

Free Flap Transfer for the Reconstruction of Injured Hands

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Purpose: The purpose is to analyze the clinical results of a free flap transfer for the reconstruction of variously injured hands.

Materials and Methods: Between March 1983 and December 2002, we reviewed retrospectively 79 patients (68 men, 11 women) treated for soft tissue defects or functional loss of hands or forearms. There were 49 mechanical injuries, 20 traffic accidents, 6 burn scars, 2 tumorous condition, 2 bite injuries. The results were evaluated with flap survival rate and functional score using 4 grading system of Jung's criteria.

Result: Sixty four out of total 79 flaps successfully survived (81%). There were 18 wrap around flaps (out of them 17 survived, 94%), 14 parascapular flaps (11, 78%), 16 groin flaps (14, 87%), 10 dorsalis pedis flaps (7, 70%), 5 lateral arm flaps (3, 60%), 3 deltoid flaps (2, 67%), 6 gracilis flaps (4, 67%), 3 first web space flaps (2, 67%), 2 latissimus dorsi flaps (2, 100%), 2 lateral thigh flaps (2, 100%). Out of survived 64 cases, excellent or good results were obtained in 62 cases.

Conclusion: Free flap transfer for the reconstruction

of injured hands is very useful method for the functional and cosmetic recovery. Especially combined transfer of several tissues enables the primary reconstruction and rapid recovery.

Key Words: Hand injury, Free flap, Reconstruction

가

가

20

1.

1983 3 2002 12

가 685

79

20 가 38 가

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10 가 6 , 10 가 6 , 30 가 18 , 40

가 9, 50 2
68, 11 가
가 49 가
가 20,
6, 2, 2
가 38 가
가 32,
가 7
2 (Table 1).

(wrap
around flap) 18 가
16, 14, 10,
5, 3, 6, 7 가
(Table 2).

2.

가
가 가
가 가
가

3. 가

가

Table 1. Recipient site conditions

Condition	No
Soft tissue defect + bone and soft tissue expose	38
LOM due to skin contracture	32
Soft tissue and bone defect due to trauma	7
Soft tissue and bone defect due to tumor resection	2
Total	79

4
가 1.
가
(Excellent), 가
(Good),
가
(Fair),
(Poor)

Table 2. Type of Operation

Type of operation	Performed No	Success No	Success Rate (%)
Wrap around	18	17	94
Groin	16	14	87
Parascapular	14	11	78
Dorsalis pedis	10	7	70
Gracillis	6	4	67
Lateral arm	5	3	60
Deltoid	3	2	67
First web space	3	2	67
Latissimus dorsi	2	2	100
Lateral thigh	2	2	100
Total	79	64	81

2
25 6
2, 3, 4
2, 3, 4
6

(Fig 2A-C).

3
16 가 14
가 3, 4 4
가

3, 4 가
3 K
(Fig 3A-C).

가
가
가
(local pedicle flap),
(distant pedicle flap), (vas-
cularized free flap) 가².
가



Fig. 2. A 25 year old male patient had a loss of 2nd, 3rd, 4th extensor tendon due to a degloving injury of his right hand and forearm by roller machine, 6 weeks ago. (A) Initial photograph of injured hand. (B-C) Tendon grafts from same side toe extensors were performed and skin defect was covered with parascapular flap. The patient had a nearly normal flexion and extension. The functional result was excellent.

1970

가

가

가

3-5

가

가

6

가

(activity of daily living)

가

3.7



Fig. 3. A 16 year old girl presented with a unstable skin on dorsum of right hand because of a lawn mower injury, 14 years ago. (A) Initial x-ray showed a shortening of 3rd and 4th metacarpal bones and pseudoarthrosis of 4th metacarpal bone. (B) Lengthening with an autogenous iliac bone graft was done. (C) A parascapular flap was performed after excision of the unstable skin.

가

17

15

³.

15x24 cm

7x3

cm

15x15 cm

13x7.7 cm

1.

3.

가

가

가

(cutaneous flap)

가

가

가

가

가

⁹⁻¹¹.

14

가

¹⁴.

18

17 가

' Rule

1 가

of twos'

2 cm 가

가

^{12,13}.

가

4.

5x4 cm

21

x 10 cm

12.5x8.2 cm

가

¹⁵.

2.

가

가

가

가

1

가

가

¹⁶.

10

가

2~3 cm

0.8~1.2 mm

가

가

가

⁶.

17

¹⁶,

가
가

가

가^{18.}

가
11×9 cm, 6×8 cm
6×4 cm,

5.

가
가
가

6

^{11.}

4

가 15 cm 6 cm
가 가

가

3 2
1 2
7×3 cm, 15×5 cm

^{17.}

)

가

6.

8.

3 2
12×7 cm 9×7 cm,

가^{19.}

가

4 cm 3 cm

2

3

17×12 cm

23×10 cm
2

7.

9.

가 .
가²⁰.
(thoracodorsal vessel)
(pedicle) 가 .
가
가 2/3
가
2 가
1
1
10. 1
1
가 21.
2
가 1
가 3
1 ,
1 ,
1 2
가
가

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