

Abstract

Reconstruction of the Lower Extremities with the Large Latissimus Dorsi Myocutaneous Free Flap

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Acute high speed accidents that results in full thickness skin defect and exposure of tendon, nerve, vessel and periosteum over denuded bone demands soft tissue coverage.

Exposed bone often ensues chronic infection and requires free flap transplantation which surely covers defects in one stage operation and enhances transport of oxygen-rich blood and converts a non-osteogenic or partially osteogenic site into a highly osteogenic site, but exposed bone which had performed free flap transplantation sometimes necroses and needs secondary bone procedure.

Scar contracture limits joint motion should be excised and covered with normal soft tissue to restore normal range of motion.

Authors have performed the large latissimus dorsi myocutaneous free flap in 8 cases of extensive soft tissue defect and exposed bone lesion in the leg and 1 case of the flap was failed. The secondary ilizarov bone procedure was performed in 3 of 8 cases. 2 cases of large burn scar contracture and 1 case of posttraumatic scar contracture in lower extremity were restored with the large latissimus dorsi myocutaneous free flap.

Authors concluded that large latissimus dorsi myocutaneous free flap is the most acceptable microvascular procedure in large soft tissue defect combined with exposed periosteum and bone requiring secondary bone procedure and in large burn scar contracture limiting knee joint motion.

Key Words : Soft tissue defects, The large latissimus dorsi myocutaneous free flap

Table 1. Lesion and causes

Lesion site	Causes	Cases
leg	traffic accident	7
	fall	1
popliteal area thigh and knee area	burn	2
	traffic accident	1
Total		11

Table 2. The large latissimus dorsi myocutaneous free flap

Case	Mechanism of injury	Lesion site	Flap size length × width(cm)	Receipient vessel	Survival of flap
1. M,21	TA(III-B)*	leg	30 × 9	ant. tibial a GSV**	survived
2. M,22	TA(III-B)	leg	28 × 8	post. tibial a venae comitantes	survived
3. M,35	TA(III-B)	leg	25 × 7	ant. tibial a venae comitantes	survived
4. M,27	TA(III-B)	leg	27 × 8	post. tibial a vena comitante	survived
5. M,67	TA(III-B)	leg	30 × 28	ant. tibial a GSV	survived
6. M,23	TA(III-B)	leg	24 × 7	ant. tibial a venae comitantes	survived
7. M,27	TA(III-B)	leg	25 × 8	ant. tibial a GSV	survived
8. M,54	fall	leg	26 × 8	ant. tibial a GSV	failed
9. M,47	Burn	popliteal area	28 × 7	ant. tibial a GSV	survived
10. F,40	Burn	popliteal area	20 × 7	ant. tibial a GSV	survived
11. M,15	TA(crushing)	thigh and knee	28 × 8	post. tibial a GSV	survived

* TA(III-B) : traffic accident, fracture type, Gustilo type III-B

** GSV : greater saphenous vein

Table 3. Result of the flap

Causes	Cases	Flap	Bone union (average)	2nd bone procedure (cases)	Cases	Bone union (average)
traffic accident	4	survived	16.7 weeks	sequestrectomy and ilizarov procedure	3	48 weeks
fall	1	failed	25 weeks			

Table 4. Result of the scar contracture

Causes	Cases	Flap	ROM of the knee	
			preop	postop
Burn	2	survived	30 degrees full extension lag	full range of motion
TA (crushing injury)	1	survived	20 degrees full extension lag	full range of motion

가 (popliteal fossa) 8
2
1
20cm 7cm (Table 2).
가
1 8
2 (Table 3),
12 6 4 (Table 4).
1992 7 1999 5
8
3 가 10 가 1
15 67 34.4
가 7
1 2 가
1

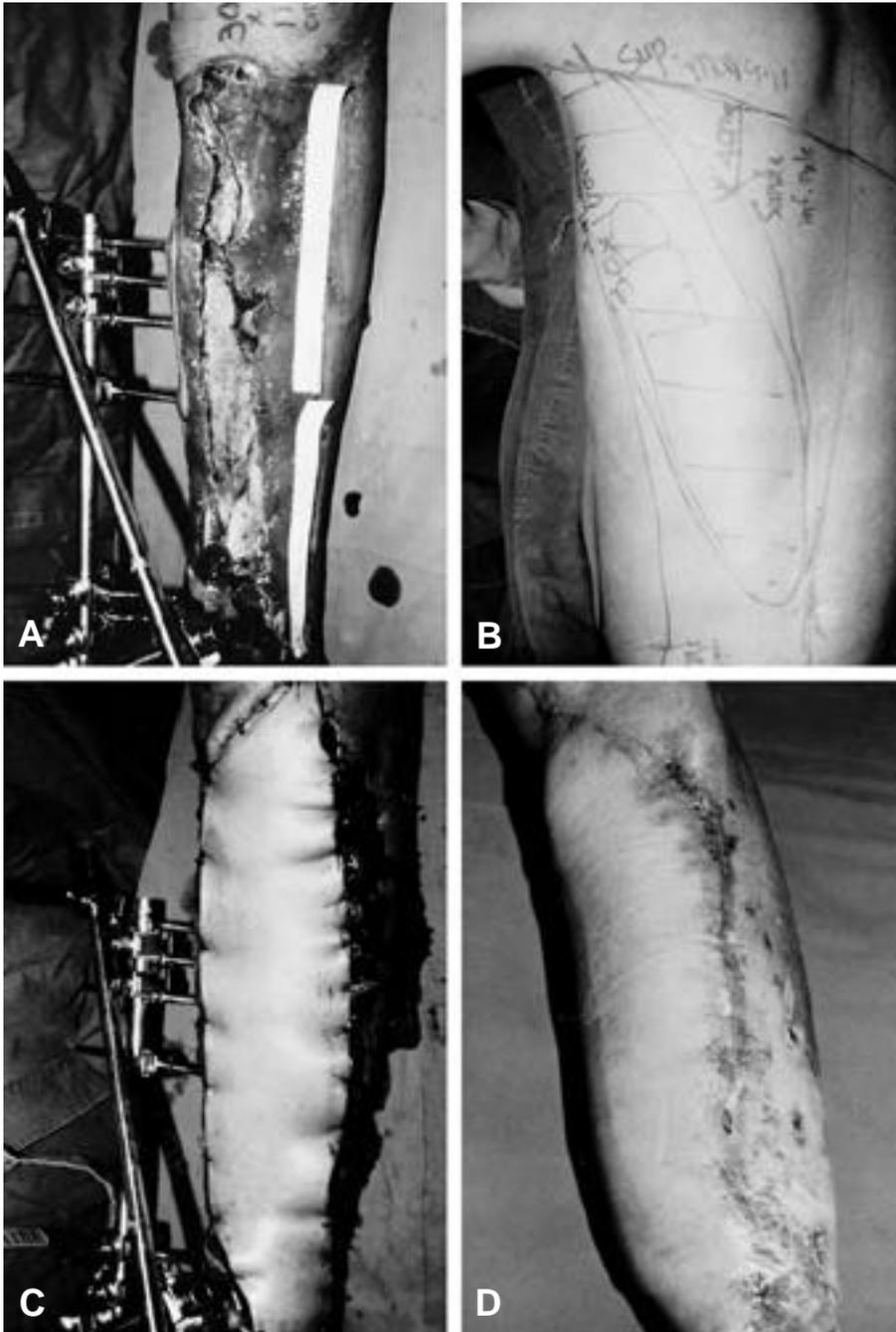


Fig. 1-A. Motorcycle accident exposed entire anteromedial tibial shaft in 67-year old male.
B. A large latissimus dorsi myocutaneous flap(30cm × 10cm) was designed.
C. The thoracodorsal artery and vein were anastomosed with anterior tibial artery and greater saphenous vein.
D. The survived flap enabled to perform the secondary ilizarov procedure and tibial shaft was united at posttrauma 48 weeks.

2 (ilizarov), 1

1 가 , 48 , 2
4 16.7
(Table 3).

3 , 20

(Table 4).

4cm

5) 가 1
2.0 2 67
10.0 III-B
1

3 가 1 (30cm, 28cm)
(Fig.

2 1-A).
(Fig. 1-B),

(Fig. 1-C),
(ilizarov)

3 48
(monitoring) (Fig. 1-D).

2
15

87.5% 8 , 7 3 20 (Fig.
2 -A). (Fig. 2-B),
1 (Fig. 2-C),

8 가 (Fig. 2-D),
25 (Fig. 2-E).

7 3

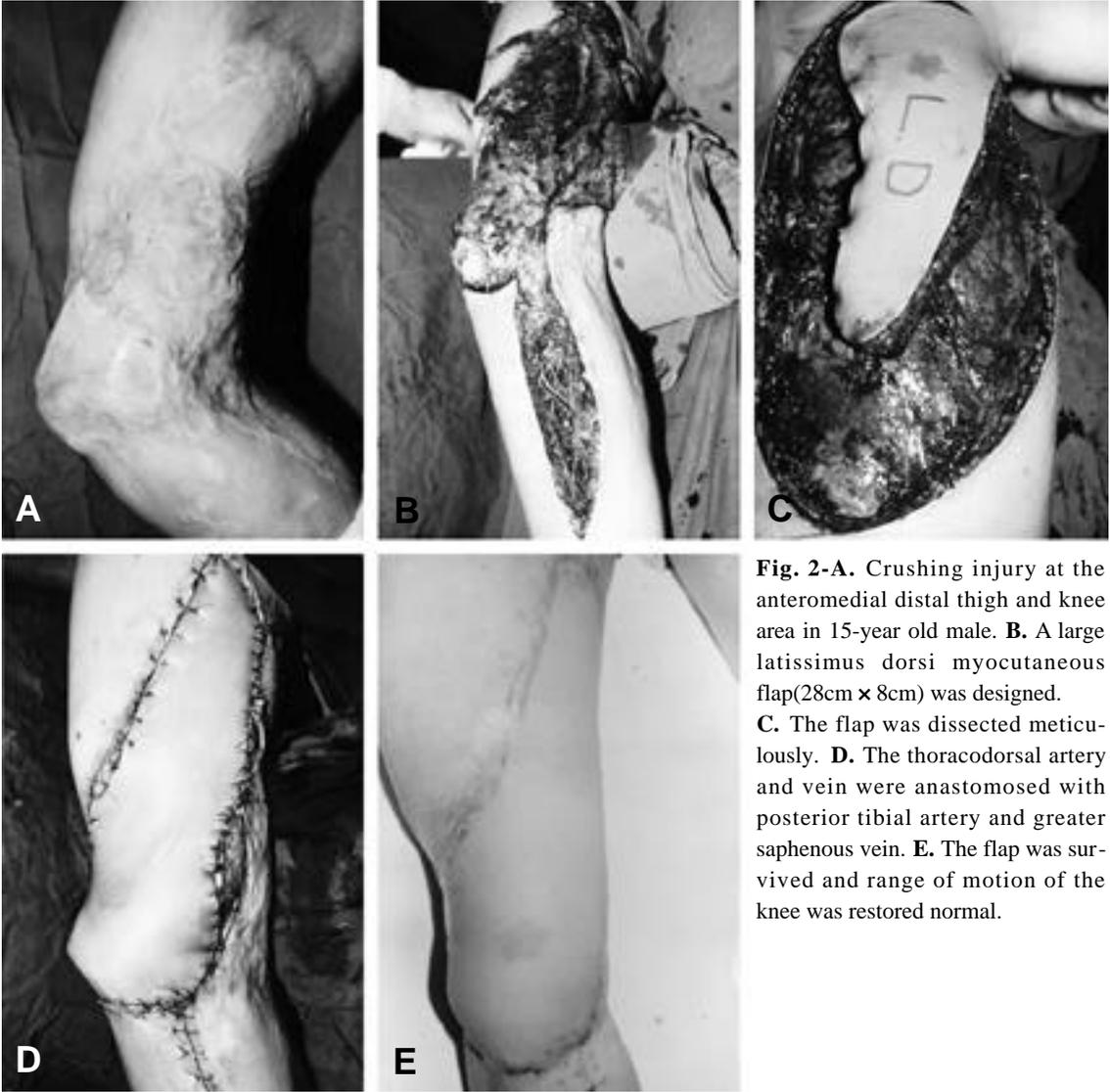


Fig. 2-A. Crushing injury at the anteromedial distal thigh and knee area in 15-year old male. **B.** A large latissimus dorsi myocutaneous flap(28cm × 8cm) was designed. **C.** The flap was dissected meticulously. **D.** The thoracodorsal artery and vein were anastomosed with posterior tibial artery and greater saphenous vein. **E.** The flap was survived and range of motion of the knee was restored normal.

1 가

, 3

8

5

가

8)

III-B 4)

가 7~10

(latissimus dorsi)

2

가 가

2

5cm

가

8 ~ 14cm

가

가

가

가

3 ~ 4mm,

1.5 ~ 3mm

가

가

^{1,2)}

가

2

³⁾

3

⁶⁾

가

가

1

가

⁹⁾

가

48 가

1

4

3

가

10×15

16.7

cm

⁷⁾

11

2

20×7cm

cm

8cm

, 10cm

가

2

20

11

가

가

2

가

. 3

가

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