

Direct application of dermal regeneration template on scalp wounds with denuded calvarium

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Introduction:

The use of dermal regeneration templates in scalp wounds devoid of pericranium is well-described, with reports of wounds as large as 400 cm² being resurfaced with this method.¹ However, the size of the "avascular" segment(s) (i.e. segment(s) devoid of pericranium) is often unquantified. Additionally, most reports describe burring of the outer table as a preliminary step,²⁻⁴ which can lead to complications such as full-thickness bone loss, excessive bleeding, dural injury/exposure, and weakening of the cranial vault.⁵ The purpose of this study is to report the successful use of Integra in full-thickness scalp wounds devoid of pericranium through direct application on cortical bone without preliminary burring of the outer cortex.

Methods:

A series of four consecutive full thickness scalp wounds devoid of pericranium were treated with direct application of Integra on intact cortex. The defects arose following extirpation for locally advanced skin malignancies in 2 patients (Figure 1), revision of a prior craniotomy wound in 1 patient, and resurfacing of a fourth degree scalp burn in 1 patient. The size of the avascular segments ranged from 25 cm² to 120 cm². After a period of 3-4 weeks, split thickness skin grafting was performed. Follow up ranged from 3-6 months following skin grafting.

Results:

The percent take of subsequent skin grafting was excellent, ranging from 85% to 100%. In the case of 85% graft take, partial failure of skin grafting with Integra was later determined to be secondary to undiagnosed underlying osteomyelitis associated with a prior bone flap. We noted that take was more successful in acute wounds (Table 1) than in subacute or chronic wounds.

Table 1

Case	Sex, age (yr)	Diagnosis	Duration of follow-up	Area of exposed denuded cranium (cm ²)	STSG % Take
1	M,84	SCC	6 mo	71	100
2	F,88	SCC	4 mo	113	97
3	M,50	4 th degree burn	3 mo	25	93
4	M,69	Pressure necrosis scalp	3 mo	120	85

Figure 1

Case of patient with locally advanced SCC of the scalp (left), s/p excision down to cranium with direct placement of Integra on cranium (center). Full take of second stage skin graft (right).



Conclusions:

Integra can be used directly on cortical bone without preliminary burring of the outer table, particularly in acute wounds. This may avoid the potential morbidity of thinning the calvarial bone while preserving this step as a backup option.

References

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