



## Ulnar lateral digital flap for Dupuytren's disease of the fifth finger, a technique not be forgotten

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**Dupuytren's disease is a common condition in hand surgery. The fifth finger is frequently affected, presenting the highest recurrence rate after surgical treatment. The ulnar lateral-digital flap is used when a skin defect prevents direct closure after fasciectomy of the fifth finger at the level of the MP joint. Our case series comprises of 11 patients undergoing this procedure. Their mean preoperative extension deficit was 52° at the MP joint and 43° at the PIP joint. Full extension of the MP joint and a mean of 8° extension deficit at the PIP joint was achieved with surgery. All patients maintained full extension at the MP joint, with a follow-up of 1 to 3 years. Minor complications were reported. The ulnar lateral digital flap is a simple and reliable alternative when surgically treating Dupuytren's disease of the fifth finger.**

**Keywords:** Dupuytren's disease; rotational flap; digital coverage defect.

### INTRODUCTION

Dupuytren's disease (DD) is commonly encountered in hand surgery and the fifth finger is reported to be the second most frequently affected finger by Dupuytren's disease but the first regarding recurrence rate and worst outcome (1). After surgical correction of an advanced extension deficit, the available quantity of skin is frequently insufficient quantity of skin to allow direct skin closure. Techniques such as Z-plasty, skin grafting

or the "open palm" technique have been suggested as solutions to this issue (2,3,4).

This paper discusses the alternative of the ulnar lateral digital flap (ULDF), originally described by Razemon<sup>2</sup> so as to cover a residual skin defect when treating DD of the fifth finger. The aim of this work is to describe the technique, evaluate the clinical results, and compare the results obtained with those described in the literature.

### METHODS

Between 2016 and 2019, 11 patients underwent surgery for a DD of the fifth finger, performing an ULDF by the same senior surgeon. Among those 11 patients, there were five women and six men. The average age at the time of first symptoms of DD was 58 years, and the average age at the time of surgery was 63 years. The surgery concerned the dominant hand for seven of the patients.

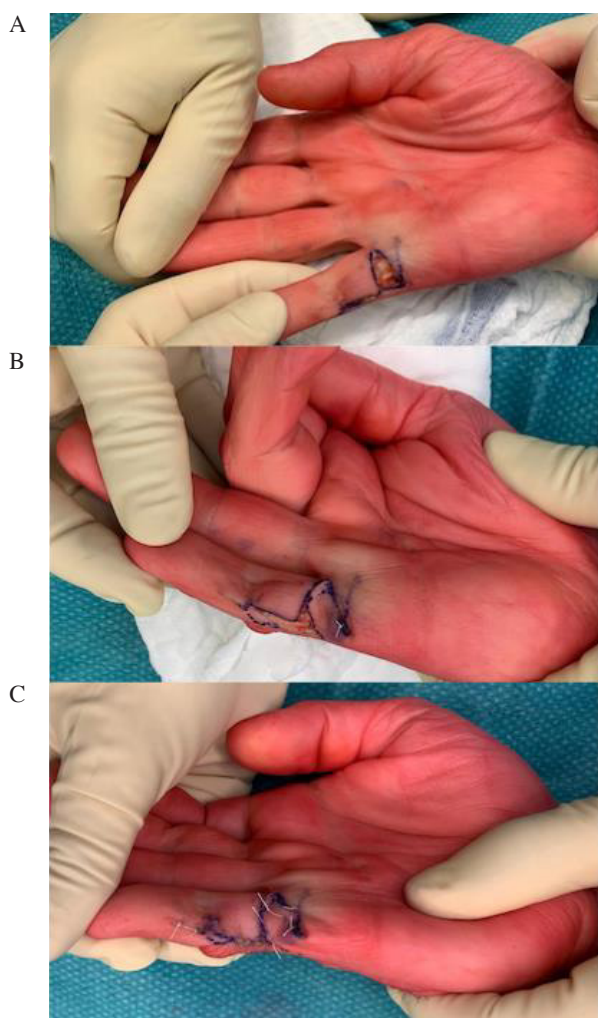
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**Figure 1.** — Surgical technique.

**A.** L-incision allowing removal of digital cord and extension of the finger leaving a skin defect at the MP level. **B.** Flap being transposed. **C.** Result after closing.

Preoperatively and at the last visit, we asked each patient to subjectively evaluate their function by a visual analogue scale (VAS) of 1 to 10. Subjective satisfaction concerning the surgical procedure was as well assessed by asking each patient if they would whether undergo this procedure again.

A rectangular flap is drawn on the ulnar side of the little finger, beginning at the level of the palmar digital crease (figure 1). Surgical approach takes place through an L incision on the finger, allowing resection of the digital cord. Segmental fasciectomy takes place by proximal separate incisions at the

palm of the hand, allowing the restoration of the MP joint extension. Once the pathologic tissue is excised, extending the finger allows for the skin defect at the level of the palmar digital crease to be evaluated. At this point, the flap is raised and its distal border is rotated so as to cover the defect. Donor site is directly closed and the flap is stabilised by simple absorbable sutures.

A slightly compressive bandage and a simple palmar extension splint by plaster of Paris are maintained for one week, followed by a night extension splint for at least 6 weeks.

## RESULTS

Among our 11 patients, the average preoperative lack of extension was of  $52^\circ$  at the MP joint and  $43^\circ$  at the PIP joint (table I). The average follow-up was 18 months (minimum 12 months, maximum 36 months). With surgery, full extension of the MP joint was achieved for all patients, result that was maintained throughout follow-up. Full extension of the PIP joint was achieved for six patients, but only five of them maintained their full PIP joint extension. There was one patient that developed a  $50^\circ$  PIP-extension deficit postoperatively at three months-time, remaining stable throughout the follow-up. Five patients had a residual preoperative PIP extension deficit, varying between  $10\text{--}30^\circ$ , that was stable throughout follow-up for four of those, whereas one of them presented a  $10^\circ$ -pejoration, from  $20^\circ$  to  $30^\circ$  PIP extension deficit during the first 3 months after the surgery (table 1). The mean overall Thomine's coefficient of improvement<sup>5</sup> (MP and PIP) was of 0,92 in immediate post-operative care and 0,87 at the last follow-up.

Only 3 patients presented a questioned area of necrosis at the tip of the flap, measuring less than  $2\times 2\text{mm}$ , that totally healed in a period of 4 weeks with simple wound care. At the last follow-up, all patients presented flexible and tension free scars.

Subjective hypoesthesia on the ulnar side of the little finger was reported by 2 patients, spontaneously resolved after 1 month. One patient developed a clinical image compatible with complex regional pain syndrome (CRPS), resolved within 3 months after treatment (physiotherapy and vitamin C).

Table I. — Functional results

Patients	General		Preoperative extension deficit		Immediate post-operative extension deficit		Last follow-up (months)	Last follow-up lack of extension (little finger)	
	Gender	Age	MP	IPP	MP	IPP		MP	IPP
1	F	72	90	20	0	0	36	0	0
2	M	64	40	20	0	0	36	0	0
3	M	71	50	40	0	10	36	0	10
4	F	59	10	50	0	0	36	0	0
5	M	65	50	40	0	0	18	0	0
6	M	64	0	90	0	20	18	0	20
7	F	50	70	30	0	0	12	0	50
8	M	51	70	40	0	20	12	0	30
9	M	60	70	30	0	10	12	0	10
10	F	59	40	10	0	0	12	0	0
11	F	75	60	80	0	30	12	0	30

Subjective self -assessment for both function and satisfaction was characterised as excellent and all patients claimed willing to undergo this surgery again if they had to.

## DISCUSSION

The ULDF was first described by Razemon (2) in 1982, predominantly for little finger involvement. According to his paper, the seat of the flap is decided according to the level of the skin lack and a skin graft covers the donor site. Anwar (3) and Ould-Slimane<sup>4</sup> et al also described the use of the lateral-digital flap for Dupuytren's disease with very good results.

The use of similar flaps has been proposed in the treatment of different types of digital defects (6,7) such as contracture resulting from burns scars or traumatic loss of tissue.

The so far published studies proposing the ULDF for the DD (2,3,4) describe a simultaneous Z-shaped incision as proximal extension of the palmar border of the flap, so as to perform palmar fasciectomy of the affected ray. In the objective to keep the surgical act as simple as possible, we perform segmentary fasciectomy (8) through one or more separate infra-centimetric incisions. In our series of patients, the mean overall preoperative extension deficit (91°) is

less important than those of Razemon (2) (140°) and Ould-Slimane et al<sup>4</sup> (105°) but more important than Anwar et al (3) (34°).

The average coefficient of improvement (CI) that we obtained is higher than the ones described by Razemon<sup>2</sup> (0.79 at 6 months) and by Ould-Slimane et al (4) (0.74 at one year). Immediate post-operative data are not described in these two studies, giving us no opportunity to evaluate the evolution of the result over time. Anwar et al (3) did not calculate a CI but obtained a complete extension for 83% of its patients in immediate post-operative care, decreased to 70% of their group after 1 year of follow-up, which is higher than our results.

Razemon<sup>2</sup> proposes the use of the ulnar lateral digital flap for flexion of the metacarpal-phalangeal joint and/or proximal inter-phalangeal joint while Anwar et al<sup>3</sup> recommended its use for isolated retractions of the proximal inter-phalangeal joint only. We rather agree with Razemon (2), believing that the indication for this technique should be based on the location of skin defect present and not on which the affected joint is. In addition, we confirm that direct closure of the donor site is possible without the use of any graft.

We acknowledge the limited number of participants in our study and its retrospective character.

However, the case series is homogenous, concerning only skin defects at the level of the fifth MP joint.

### CONCLUSION

The purpose of this study was to evaluate the efficacy of the ulnar lateral digital flap in skin defects resulting from the extension recovery of the little finger in the treatment of Dupuytren's disease after fasciectomy. Our observations demonstrate the reliability and simplicity of this surgical technique. The evolution of the flap confirms that the procedure is safe, with few complications and a more than satisfactory aesthetic result. In our opinion, this flap should be re-integrated into the usual management of Dupuytren's disease involving the little finger.

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