

## Case report: middle phalanx resection as an alternative treatment to amputation of recurrent Dupuytren's contracture of the fifth digit

Frédéric Teboul · Ebaa Sabri · Jean-Noel Goubier

Received: 31 August 2011 / Accepted: 17 November 2011  
© Springer-Verlag 2011

### Introduction

The first publication of the disorder that later on called Dupuytren's disease was in Switzerland by Felix Platter, who in 1614 described a case attributing the deformity to the flexor tendon contracture [1–4]. The first surgical treatment was done by Baron Dupuytren in 1832 [4]. This disease vastly affects old men of northern European descent [2].

The etiology of Dupuytren's disease remains elusive, although a number of theories have been proposed. There are some risk factors like diabetes mellitus, alcoholism, smoking, epilepsy, old trauma that may predispose to this condition, in addition to family history and genetic factors [4, 5, 6, 7].

The recurrence of Dupuytren's disease is defined as the presence of nodules, contractures, or loss of extension at an area that has been already operated for Dupuytren's disease. This differs from the extension of the Dupuytren's disease of which the contractures or nodules occur at non-operated zone of the hand. The most important point is to differentiate between the recurrence of the disease and the false recurrence. The false recurrence of Dupuytren's disease is the presence of residual stiffness and fibrosis scarring, though the fasciectomy might be complete. This difficulty in the differentiation leads to difficulties in estimating the exact percentage of recurrence in different studies, which is always variable [8]. In this report we present a case of fifth hook-like digit after iterative recurrence of Dupuytren's disease, treated by resection of middle phalanx as an

alternative to amputation of the digit to get better long-term results with an acceptable painless range of function and preserve the finger tip sensation.

### Observation

A 58-year-old male, right-handed dominant, manual worker patient presented with recurrence of Dupuytren's contracture of fifth digit at the metacarpophalangeal (MP) joint (lack of extension of 30°) and proximal interphalangeal (PIP) joint (lack of extension of 90°) after 5 years of subtotal fasciectomy, with good result at that time (Fig. 1). Second fasciectomy was done; the result was good postoperatively and the patient was satisfied with total active extension of the MP joint and lack of extension of 20° at PIP joint.

A year and half later, the patient had given a history of trauma to the little finger PIP joint 6 months before. He got a stiffness of the PIP joint with a quick recurrence of Dupuytren's disease and lesion of the volar plate. He presented with recurrence of Dupuytren's contracture of the fifth digit, (lack of extension at PIP joint of 100° and at MP joint of 40°) with stiffness of the proximal interphalangeal joint (hook-like digit, with a stiff PIP joint fixed at 100°). He came seeking for amputation of the finger because as he mentioned the finger became useless and bothersome. He refused to think about a shortening arthrodesis of PIP joint because he needs limited active motion of the PIP in his job. We do not want to perform iterative surgery because the skin was involved by the Dupuytren's disease in all his surface, and arthrolysis of the PIP combined with an extensive dermofasciectomy could be highly exposed to complications as infection, necrosis, and exposure of the flexor tendons. Resection of the middle phalanx plus palmar Z-plasty for the cutaneous tag was planned as an alternative to amputation.

E. Sabri (✉)  
Clinique Elysée Montaigne,  
Paris, France  
e-mail: emsabri@yahoo.com

F. Teboul · J.-N. Goubier  
Paris, France



**Fig. 1** Dupuytren's contracture of fifth digit at metacarpophalangeal joint and proximal interphalangeal joint

Under a regional anesthesia and pneumatic tourniquet, Z-plasty was made for the cutaneous tag on palmer side of the fifth digit, and then we considered a dorsal curvilinear incision. Section of the lateral ligaments then distal release of the flexor sheath was done. Monobloc resection of the middle phalanx had been done. After spontaneous retraction of the distal phalanx over the proximal phalanx, skin was sutured by 4/0 nonabsorbable, monofilament stitches. We advised the patient to do light mobilization immediately within the dressing.

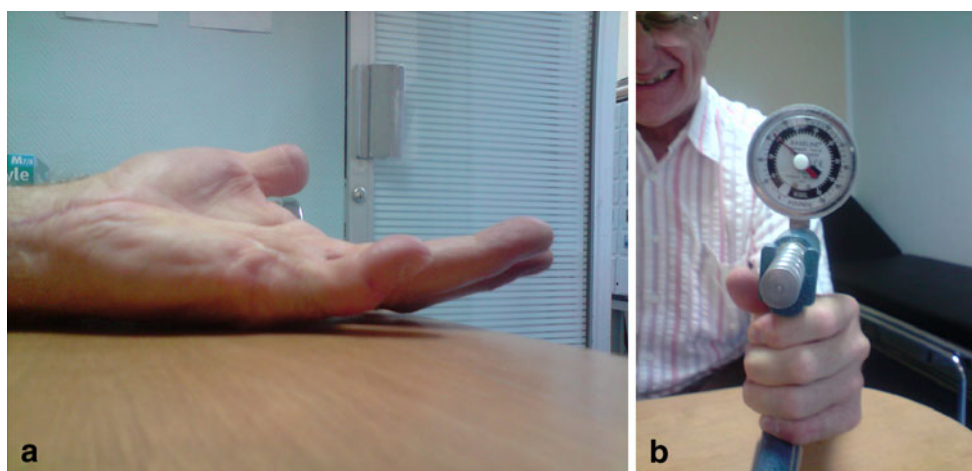
Follow-up of the patient were in days 4, 15, then 3, 6 months, and a year postoperatively. On last consultation he has been examined and we found that grasp was 37 kg, subjective satisfaction of the patient was of 70%, and finger pulp–palm distance in active flexion motion was 1 cm (Fig. 2a, b). The patient returns to work after 6 weeks and had no pain or dysesthesia.

## Discussion

The recurrence of Dupuytren's disease is very common and some surgeons do not classify the recurrence as a complication because they think it is an inevitable phenomenon [9]. For that reason about 14% of the surgeons routinely tell their patients that the recurrence rate is 100% [4]. Appearance of recurrence may occur within a few years and even within few months, and this may require repetitive surgery [10]. In the literatures many of flaps have been published after dermofasciectomy, but these flaps are not always applicable especially in recurrent cases already having flaps.

Other techniques as the technique of continuous elongation (TEC) introduced by Messina [11] which consists of mechanical elongation prior to fasciectomy has the advantage of improving the skin elasticity and avoiding the need of the skin grafts or flaps, but biomechanical studies have demonstrated an increase in level of degradative enzymes resulting from tension on the fibroblasts. Other possible complications of TEC include subluxation and swan-neck deformity of PIP joint, skin ulcers, and intolerance to the device. Moberg [12] recommended resection of the PIP joint with 1.5 cm shortening and an arthrodesis in 25° flexion. Moberg described also another alternative technique to amputation for patients with advanced or recurrent Dupuytren's contracture: the wedge osteotomy. The PIP joint range of motion remains the same but its arc of motion has a greater extension. Otherwise the hook-like multi-operated fifth digit may require amputation, and the amputation carries psychological and aesthetic problems in addition to loss finger tip sensation and the risk of getting neuroma. In the literatures, the congenital macrodactyly is the only indication we found for middle phalanx amputation to get better functional and aesthetic results [13].

The treatment of Dupuytren's contracture and its complications is a challenging condition, especially when we try to



**Fig. 2** **a** Postoperatively finger pulp–palm distance in active flexion motion was 1 cm and **b** grasp was 37 kg

treat complicated hook-like multi-operated fifth digit, who presented to us asking for the amputation. The resection of middle phalanx helps us to preserve the little finger which is painless, with no risk of neuroma as in amputated finger, with preservation of finger tip sensation, aesthetically acceptable, and functionally tolerable which is so important particularly for manual workers. So the resection of middle phalanx is an easy procedure; without risk of neuroma formation, the patient guards his finger tip sensation and it carries high degree of satisfaction for the patient.

**Acknowledgments** We would like to thank Dr. Guy Raimbeau for his help and advices in doing this report.

**Conflicts of interest** None

## References

1. Rayan GM (2007) Dupuytren disease: anatomy, pathology, presentation, and treatment. *J Bone Joint Surg Am* 89(1):189–198
2. Shaw RB Jr, Chong AK, Zhang A, Hentz VR, Chang J (2007) Dupuytren's disease: history, diagnosis, and treatment. *Plast Reconstr Surg* 120(3):44e–54e
3. Van Rijssen AL, Gerbrandy FS, Ter Linden H, Klip H, Werker PM (2006) A comparison of the direct outcomes of percutaneous needle fasciotomy and limited fasciectomy for Dupuytren's disease: a 6-week follow-up study. *J Hand Surg Am* 31(5):717–725
4. Au-Yong IT, Wildin CJ, Dias JJ, Page RE (2005) A review of common practice in Dupuytren surgery. *Tech Hand Up Extrem Surg* 9(4):178–187
5. Wilbrand S, Ekbohm A, Gerdin B (1999) The sex ratio and rate of reoperation for Dupuytren's contracture in men and women. *J Hand Surg Br* 24(4):456–459
6. Thurston AJ (2003) Dupuytren's disease. *J Bone Joint Surg Br* 85(4):469–477
7. Al-Qattan MM (2006) Factors in the pathogenesis of Dupuytren's contracture. *J Hand Surg Am* 31(9):1527–1534
8. Villani F, Choughri H, Pelissier P (2009) Importance of skin graft in preventing recurrence of Dupuytren's contracture. *Chir Main* 28(6):349–351
9. Hayton MJ, Gray ICM (2003) Dupuytren's contracture: a review. *Curr Orthop* 17:1–7
10. Cutts S, Dias R, Rajaratnam V (2005) Dupuytren's disease—a review. *J Orthop Nurs* 9(4):230–234
11. Messina A, Messina J (1991) The TEC treatment (continuous extension technique) for severe Dupuytren's contracture of the fingers. *Ann Plast Surg* 10:247–250
12. Moberg E (1973) Three useful ways to avoid amputation in advanced Dupuytren's contracture. *Orthop Clin North Am* 4(4):1001–1005
13. Tan O, Atik B, Dogan A, Alpaslan S, Uslu M (2006) Middle phalangectomy: a functional and aesthetic cure for macrodactyly. *Scand J Plast Reconstr Surg Hand Surg* 40(6):362–365