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Clinical case

Use of an index finger as a bank in thumb reconstruction after tumor resection: About one case

Utilisation d'un index comme doigt banque dans la reconstruction d'un pouce après chirurgie tumorale : à propos d'un cas

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Abstract

The use of a ''bank finger'' by its very nature is almost exclusively reserved for the management of traumatic hand injuries. Here, we described one case of thumb reconstruction using the patient's index finger as a ''bank finger'' after the excision of a grade II malignant fibrous histiocytoma.

Keywords: Hand; Bank finger; Neoplasm

Résumé

L'utilisation de doigt banque, de par son principe, est réservé de manière quasi exclusive à la prise en charge de la main traumatique. Nous présentons un cas d'utilisation d'un doigt banque pour la reconstruction d'un pouce après l'excision d'un histiocytofibrome malin de grade II.

Mots clés : Main ; Doigt banque ; Néoplasie

1. Introduction

The use of a ''bank finger'' by its very nature is almost exclusively reserved for the treatment of traumatic hand injuries [1,2]. It consists of using the whole finger or parts of a mutilated finger to improve the functionality of another finger. However, this concept may also have other indications, particularly in finger reconstructions following tumor resection. The originality of this article lies in the presentation of a case where a ''bank finger'' is used in thumb reconstruction after tumor surgery.

2. Case report

We present the case of a 56-year-old non-smoking, right-handed woman, seen in consultation for swelling in the first web space of her left hand. The initial clinical examination revealed the presence of a small granular, limited, supple, fixed, and painless wound. Further medical testing was performed; MRI showed a 15-mm cystic tumefaction, well limited and close to the first metacarpophalangeal (MCP) joint (Fig. 1). The

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Fig. 1. MRI T2 frontal section of the tumor.

surgical specimen obtained during an incisional biopsy was fixed in formaldehyde and sent for histopathological examination. The pathology report stated that the surgical margins were positive in the resection of a grade II malignant fibrous histiocytoma based on FNCLCC classification [3].

This case was presented during a multidisciplinary consultation meeting, and it was decided to perform a second surgical excision with margins of at least 1 cm in the various planes. The following structures were resected during the second procedure (Fig. 2A and Fig. 3A,B):

- first web space: all the palmar and dorsal skin as well as the interosseous muscles;
- thumb: the palmar skin of the proximal phalanx, both palmar pedicles of the thumb, the flexor pollicis longus (FPL) tendon, most of the thenar muscles, and the MCP joint;
- index finger: the radial neurovascular bundle as well as the flexor digitorum superficialis (FDS) and profundus (FDP) muscles.

Given this extensive resection, we decided to use the patient's index finger as a ''bank finger'' to reconstruct the thumb. We thus proceeded with a one-piece composite graft of the pedicled index finger on its ulnar pedicle and its dorsal skin (Fig. 2B and Fig. 3C).

The ulnar pulp of the index finger, which remained vascularized and innervated, replaced the dominant pulp of the thumb. The radial pedicle of the index finger served as a bypass and nerve graft for the remaining radial pulp of the thumb. The FPL was repaired by the interposition of the FDP of the vascularized index finger. The proximal interphalangeal joint was used to substitute the MCP joint of the thumb. Lastly, the palmar and dorsal skin of the index finger supported venous drainage of the composite flap and covered the defect. A Chase procedure was carried out [4] to resect the distal part of the 2nd metacarpal (Fig. 2C,D and Fig. 3D). Bone fixation was performed with K-wires (Fig. 4).

The postoperative course was uneventful, allowing the patient to be discharged on day 5. Histopathological examination of the

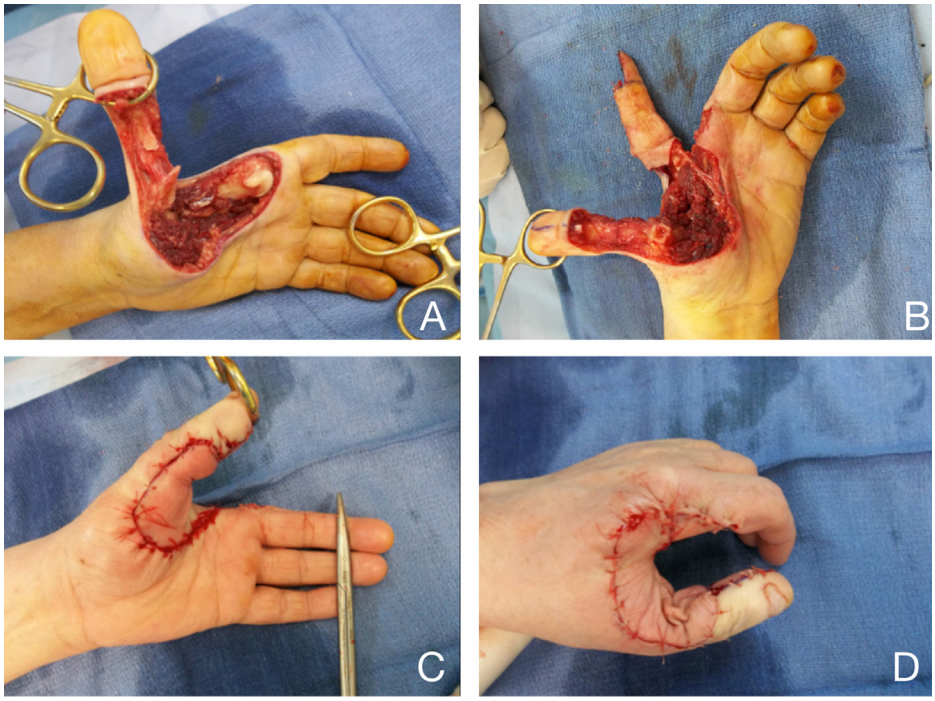

Fig. 2. Intra-operative images. Oncological resection (A). Composite graft taken from the index (B). Palmar view of reconstruction results (C). Lateral view of reconstruction results (D).