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Scalp Defect Reconstruction Using a Bilayer Dermal Wound Matrix and a Split-Thickness Skin Graft[☆]



Reconstrucción de defecto quirúrgico en el cuero cabelludo mediante matriz dérmica bicapa e injerto laminar

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Introduction

Skin substitutes are an alternative that should be taken into account for reconstruction of skin defects. This option is even more important when treating large defects or defects in which there is no sufficiently vascularized bed to enable viability of the graft.

The many types of skin substrates include the bilayer dermal wound matrix Integra, which was introduced into clinical practice in Europe in 1996. Since its development, it has been widely used to treat burns and chronic ulcers and, subsequently, in the reconstruction of skin defects after removal of malignant tumors.¹

Technique

A 79-year-old man was treated for atypical fibroxanthoma on the scalp using fresh-tissue Mohs micrographic surgery. This left a skin defect measuring 4 cm in diameter in the frontoparietal area. The first stage, which included the periosteum, revealed a deep contact area in the center of

the specimen. Before reconstruction of the defect began, the bone was drilled at this level.

The resulting defect was covered using the bilayer dermal wound matrix Integra. This skin substitute is formed by a mesh of bovine collagen bound covalently to chondroitin-6-sulfate and covered by a layer of silicone. It aims to favor proliferation of fibroblasts and collagen synthesis through the formation of a neodermis that enables the viability of a subsequent graft,² as performed 4 weeks later with a split-thickness graft harvested from the thigh.

Indications/Contraindications

Reconstruction of skin defects of the scalp is hampered mainly by distensibility in the area. Thus, in defects greater than 3 cm, surgical options are limited to grafts and various types of plasty that involve mobilizing large volumes of tissue. In this case, the absence of a well-vascularized bed owing to removal of the periosteum hampered placement of a graft or healing by secondary intention. Skin substitutes, which are particularly useful in large defects, come into their own in such cases. Furthermore, it is important to note that skin substitutes are a good option in older patients with comorbid conditions, since the procedure is quick and reduces the risks associated with anesthesia.³ In addition, use after removal of aggressive tumors enables early diagnosis of possible recurrences.

The disadvantages of skin substitutes, on the other hand, include the need for 2 stages, as well as a regimen of regular

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dressings with close follow-up of progress. This approach is also costly.

Complications

The main complications of this approach during the first stage of the procedure are infections and the formation of fluid collections, which may prevent the matrix from attaching. As for the second stage, the main complication is necrosis of the graft over the matrix.

Conclusions

Skin substitutes are an alternative worthy of consideration in the case of large skin defects with no sufficiently vascularized bed. In addition, they are not complex for surgeons to apply and reduce the risks associated with anesthesia.

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Appendix A. Supplementary data

Supplementary material related to this article can be found in the online version at doi:<https://doi.org/10.1016/j.ad.2018.12.006>.

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