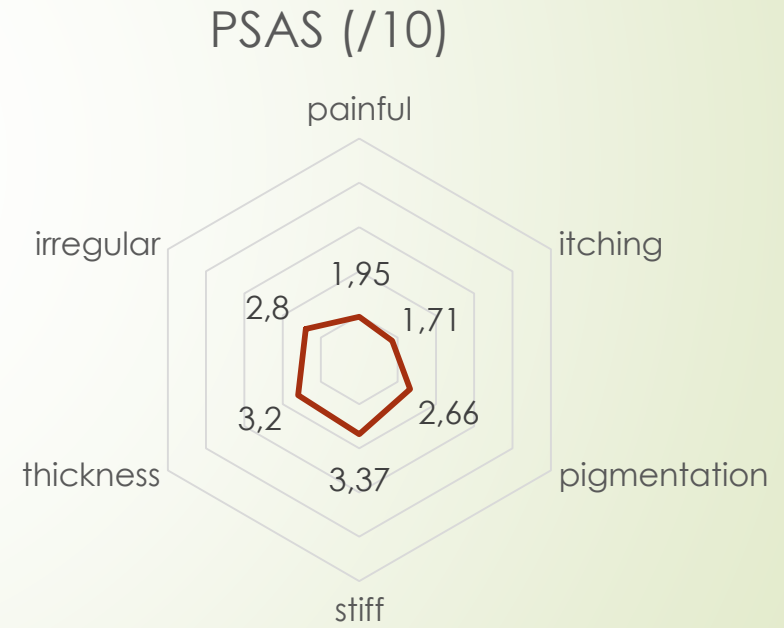
- Complications
 - Flap necrosis : 0
 - Infection : 1 (3%), resolute with oral antibiotics
 - CRPS : 1/36 (3%)
 - Artery injury : 1 (3%)
 - Nerve injury : 1 (3%)
 - Transient paresthesia : 3/36 (8%)
 - Recurrence : 3/36 (8%) (1 stage III and 2 stage IV)

Results

➤ Skin evaluation



➤ Overall opinion : 2,63 / 10



➤ Overall opinion : 2,62 / 10



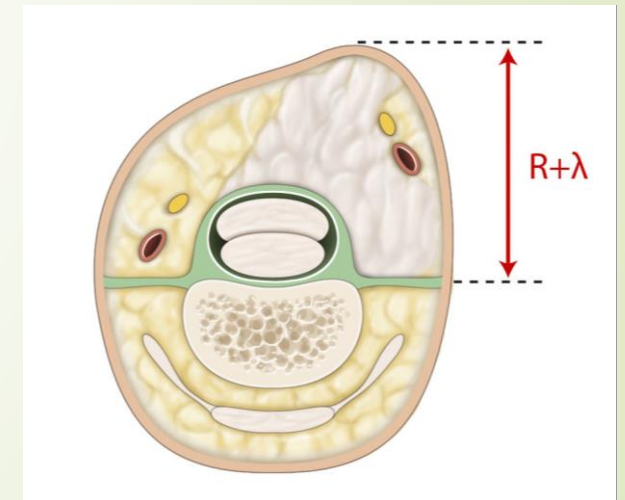
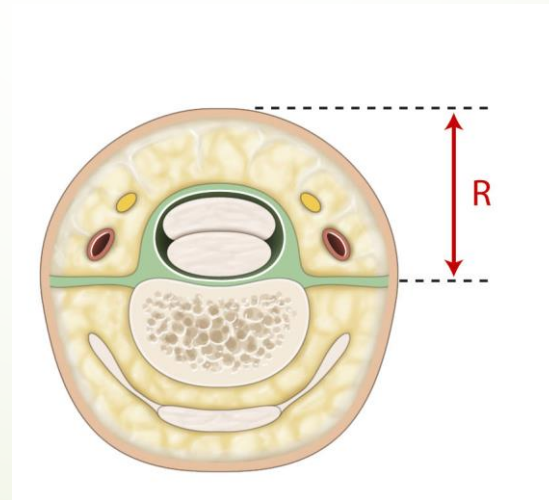
Discussion

- Many description of flaps
- No ideal technique
- No evaluation of scar in the literature for Dupuytren contracture

- Perfect flap
 - Large and safe exposure
 - No risk of flap necrosis
 - Reproducibles landmarks
 - Avoid additional skin graft in severe contracture

Discussion

- Ideal indication for the « three flaps » technique
 - Grade II / III / IV
 - Large antero posterior diameter
 - Without retractile skin
 - MCP or / and PIP joint contracture



Discussion

➤ Alternative to limited fasciectomy

➤ Needle aponeurotomy (NA)

- Higher rate of recurrence : 85% at 5 years vs 21 %
- Lower rate of complication
- Lower cost

➤ Collagenase Clostridial hystolyticum (CCH)

- High rate of recurrence : 50% at five years

[Plast Reconstr Surg.](#) 2012 Feb;129(2):469-77. doi: 10.1097/PRS.0b013e31823aea95.

Five-year results of a randomized clinical trial on treatment in Dupuytren's disease: percutaneous needle fasciotomy versus limited fasciectomy.

[van Rijssen AL¹](#), [ter Linden H](#), [Werker PM](#).

[Ann Plast Surg.](#) 2018 Dec;81(6S Suppl 1):S97-S101. doi: 10.1097/SAP.0000000000001607.

Dupuytren's Contracture: An Evidence Based Review.

[Mella IR](#), [Guo L](#), [Hung V¹](#)

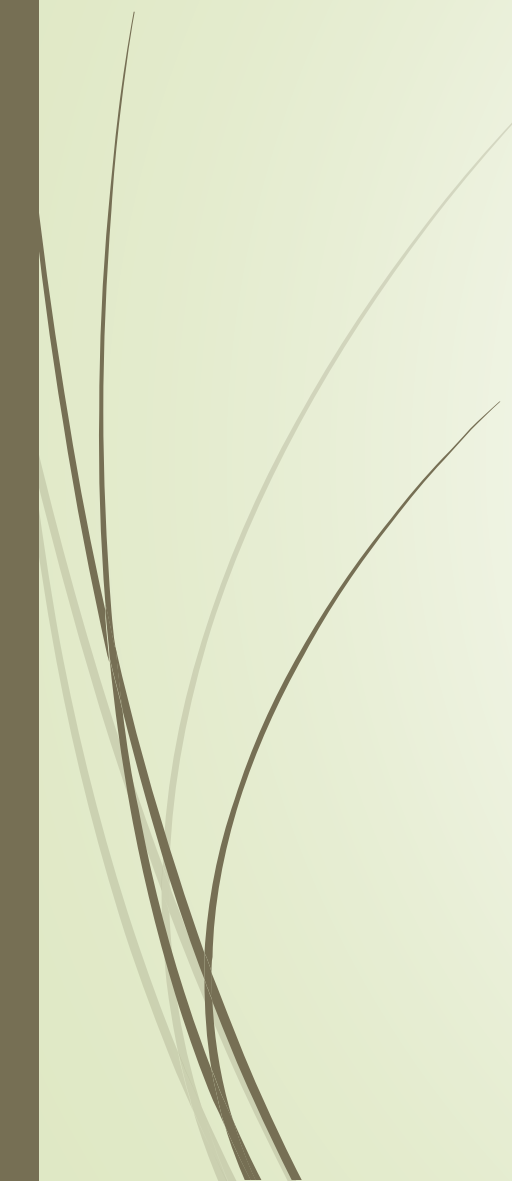
[J Hand Surg Am.](#) 2015 Aug;40(8):1597-605. doi: 10.1016/j.jhssa.2015.04.036. Epub 2015 Jun 18.

Dupuytren Contracture Recurrence Following Treatment With Collagenase Clostridium histolyticum (CORDLESS [Collagenase Option for Reduction of Dupuytren Long-Term Evaluation of Safety Study]): 5-Year Data.

[Peimer CA¹](#), [Blazar P²](#), [Coleman S³](#), [Kaplan FT⁴](#), [Smith T⁵](#), [Lindau T⁶](#).



Discussion

- No experience with both procedure (CCH and NA)
 - Recurrence in 3/36 (8%) at 14,5 months follow-up
 - No major adverse effect
- 



Conclusion

- ▶ The "three flaps" technique after aponevrectomy
 - ▶ Reliable technique
 - ▶ Large and safe exposure
 - ▶ MCP and / or PIP joint contracture



➡ THANK FOR YOUR ATTENTION

