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Abstract

Reconstruction of Composite Defect of Hand with Two Segmented Osteocutaneous Fibular Free Flap

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The advent of free bone flaps has made successful replacement of extensive areas of bone loss in the upper and lower extremities. The microvascular free bone flaps have faster healing without bony absorption or atrophy and can heal in the hostile environment of scarred bed or infection. Since the fibula free flap introduced by Taylor and colleague in 1975, it has been used extensively for skeletal reconstruction of extremities. In 1988, the folded vascularized fibula free flap was first described as a technique to reconstruct significant long bone defect of upper and lower extremities. During the same time, the fibular free flap has evolved to become most preferred choice of mandibular reconstruction. Up to present day, few reports have been made on the fibular free flap used for reconstruction of injured hand containing metacarpal bone and soft tissue defect. We present here our new and unique experiences with vascularized fibular osteocutaneous free flap as useful and satisfactory one for reconstruction of hand with composite defects.

Key Words : Fibular free flap, Hand, Reconstruction

5,9,13)

Taylor

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55 (crush-avulsion) 9x
 11cm
 1 (trapezoid) 2
 (6.5cm)
 (extensor indicis),
 (common palmar digital
 nerve)
 (Fig. 1,2).
 princeps pollicis
 2
 (Fig. 1).

14cm 11x14cm osteo-septo-
 cutaneous
 6.5cm, 2cm 5.5cm
 (in situ osteotomies) 2cm
 (Fig. 3).
 2
 microplate

15 10
 microplate
 40
 20
 가
 artery
 princeps pollicis
 flow-through
 (Fig. 3).
 10
 2 1
 (contour)



Fig. 2. Radiograph of injured hand. Note the total loss of the 1st metacarpal and trapezium. The 2nd metacarpal and trapezoid were partially remained. Defects of the metacarpal bones were 6.5cm in first and 5.5cm in second.

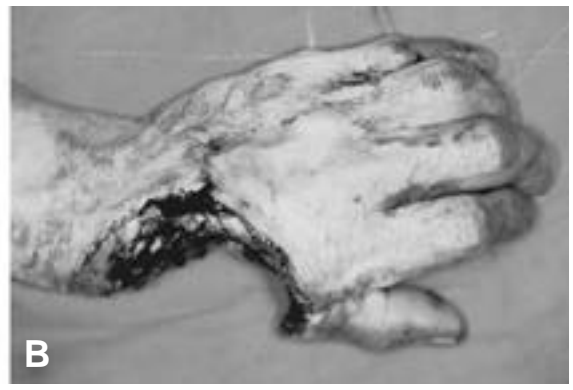
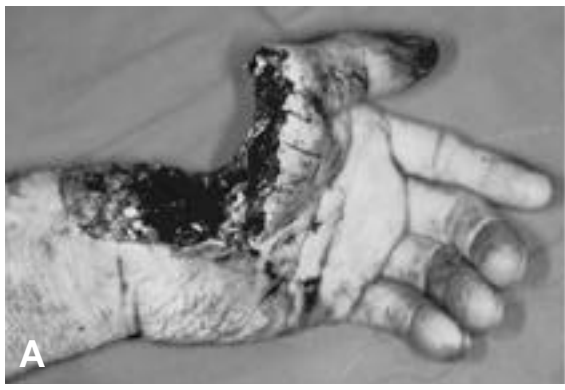


Fig. 1-A. The 9 x 11cm sized crescent composite tissue defect was noted including soft tissues, metacarpal bones and carpal bones. **B.** dorsal view.

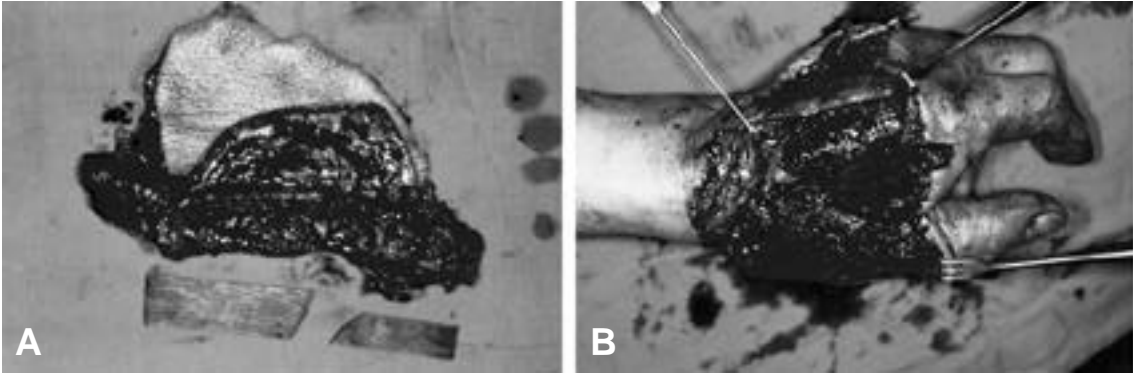


Fig. 3-A. Intraoperative view of harvested osteocutaneous fibular free flap. The skin flap was 11 × 14cm in size and bone flap was 14cm in length. A 2cm sized middle segment was discarded for smooth angulation. **B.** Insetting of the flap, The peroneal artery was anastomosed between the princeps pollicis artery and proximal palmar arch with flow-through technique.

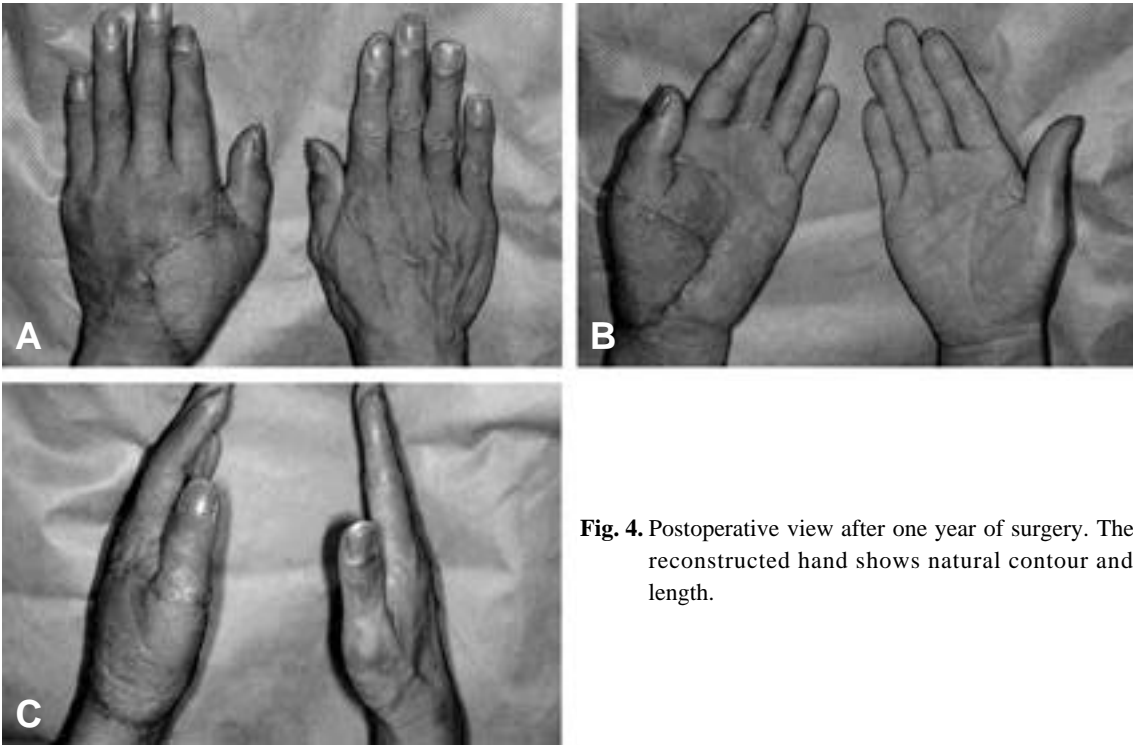


Fig. 4. Postoperative view after one year of surgery. The reconstructed hand shows natural contour and length.

(Fig. 4),

(Fig. 5).

3, 10, 14, 15, 17)

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Fig. 5. Radiograph of the hands. Note the similar total length of the 1st and 2nd metacarpal bone compared with the uninjured side.

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