

FREE SKIN PLASTY IN TRAUMATIC LESIONS OF THE LIMBS

M. Dobrev, S. Stoyanov

One of the most effective methods in treating traumatic skin defects is the timely performed free skin grafting (skin plasty). Its scope of application in the routine surgical practice is steadily increasing.

Over a period of five years, free skin grafting was resorted to in 350 patients — 275 men and 75 women. It was used mostly in hand injuries — 270 patients or 73.40 per cent. Of the total number of plastic repairs, 58 fall to the thumb, and 54 — to the index finger. Skin plasty of the thumb and index was done in a total of 112 patients, which makes 32 per cent of the total number of patients operated on, and 43.60 per cent of traumatic hand lesions where skin plasty was indicated. Skin plastic repairs in the leg rank second after the hand in terms of frequency. This particular type of skin plasty was applied on emergency indications in case of limited skin defects, or else, as a planned intervention in case of rather extensive involvement. In planned operations the skin defect was resurfaced following removal of necrotic tissue zones, and provided a suitable bed for the donor skin was present, e. g. clean and pink granulations. Usually, a dermatome was used in skin transplantation at thickness 0.3—0.4 mm. The same skin-graft thickness is advised by other authors too (1, 3, 5, 6). A slightly thicker skin graft (0.5 mm) was used only in case of resurfacing defects on the palm and volar aspect of the fingers.

The types of traumatic lesions where free skin grafting was resorted to are outlined in Table 1.

Table 1

Type of injury	Fingers	Wrist	Forearm	Arm	Foot sole	Leg	Thigh	Total
Amputation	68	2	3	—	3	8	2	86
Crush injury	24	9	4	3	8	12	3	63
Skin defect	86	8	4	—	—	19	3	120
Contused-lacerated wounds	31	7	2	1	—	8	—	49
Incised wounds	19	3	2	1	—	7	—	32
Total	228	39	15	5	11	54	8	350

The free skin graft was perforated with a thin scalpel or large size needle. After graft suture, a grease-impregnated dressing was usually applied for eight days. To secure an even pressure on the transplant, as well as its full survi-

val, the dressing was applied in the form of a cushion. Full-thickness skin was used mainly to resurface the bottom of the interdigital commissure (web space), as recommended by other authors (2, 4, 7, 8). The reason for abstaining from its utilization elsewhere is the uncertainty in terms of complete survival.

Following reposition and fixation of the bone fragments in open fractures requiring skin defect coverage through free skin plasty (mainly in the hand), we resort to plastic repair with resurfacing the defect using free skin, prelevated with the aid of scalpel or dermatome.

One of the problems related to this particular type of skin plasty is the continuity of intervention, requiring a great amount of time and patience. Because of that many surgeons discard the method, and embark on skin defect coverage using skin material from the neighbourhood (adjacent or local skin flaps).

Many authors recommend skin defect coverage by local skin flaps exclusively (9, 10). We adopted such a policy whenever the site of damage and the condition of the adjacent skin allowed it.

Survival of the split-thickness skin was certain in 347 cases of the series. This is attributed to its capacity to withstand considerable mechanical and other impacts. In many instances the skin covering is restored to the extent rendering it hardly distinguishable by appearance from the normal skin. Necrosis developed, and secondary skin plasty was necessitated in three patients only. This is attributed to the failure to abide by the rules of skin grafting. Partial necrosis of the free skin graft was observed rather frequently, although secondary skin plasty was not mandatory. In some patients removal of the ensuing cicatricial necrosis had to be done, but the final outcome of skin repair was favourable in all instances. Rough scarring subsequent to free skin plasty was not recorded. Adequate granulations and the taking of a sufficiently bulky graft are among the factors responsible for the high percent skin graft survivals. Under the same aspect, we feel that avoiding any tension in the suture edges is likewise essential. Suturing of the wound edges under tension was avoided in order to preclude complications, such as lacking apposition of the edges, suturing material cuts, scar necrosis and the like. The size of the skin graft was never smaller than the defect. Thus tension of the transplant was obviated. Another condition is the application of appropriate immobilization. This rather simple operation has already become popular among the medical staff of the clinic in delivering emergency medical aid to patients under outpatient conditions. This holds true mainly for cases with defects on the distal phalanges, or guillotiné amputation of digits. In many instances the intervention was conducted under local anesthesia. In 61 per cent of patients free skin plasty was performed within the first 24 hours. The question of carrying out in- or outpatient treatment was decided by the surgeon in charge.

In most of the patients skin plasty was done in fresh wounds, following primary surgical treatment, under conditions of complete hemostasis. Skin plasty application greatly contributes to avoid certain complications, and along with that enables to preserve the function of the injured part of the limb, to preclude the development of irregular and rough scarrings, deformations or serious inflammatory processes. Under the aspect outlined, the role played by antibiotics, administered to a great number of our patients, should be by no means underestimated.

We have no experience whatsoever with the method of leaving the graft without suture, as recommended by some authors, nor with homotransplantation (9, 10).

In patients in poor general condition, the areas of the extensive wound surface, prepared first for operation, were the first to be covered — thus complete restoration and survival of the transplanted skin grafts was secured. The transplants were taken exclusively with a dermatome.

Skin grafting procedures play a very important role in the complex treatment of patients with traumatic lesions of the limbs. It is a matter of interventions assuming a particular importance when due consideration is given to the fact that the skin defects involve mainly the extremities, and not infrequently — the working and weightbearing surfaces of digits, sole and amputation stumps.

REFERENCES

1. Андрусон, М. В. и др. *Орт. травм. протез.*, 1972, 7, 78. — 2. Висотская, В. И. *Орт. травм. прот.*, 1975, 11, 75. — 3. Григорьев, М. Г. *Орт. травм. протез.*, 1973, 1, 7. — 4. Дмитриев, Г. И. и др. *Орт. травм. прот.*, 1972, 7, 7. — 5. Единак, Б. И. *Орт. травм. прот.*, 1972, 7, 11. — 6. Кириленко, А. В. *Орт. травм. прот.*, 1976, 5, 15. — 7. Классен, Г. Я. и др. *Орт. травм. прот.*, 1972, 7, 15. — 8. Ковинский, И. Т. и др. *Орт. травм. прот.*, 1972, 1, 85. — 9. Русаков, А. Б. и др. *Орт. травм. прот.*, 1973, 7, 56. — 10. Сенило, М. И. и др. *Орт. травм. прот.*, 1973, 7, 44.

СВОБОДНАЯ КОЖНАЯ ПЛАСТИКА ПРИ ТРАВМАТИЧЕСКИХ ПОРАЖЕНИЯХ КОНЕЧНОСТЕЙ

М. Добрев, Ст. Стоянов

РЕЗЮМЕ

Свободная кожная пластика находит все более широкое применение в хирургической практике.

За пятилетний срок в Клинике ортопедии и травматологии — Варна, свободная кожная пластика была применена у 350 больных. Она осуществлена преимущественно при травматических кожных дефектах руки — у 257 больных (73,40%). Большой и указательный палец являлись чаще всего поврежденными — у 112 больных. Это составляет 32% общего числа больных и 43,60% травматических поражений руки.

Срочно свободная кожная пластика применена у 61% больных. Кожный трансплантат забран дерматомом или скальпелем. Этот вид операции применяется при открытых переломах конечностей, кожных дефектах и ампутациях.

Реже прибегалось к кожной пластике по соседству. У всех больных кожная пластика была успешной. Только у трех из них наступил некроз, что потребовало проведения повторной кожной пластики.

Свободная кожная пластика приобретает особенно большое значение в клинической практике, принимая во внимание, что дефекты кожного покрова располагаются преимущественно на конечностях.