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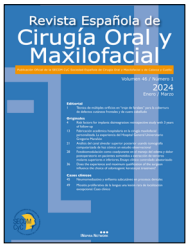

Editorial

The multi-hole "faralaes-suit" technique for coverage of frontal and scalp skin defects

Técnica de múltiples orificios en "traje de faralaes" para la cobertura de defectos cutáneos frontales y de cuero cabelludo

Traditionally, closure of complete skin defects at the level of the scalp and frontal region has been performed by means of primary closure, free skin grafts, allografts, titular expanders, local flaps, pedicled regional flaps or microvascularized free grafts[1,2]. Closure by secondary intention is usually a residual option in cases of failure of previous alternatives or significant comorbidity of the patient that makes it impossible to undergo more complex procedures or under general anesthesia[3]. In these cases, the formation of adequate granulation tissue can be obtained even without the presence of the pericranial layer or periosteum, and it may serve as a surgical bed prior to the insertion of free skin grafts, allografts or local flaps[4].

For cases in which a significant frontal skin or scalp defect is generated without preservation of the periosteum, what we have called the Multi-Hole "Faralaes-Suit" Technique (MHFST) allows new soft tissue to be generated from bone marrow cells of the diploe and also from the underlying frontal sinus membrane (in cases of frontal skin defects), which may be an acceptable alternative after the failure of previous surgical options or in medically compromised patients. The key step is to create holes through the external table of the frontal/calvarian bone with the help of a round drill, until reaching the diploe or the mucosa of the frontal sinuses. Holes of approximately 2 mm in diameter are evenly distributed along the entire length of the defect, at an approximately distance of 0.5 cm from each other. Progressively and over several weeks, new vascularized soft tissue is generated, which allows complete coverage of the frontal/calvarian bone or the generation of a vascularized surgical bed that allows the apposition of a free skin graft in a second phase.

As an illustration of this method, the following case serves as an example: a 39-year-old woman who presented to our department with a 5-cm rapidly growing mass in the central region of the forehead (Figure 1), which debuted a month earlier as a granuloma-type lesion over a scar tissue that was infiltrated with fatty tissue following Coleman's lipoinfiltration technique 10 years earlier, as a treatment for lipoatrophy of the frontal skin subsidiary to localized scleroderma in "coup de sabre". The patient reported having started medical treatment to promote pregnancy four weeks before the onset of the forehead tumor. PET-CT scan reported a frontal lesion measuring 49 x 27 mm that protruded into the subdermal space with a hypermetabolic signal (SUVm: 6.8) suggestive of neoplasia, without invasion of the underlying bone and without the presence of regional or distant disease. Computed tomography (CT) scan showed a 24 x 51 x 42 mm exophytic lesion with well-defined margins. A small 1.5 cm area of the anterior wall of the frontal sinus appeared thinned. An incisional biopsy of the lesion was performed with the generic diagnosis of sarcoma. The patient underwent tumor removal with safe surrounding margins of approximately 2 cm. A 27 x 25 mm resection of the external cortex of the frontal bone above the frontal sinus was also performed to obtain deep free margins. Microscopic examination revealed spindle-shaped neoplastic cells with a scleriform pattern in the dermis and hypodermis. The cytoplasms were eosinophilic with rounded or fusiform nuclei showing a slight presence of mitosis, except in the foci where cytological grade 2 was more abundant with greater mitotic activity (up to 3 mitoses per high power field). A decrease in adnexal structures and infiltration of subcutaneous fat in a honeycomb pattern was also observed. The pathological diagnosis was *dermatofibrosarcoma protuberans* with areas of high-grade fibrosarcoma.

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The final TNM staging was set at pT3NxMx. Primary reconstruction was performed with a 9 x 6 cm radial forearm free flap (RFFF) with complete coverage and good aesthetic results. Unfortunately, the RFFF suffered complete necrosis due to venous thrombosis of the donor and recipient veins at the anastomosis. Under general anesthesia, removal of the entire flap was performed and MHFST was performed immediately as described below (Figure 2).

Considering some technical aspects, once the frontal bone/cranial bone is completely exposed after tumor removal or as a second surgical procedure, careful debridement of the skin edges is performed until new bleeding is obtained. This maneuver will allow circumference granulation tissue to grow centripetally from the periphery of the defect. Subsequently, several 2 mm diameter holes are made with a rounded drill through the external craneal cortex of the frontal bone until the diploe or mucosa of the frontal sinus was exposed. This is usually identified when bleeding from the diploe is observed in those areas where there is no underlying frontal sinus. For those areas located more caudally on the frontal bone, the frontal sinus lies just below the external craneal cortex, so ostectomies through the foramina must be performed carefully so as not to damage the underlying mucosa of the sinus (Figure 3). This is extremely relevant as the growing soft tissue in this area can be expected to derive from cells located in the membrane. The holes should be distributed evenly along the entire length of the defect approximately 0.5 cm apart to promote independent foci of soft tissue growth that may eventually converge to create a uniform *pannus* covering the exposed bone.

Figure 1. Clinical view of the lesion in the forehead.

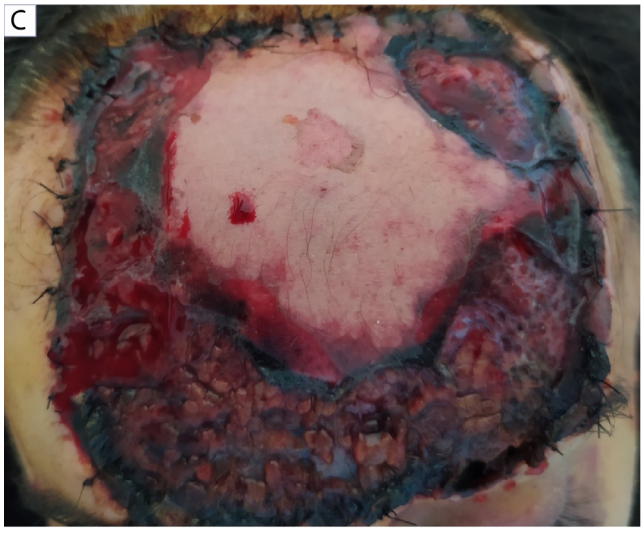

Figure 2. A: surgical excision with wide margins. B: immediate reconstruction with a radial forearm free flap. C: subtotal necrosis of the free flap due to congestive vascular anastomosis.

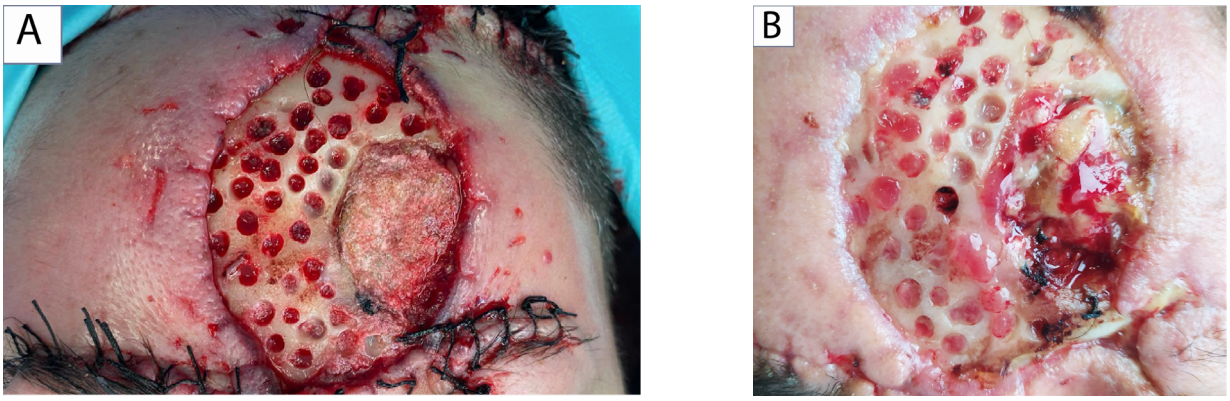

Figure 3. "Multi-Hole Faralaes-Suit Technique". A: immediate surgical view. B: clinical view 2 weeks-postoperatively. Note new formation of soft tissue growing through the holes form the diploe and from the frontal sinus membrane.

The defect is covered with an occlusive healing dressing based on balsam of Peru and castor oil that must be removed and changed for a new one every two days in outpatient basis. Slough and dry crusts must be removed until healthy soft tissue is observed before placing the new occlusive dressing. Once healthy granulation tissue is seen growing in the orifices, the duration of occlusive dressings may depend on the size of the defect and will take from several weeks to several months. Islands of growing granulation tissue in an "archipelago pattern" may eventually converge and join together until complete coverage of the defect is observed. Finally, metaplasia of the granulation tissue can be observed in a skin-like tissue, although frequently of inferior quality. Alternatively, a split-thickness skin graft from the supraclavicular, thigh, or abdominal region, depending on the size of the defect, may be placed over the granulation tissue in a booster technique if spontaneous metaplasia is delayed in time, if not. forms completely, or if the aesthetic appearance of the new skin is not acceptable.

In summary, the use of this technique allows to repair defects of the frontal skin or scalp after oncological resections when other options such as wide local, regional or free microvascularized flaps are not available or have previously failed. MHFST allows the generation of optimal granulation tissue from the membrane of the frontal sinus and diploe in an "archipelago pattern" that ultimately converges into a continuous *pannus* that effectively covers the defect and favors by metaplasia the appearance of a skin-like tissue or a well-vascularized underlying tissue that supports the posterior apposition of a split-thickness skin graft.

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REFERENCES

1. Zhu S, Liu Y, Zang M, Chen B, Li S, Xue B, et al. Facial Defect Reconstruction Using the True Scarless Pre-Expanded Forehead Flap. J Craniofac Surg. 2018;29(5):1154-60. DOI: 10.1097/SCS.0000000000004450.
2. Quatrano NA, Dawli TB, Park AJ, Samie FH. Simplifying Forehead Reconstruction: A Review of More Than 200 Cases. Facial Plast Surg. 2016;32(3):309-14. DOI: 10.1055/s-0036-1579780.
3. Olson MD, Hamilton GS 3rd. Scalp and Forehead Defects in the Post-Mohs Surgery Patient. Facial Plast Surg Clin North Am. 2017;25(3):365-75. DOI: 10.1016/j.fsc.2017.03.008.
4. Sokoya M, Inman J, Ducic Y. Scalp and Forehead Reconstruction. Semin Plast Surg. 2018;32(2):90-4. DOI: 10.1055/s-0038-1642638.