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ORIGINAL ARTICLE

Full-thickness skin grafts for lower leg defects coverage: Interest of postoperative immobilization

Greffe de peau totale au niveau du membre inférieur : intérêt de l'immobilisation postopératoire

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KEYWORDS
Full-thickness skin graft;
Lower leg;
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Melanoma

Summary
Introduction. — Full-thickness skin graft is an effective reconstruction method after excision of skin lesions on the lower limb that are not amenable to primary closure. The randomness of graft take is the major drawback of this procedure.
Objective. — The objective of the study was to evaluate the outcome of full-thickness skin grafts (FTSG), used to repair lower leg defects after excision of skin lesions, after a 5-day immobilization period.
Material and methods. — All consecutive patients who underwent FTSG to cover defects below the knee between November 2011 and January 2016 were retrospective reviewed. Graft take was assessed and defined as good (> 90% graft take), moderate (between 50% and 90 % graft take), or poor (< 50 % graft take).
Results. — Seventy patients were included. Median age was 70 years (range, 18—92 years). The median area of the defect was 12 cm^2. Graft take was good in 64 patients (91.4%), moderate in 3 patients (4.3%), and poor in 3 patients (4.3%) at Day 5. Complications included hematoma (11%), infection (14%) and venous thrombosis (3%).

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Conclusion. — Full-thickness skin graft is a reliable method to repair defects on the lower leg after removal of skin lesions. A 5-day immobilization period can improve the graft take. The authors have indicated no significant interest with commercial supporters.

MOTS CLÉS
Greffe de peau totale ;
Membre inférieur ;
Immobilisation ;
Carcinome basocellulaire ;
Carcinome épidermoïde ;
Mélanome

Résumé
Introduction. — La greffe de peau totale est une méthode de couverture efficace au niveau du membre inférieur après exérèse de lésions cutanées. Les forces de cisaillement au niveau du membre inférieur compliquent, cependant, la prise de la greffe. L'objectif de cette étude était d'évaluer l'intérêt d'une immobilisation postopératoire par plâtre de 5 jours, après greffe de peau totale en-dessous du genou.
Matériel et méthodes. — Tous les patients traités par greffe de peau totale après exérèse d'une lésion cutanée en-dessous du genou, entre novembre 2011 et janvier 2016, ont été étudiés rétrospectivement. La prise de greffe, évaluée à j5 à la fin de la période d'immobilisation, était définie comme bonne (> 90% de prise de greffe), intermédiaire (entre 50 et 90 %) et mauvaise (< 50%).
Résultats. — Soixante-dix patients ont été inclus. L'âge médian était 70 ans (18—92 ans). La surface médiane des défects était 12 cm^2. La prise de greffe était bonne pour 64 patients (91,4 %), intermédiaire chez 3 patients (4,3 %) et mauvaise chez 3 patients (4,3 %) à j5. Les complications observées étaient l'hématome (11 %), l'infection (14 %) et la thrombose veineuse profonde (3 %).
Conclusion. — La greffe de peau totale est une technique fiable de couverture des pertes de substance du membre inférieur après excision de tumeurs cutanées. Une immobilisation de 5 jours permet d'augmenter la prise de greffe.

Introduction

Skin grafting is a safe and effective method to repair defects resulting from excision of cutaneous lesions. However, the lower limb is a difficult site to graft due to the inevitable sheer forces associated with walking. This has led to the common practice of immobilization postoperatively to enhance graft success.

Numerous reports showed that immobilization might not be necessary for split-thickness skin graft (STSG) [1—3].

Unlike STSG, FTSG on the lower limb usually takes with more difficulty. Patients limb can be immobilized at post-operative time, in order to enhance the graft take rate. The immobilization period reported is varying between none to 2 postoperative days [4].

We conducted a retrospective analysis of FTSG repairs performed for lower limb defects coverage after skin lesion excision. The aim was to assess the efficacy of 5-day immobilization associated with progressive declivity procedure after FTSG.

Material and methods

This retrospective review included all consecutive patients who underwent FTSG to cover defects below the knee between November 2011 and January 2016 in a single plastic surgery department. Patients were identified by review of the theater logs and crosschecked with patient records.

All patients requiring FTSG to repair defects after excision of a skin lesion below the knee to the toe were included. Excisions were for non-melanoma and melanoma skin cancer.

Medications that increase bleeding risk were not stopped before surgery. Patient characteristics are summarized in Table 1. All grafts were performed following excision of skin lesions during a single procedure. Lesions were excised to the level of the deep fascia. FTSG were harvested from the contralateral inguinal crease at the deep dermal plane. Grafts were sutured using non-interrupted sutures. Fenestrations were performed, through-and-through tacking sutures were used to secure the grafts to the wound bed and a tie-over bolster was used to keep the graft in place (Figs. 1—3). Finally, a non-circular above-knee plaster cast was used to immobilize the lower leg. We preferred to use a non-circular above-knee plaster cast rather than a custom made splint for reasons of cost. Patients were instructed to rest in bed for 5 days as declivity, and more specifically venous congestion, might compromise graft take. In order to prevent venous thromboembolism, exoxaparin was prescribed (4000 IU a day) immediately after the procedure. The fifth day, the bolster and the cast were removed and the graft take was assessed. Graft take was defined as good (> 90% graft take), moderate (between 50% and 90% graft take), or poor (< 50% graft take). Patients then underwent ''declivity tests'': on the fifth day, patients were told to sit on the edge of the bed for a minute and the color of the graft was assessed. If the graft turned blue, the test was stopped. The test was repeated 4 times a day. On the sixth day, the declivity tests were repeated for 3 minutes. Finally, patients were fully mobilized and discharged home on the 7th day. Once the bolster had been removed, a paraffin gauze dressing was applied on the graft and daily changed. Patients were reviewed in secondary care weekly the first month. The sutures were removed during the third postoperative week.

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