

Reconstruction of a Thumb Defect Following Subungual Melanoma Resection Using Foucher's Flap

Dear Editor,

The main challenge in the treatment of subungual melanoma *in situ* is obtaining adequate oncological resection while preserving the aesthetics and functionality of the affected digit (1). Traditionally, subungual melanoma *in situ* was treated with amputation of the distal phalanx of the digit, but management has recently become more conservative, attempting to preserve the full length of the digit (1). Although many recent studies support more conservative treatment by demonstrating successful results of the digit salvaging approach for both *in situ* and invasive subungual melanoma (1-3), there is still no agreed consensus in terms of the optimal surgical approach for this condition (1). It is the deep resection margin that is not uniformly accepted in the recent literature reports. Some authors recommend resection to the level of the periosteum (3,4), some include the periosteum (1), and some even perform a shave resection of the dorsal cortex of the distal phalanx (1). The reconstructive procedures also vary between authors, ranging from simple full thickness grafts (1,3,4) to toe free flaps (5). Reconstruction with a full thickness skin

graft sometimes leads to complications, such as inclusion cysts and persistent hypersensitivity (1,3). These complications occur due to positioning the skin graft directly on the bone.

A 31-year old women with a subungual melanoma *in situ* on her left thumb, diagnosed after several nail matrix biopsies, underwent a 5 mm margin resection of the entire nail complex with the distal part of the fingertip, including the distal phalanx periosteum. After intraoperatively confirming adequate tumor free margins, the residual defect measured 2×3 cm with exposed distal phalanx and without the distal fingertip (Figure 1). We reconstructed the defect using a pedicled innervated fasciocutaneous Foucher's flap (6) from the dorsum of the index proximal phalanx (Figure 2). Based on the first dorsal metacarpal artery and innervated by a branch of the superficial radial nerve, it provided stable soft tissue cover to the exposed bone, as well as fingertip sensation (Figure 3). The donor site was covered with a full-thickness skin graft taken from the volar side of the elbow. Postoperative course was uneventful with primary healing of all the wounds. Definite pathohistological analysis confirmed the diagnosis of *in situ* melanoma with adequate tumor resection margins. At three months follow-up, all the wounds were fully healed, there were no signs of local or regional recurrences, the hand was fully functional, and the patient was very



Figure 1. Left the thumb defect following a 5 mm resection of the nail complex including the distal phalanx periosteum and distal fingertip.

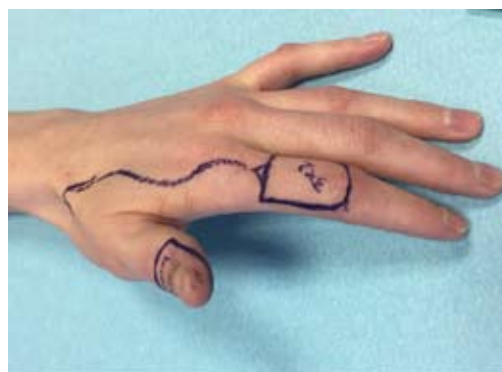


Figure 2. Preoperative resection and flap reconstruction design.



Figure 3. Flap elevated and placed over the defect.

satisfied with the appearance of the thumb (Figure 4, a and b). The patient achieved full sensory cortical reorientation.

Although the finger sparing resection procedures for the treatment of subungual melanoma have not been clearly defined, we believe that the inclusion of the periosteum in the resection enhances the likelihood of obtaining tumor-free margins, especially the base, which is the most critical area due to the thinness of the nail matrix. Inclusion of the periosteum also ensures the complete removal of previous matrix biopsy scars. This extent of the resection necessitates reconstruction with an adipofascial or fasciocutaneous flap, preferably innervated if the fingertip is included in the resection. The defect in our patient was a full-thickness soft tissue defect extending to the level of the cortical bone, which included the distal fingertip due to the presence of pigmentation on the fingertip. Therefore, the ideal reconstructive option had to provide adequate soft tissue cover and be innervated to provide sensation to the fingertip. Foucher's flap is a reliable option for the cover of the thumb fingertip, and although traditionally used to resurface the thumb pulp, it provides excellent innervated cover for the thumb dorsum in cases like this, with minimal donor morbidity.

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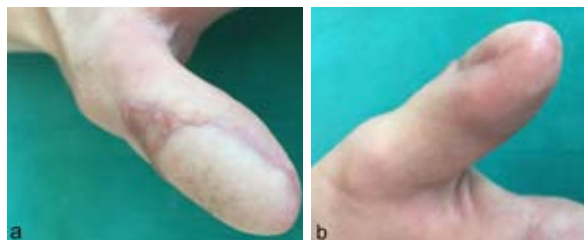


Figure 4. Appearance of the thumb three months following reconstruction. (a) Dorsal view; (b) palmar view.

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