Nail Bed Defect Reconstruction Using Thenar Fascia Flap and Nail Bed Graft

Youngin Ha, MD; Mingue Lee, MD; Kyungjin Lee, MD; Dongchul Lee, MD; Siyoung Roh, MD; Jinsoo Kim, MD

INTRODUCTION: Split-thickness nail bed graft is the most preferred treatment option for covering nail bed defects. However, full-thickness loss of nail bed soft tissue precludes direct graft placement because there is no vascular wound bed for the graft to take. To cover such exposed distal phalanx and provide a graft bed, we used thin thenar fascial flaps. In this case series, we present our approach to such refractory defects using a two-stage operation.

MATERIALS AND METHODS: Between 2014 and 2016, thenar fascial flaps and nail bed grafts were used in five patients. All the patients had full-thickness nail bed defects due to machines or door jamming incidents, and the sizes of the defects were more than half of the whole nail bed. We designed the flaps as general thenar flaps, performed suprafascial dissection, and elevated the dermal flaps proximally. We then performed subfascial dissection over the thenar muscle from the proximal to the distal direction and turned over the only fascial layer and inset onto the defects. After 2 weeks, the flap was divided, and a split-thickness nail bed graft was taken from the big toe. Tie-over dressings were performed, and the donor sites closed primarily.

RESULTS: All flaps survived completely, and all split-thickness nail bed grafts were well taken. The mean follow-up period was 11 months. Nail growth was observed to the end of the distal nail bed without non-adherence, and the overall shape of the new nail was symmetrical to the corresponding finger nail of the contralateral hand. Cosmetic outcomes were excellent. The big toe nail showed partial non-adherence initially, but improved with time. None of the patients experienced any other complications.

CONCLUSION: Full-thickness nail bed defects, especially with bony exposures, are difficult to operate with satisfactory results. The thenar fascia flap is extremely thin, yet performs admirably as a wound bed for split-thickness nail bed grafts. Morbidity is minimal at both the thenar and great toe donor sites. Functional and cosmetic outcomes are excellent. It could be an excellent treatment option for these kinds of cases.

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