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R García Castro C Manzanos Yustas L Núñez Hipólito I Alcaraz León



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## Uso de microinjertos para la reconstrucción en heridas quirúrgicas en 21 casos

[[Translated article]Use of Micrografts for Postsurgical Wound Reconstruction: A 21-Case Series

García Castro, R.; Manzanas Yustas, C.; Núñez Hipólito, L.; Alcaraz León, I.  
*Servicio de Dermatología, Hospital Universitario Fundación Jiménez Díaz, Madrid, España.*

### **Autor para correspondencia:**

**Inmaculada Alcaraz León**

Email: ialcarazl@quiron salud.es

*To the Editor,*

The technique of stamp skin grafts or micrografts (MGs) has become popular as a therapeutic alternative for chronic wounds. More recently, their use has been proposed to accelerate the healing of surgical wounds (SW), either in second-intention closure or after the necrosis of a flap or graft<sup>1</sup>. They promote epithelialization and reduce pain in the surgical bed. It is a minor surgical procedure that can be performed outpatiently.

To perform this technique, the SW is measured, and a donor area of the same size is marked (e.g., thigh, scalp). Under antisepsis and local anesthesia (e.g., chlorhexidine and 2% mepivacaine), small thin grafts (< 1 mm thick, dermoepidermal) are extracted using a curette (4

mm up to 7 mm), forceps, scissors, or scalpel. The MGs are applied directly to the SW. Zinc oxide paste in cream or lotion is applied around the wound and covered with a calcium alginate dressing as the primary dressing.

In our series, a few details should be noted. In SWs of the lower limbs, in partially cavitated beds or those with poor granulation, the MG technique was complemented with a portable negative pressure therapy device for the first 7 days. Similarly, in patients with chronic venous insufficiency, compressive therapy was optimized by maintaining a compression dressing for 5 to 7 days until the first dressing change. MGs were re-evaluated at the 7- and 21-day follow-up and then individually.

We analyzed the patients' clinical characteristics, the procedural techniques, and the outcomes of 18 patients treated with MGs for SW closure at the Dermatology Department of the Hospital Fundación Jiménez Díaz (Madrid, Spain) from March 2021 through March 2023.

A total of 21 MGs were implanted in 18 patients with SWs. A total of 12 (66%) out of these were men and the median age was 82 years (range, 28-100). We found anticoagulant use (n = 9; 50%), diabetes mellitus (n = 6; 33%), and smoking (n = 2; 11%) among their potential comorbidities, with potential impact on healing.

The treated SWs were located on the head (n = 12; 57%) or the lower limbs (n = 9; 43%), with a median size of 6 cm<sup>2</sup> (0.8 cm<sup>2</sup> to 40 cm<sup>2</sup>). In 17 patients (80%), the SW was due to the loss or necrosis of previous grafts or flaps, while in 4 cases, MGs were used to promote the closure of a wound by second intention.

The donor sites were the scalp (n = 12; 57%) or lower limbs (n = 5; 23%) (e.g., thigh or leg); other sites were anecdotal (< 5%). The median number of MGs transferred per procedure was 10 (range, 6-40). The aesthetic outcome of the donor site after the procedure was acceptable in all cases, as assessed by the treating dermatologists, the patient, and their family members when evaluated through verbal interviews. The outcomes were optimal for the grafts extracted from the scalp.

After a median of 3.5 weeks (< 1 month), 15 patients (83%) achieved complete epithelialization after a single procedure. Only 3 patients required a second session, in whom complete healing went on for a total of 7 weeks (< 2 months); these were elderly patients (median age, 83 years) with SWs > 6 cm<sup>2</sup> located on the lower limbs, and with atrophic perilesional skin. The second sessions were performed after a 4-week interval (Fig. 1).

No postoperative infections or other complications were recorded.

Although, in our series, the MG technique proved useful for different anatomical locations where it was performed, in the lower limbs, we had to optimize compressive therapy, sometimes along with negative pressure therapy and repeated procedures in selected patients. According to the literature, we consider the scalp to be the donor area with the best healing, which is also more efficient for the recipient site, as the MGs will contain epithelial and mesenchymal stem cells that are crucial in wound epithelialization, with a higher likelihood and faster healing of the SW<sup>2-4</sup>. Since grafts are superficial—dermoepidermal—there is no risk of hair growth at the recipient site.

The main delays in epithelialization were observed in patients with large wounds or lesions located on the lower limbs, where the existence of poorly controlled chronic venous insufficiency negatively affected healing. Nevertheless, all patients achieved complete epithelialization, most in less than a month.

Of note, the learning curve for the MG technique is flat; furthermore, the technique is simple, quick (< 30 minutes), and requires minimal equipment. Similarly, in our experience, both patient and professional satisfaction is high, although it has not been objectively assessed through validated questionnaires for this purpose. The limitations of the study include its small sample size, the technical variability in obtaining the grafts, the fact that it is an operator-based technique, and the lack of control cases.

In conclusion, the MG technique is an additional therapeutic tool for the treatment of SWs, especially after the loss of previous full-skin flaps or grafts. It is a technically simple, quick, outpatient, and cost-effective procedure, useful even in elderly patients with comorbidities, allowing avoidance of more complex procedures and offering highly satisfactory results.

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## **Conflicts of interest**

None declared.

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**Figure 1.** Sequences of the MG technique in 3 patients from our series.

**TRADUCCIÓN DE LA FIGURA (NEGRO: ESPAÑOL · AZUL: INGLÉS)**

Basal

Procedimiento

+7 días

+ 60 días

Baseline

Procedure

+7 days

+60 days

Defecto pretibial tras necrosis de colgajo (extirpación de carcinoma basocelular de > 5 cm). Se realizaron 2 procedimientos de MI separados por 1 mes entre sí. Imágenes del 2º procedimiento.

Pretibial defect after flap necrosis—resection of basal cell carcinoma > 5 cm). Two MGs procedures were implanted, spaced 1 month apart. Images correspond to procedure #2.

Defecto en punta nasal tras extirpación de carcinoma epidermoide y estudio histológico convencional. Los bordes de la herida se aproximaron inicialmente con seda (cuerdas de guitarra). Posteriormente, se realizó una única sesión de MI con un resultado estético muy favorable.

Nasal tip defect after excision of squamous cell carcinoma and conventional histological analysis. The wound edges were initially approximated using silk sutures ("guitar strings"). Subsequently, a single MG session was performed, achieving a highly favorable aesthetic result.

Defecto en cuero cabelludo tras extirpación de carcinoma epidermoide y dehiscencia de sutura directa. Se realizó una única sesión de MI con un resultado estético aceptable

Scalp defect after excision of squamous cell carcinoma and dehiscence of direct suture. A single MG session was performed, resulting in an acceptable aesthetic outcome.



Defecto pretibial tras necrosis de colgajo (extirpación de carcinoma basocelular de >5cm). Se realizaron **2 procedimientos de MI** separados por 1 mes entre sí. Imágenes del 2º procedimiento.



Defecto en punta nasal tras extirpación de carcinoma epidermoide y estudio histológico convencional. Los bordes de la herida se aproximaron inicialmente con seda (cuerdas de guitarra). Posteriormente, se realizó **una única sesión de MI** con un resultado estético muy favorable.



Defecto en cuero cabelludo tras extirpación de carcinoma epidermoide y dehiscencia de sutura directa. Se realizó **una única sesión de MI** con un resultado estético aceptable.