



## Usefulness of elastic compression bandage on full-thickness skin graft in lower limbs: a series of two cases

*Utilidade do curativo compressivo elástico no enxerto de pele total nos membros inferiores: uma série de dois casos*

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### ABSTRACT

Reconstruction with grafting for defects resulting from the removal of squamous cell carcinoma in the lower limbs is a great challenge for the dermatological surgeon. A very thin skin for the receiving area, the inhomogeneity of the local vascularization and the transient venous insufficiency make it difficult to integration of the grafted skin in these regions. For the success of this type of procedure, some techniques can be used to repair these difficulties, such as an elastic compressive dressing that we use in the first postoperative days of a total skin graft on the foot and leg, with good results

**Keywords:** Carcinoma squamous cell; Foot; Leg; Graft survival

### RESUMO

*A reconstrução com enxertia para defeitos resultantes de exérese de carcinoma espinocelular nos membros inferiores é um grande desafio para o cirurgião dermatológico, tendo em vista que uma pele muito fina para a área receptora, a não homogeneidade da vascularização local e a insuficiência venosa transitória dificultam a integração da pele enxertada nessas regiões. Para o sucesso desse tipo de procedimento, podem ser usadas algumas técnicas para reparar essas dificuldades, como um curativo compressivo elástico que utilizamos nos primeiros dias de pós-operatório de enxerto de pele total no pé e na perna, com bons resultados.*

**Palavras-chave:** Carcinoma de células escamosas; Pé; Perna (Membro); Sobrevivência de enxerto

## Case Report

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## INTRODUCTION

Squamous cell carcinoma (SCC) is the second most common type of skin cancer.<sup>1</sup> When located in the lower limbs, complete excision is usually performed, resulting in a defect that may require a flap or graft for closure. There is a greater preference for reconstructions in this region using a flap rather than a graft to maintain local vascularization.<sup>2</sup>

In addition to the grafted skin being too thin for the defect area of the lower limbs, the inhomogeneity of the vascularization of the receiving region<sup>2</sup> and the transient superficial arterial and venous insufficiency caused by the surgical excision of the site make it challenging to integrate the graft.<sup>3</sup>

To improve the chances of graft integration in the lower limbs, some technical options, such as negative pressure therapy (NPT), which consists of providing subatmospheric pressure to the wound bed, have been used.<sup>4</sup> NPT improves the exudate of venous insufficiency transient and promotes local angiogenesis.

This report aims to demonstrate the use of elastic bandage (EB) over Brown's dressing to improve comfort and protection for the patient. We report two patients where the autograft technique was used (in the foot and the leg), with good integration, aesthetic, and functional results.

## METHOD

We treated two patients with SCC in the left foot and the right leg:

**Patient 1:** Woman, 78 years old, skin phototype III, from Londrina (PR), with erythematous plaque, 18 mm x 19 mm, on the left foot, compatible with SCC by histopathology. The lesion was excised with 5 mm safety margins, with free margins according to the anatomopathological examination. The resulting defect was 2.9 mm in the longest axis and a graft was chosen (Figures 1, 2, 3, and 4).

**Patient 2:** Man, 76 years old, skin phototype III, from Londrina (PR), with erythematous plaque, 29 mm x 15 mm, on the right leg, compatible with in situ SCC by histopathology. The lesion was excised with 5 mm safety margins, with

free margins according to the anatomopathological examination. The resulting defect was 39 mm in the longest axis and a graft was chosen (Figures 5, 6, 7 and 8).

Description of the Technique of patients 1 and 2 (Figures 1, 2, 3, 4, 5, 6, 7, and 8):

- a) Patient in horizontal dorsal decubitus;
- b) Marking of the lesion using methylene blue or surgical pen with 5 mm margin (Figures 1 and 5)
- c) Antisepsis with topical 10% polyvinyl iodine
- d) Placement of surgical drapes;
- e) Infiltrative anesthesia with 2% lidocaine with vasoconstrictor;
- f) Lesion incision using blade 15 and block excision;
- g) Hemostasis;
- h) Removal of the donor area (full-thickness graft). Patient 1, donor area from the left iliac fossa region. Patient 2, donor area from the inner arm;
- i) Positioning the graft in the receiving area using 4.0 monofilament nylon and cardinal stitches with one of the longest points for fixation of the Brown's dressing. Between cardinal stitches, simple stitches with 4.0 mononylon (Figures 2, 3, 6 and 7A) were performed;
- j) Fixation of Brown's dressing (Figures 3A and 7A);
- k) Wrapping with an elastic bandage, two layers Coban® 3M, 35-40 mmHG (Figure 3B, 7 B e 8A).

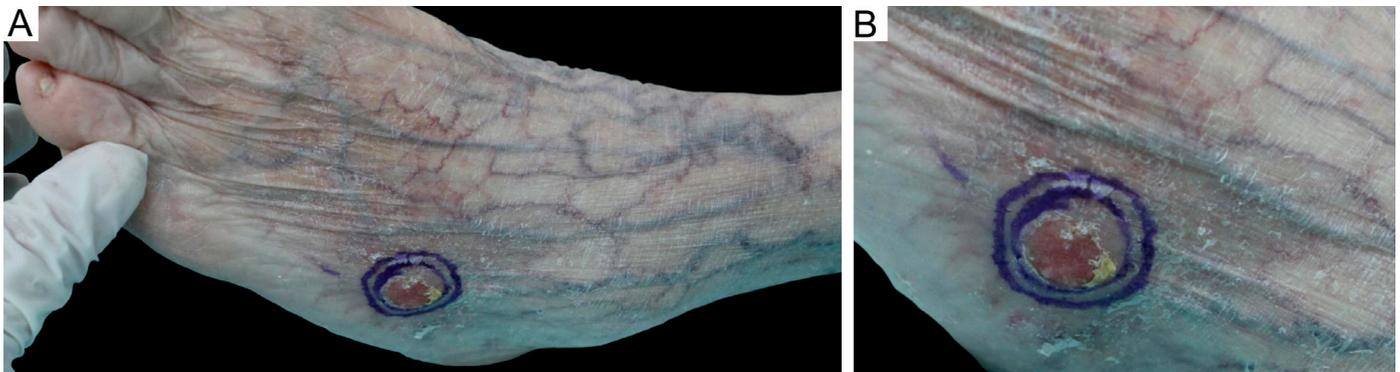
## RESULTS

**Patient 1:** The patient evolved uneventfully in the immediate postoperative period. There was good healing and setting with satisfactory aesthetic results in the late postoperative period. (Figures 4A and 4B)

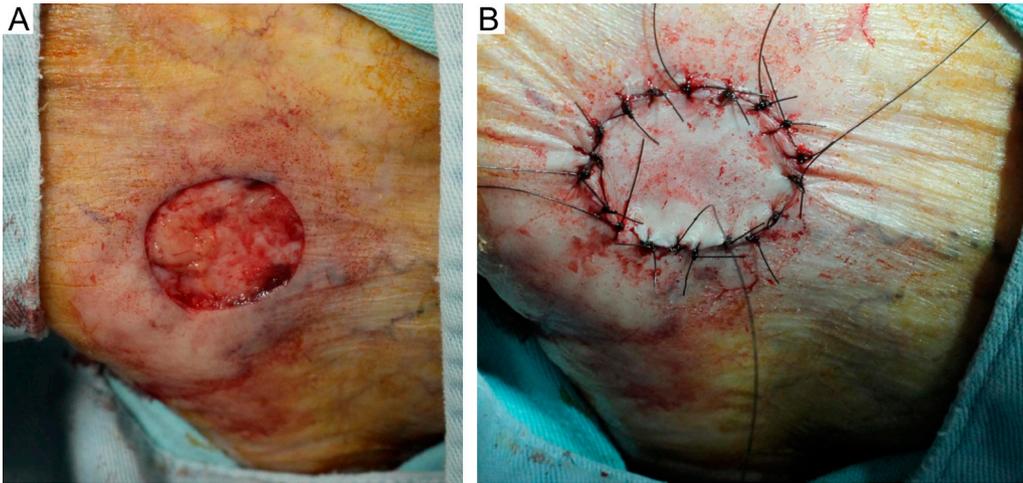
**Patient 2:** The patient evolved uneventfully in the postoperative period. There was good healing and attachment, with no epidermolysis or postoperative necrosis. (Figure 8B)

## DISCUSSION

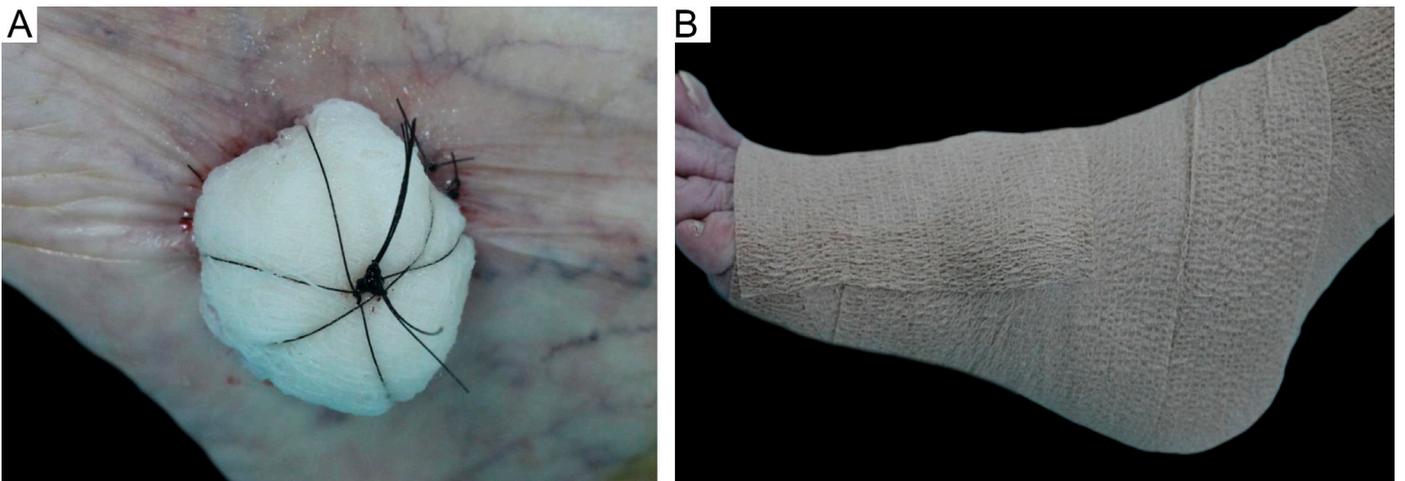
Elastic stockings and compressive dressings are therapies described in the treatment of ulcers due to venous or mixed



**FIGURE 1: A - Squamous cell carcinoma in the left foot. B - Injury Detail**



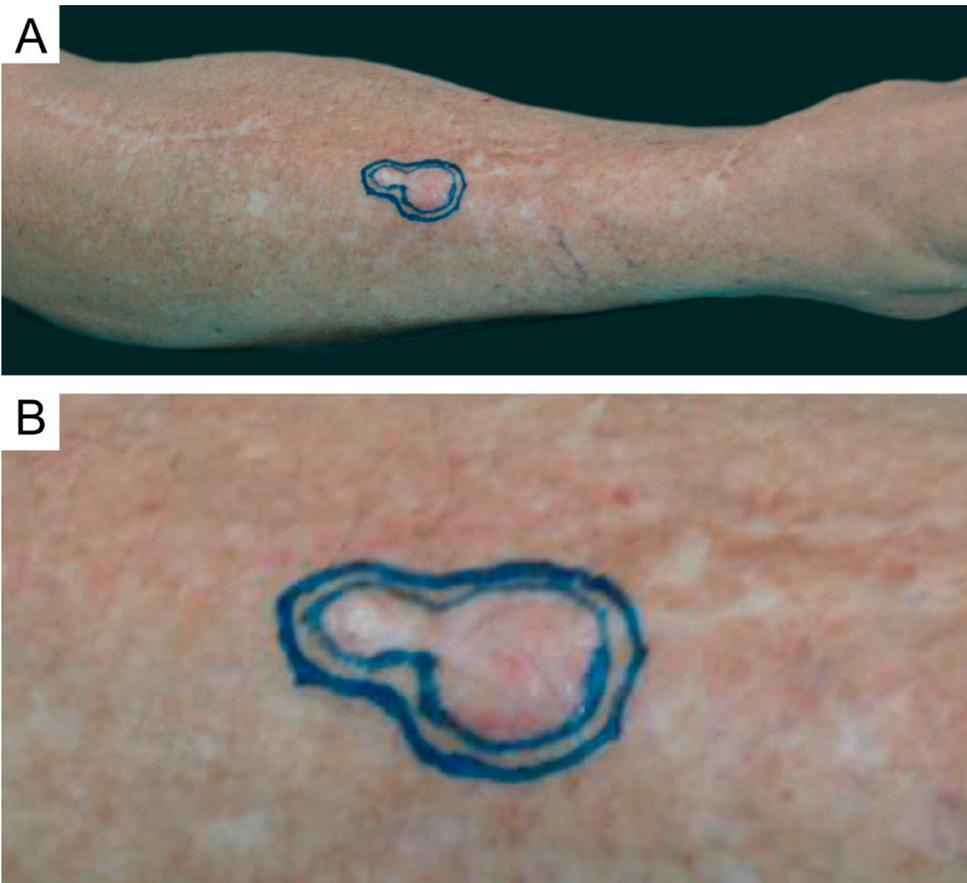
**FIGURE 2:** A - Resulting defect in left foot. B - Total skin graft sutured



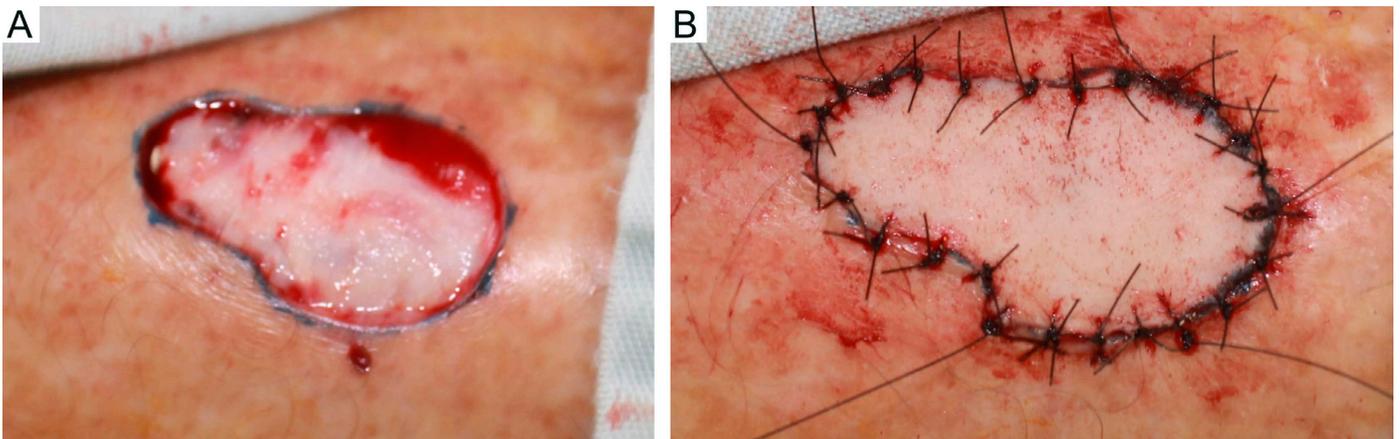
**FIGURE 3:** A - Grafting of the left foot with a Brown dressing. B - Elastic band over the Brown bandage



**FIGURE 4:** A - Left foot grafting on the fifth postoperative day (Brown dressing removal). B - Grafting 6 months after surgery



**FIGURE 5: A -** Squamous cell carcinoma in situ in the right leg. **B -** Detail of the lesion



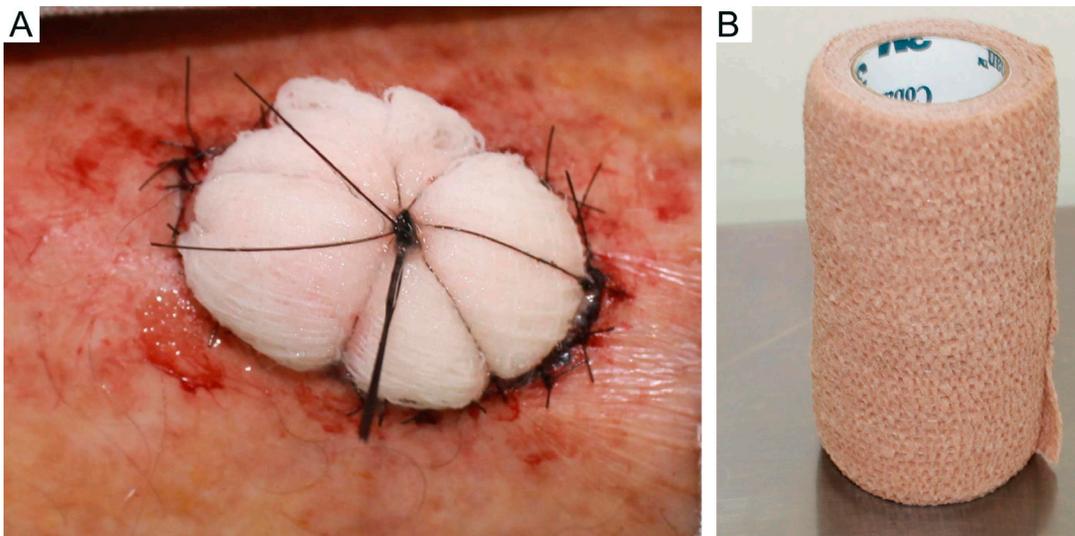
**FIGURE 6: A- Resulting defect. B - Total skin grafting sutured**

insufficiencies, and in addition to reducing edema, they improve local perfusion.<sup>5</sup> Surgical excision of the lower limbs causes a temporary superficial venous and arterial insufficiency,<sup>3</sup> which, by itself, leads to graft failure.

Devices that provide negative pressure therapy (NPT) can also facilitate graft take. The applied subatmospheric pressure

reduces edema and promotes local angiogenesis.<sup>4</sup> The problem with NPT is its high cost, making its use unfeasible.

We used a low-cost elastic bandage (EB) (Figure 7B). We kept the Brown's dressing on for five days and two more days after its removal, totaling seven days after surgery (time for local installation of a true circulation). Adequate limb compression



**FIGURE 7:** A - Right leg grafting with Brown dressing. B - Elastic bandage roll (Coban® 3M)



**FIGURE 8:** A - Elastic band over Brown's dressing involving the entire segment of the right leg. B - Seventh day after surgery

(according to the manufacturer information, 2-layer Coban® 3M provides 35-40mmHg compression for up to seven days) improved venous pumping as a reduction in local edema without impairing vascular neof ormation (Figures 4A and 8B).

Patient 1 showed signs of improved venous insufficiency. There was a reduction in varicosities of the foot around the graft while she used EB (Figure 4A). Also, the bandage helped protect Brown's dressing from external trauma. (Figures 3A and 3B).

Before we implemented the EB technique, the success of lower limb graft survival was poor in our service. We made the graft intending to use it as a biological dressing in cases where

the flap was not possible due to the lack of tissue mobility. Epi-dermolysis and necrosis were visualized when Brown's dressing was removed.

The patients reported in the present study who used EB over Brown's dressing had higher stability of the grafted area, with comfort and local protection. There was good integration and good aesthetic and functional results.

#### CONCLUSION

The use of EB can be a good option for successful lower limb grafts. ●

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Approval of the final version of the manuscript; study design and planning; preparation and writing of the manuscript; data collection, analysis, and interpretation; active participation in research orientation; intellectual participation in propaedeutic and/or therapeutic conduct of studied cases; critical literature review; critical revision of the manuscript.

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