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Correspondence and Communications

Use of innovative negative pressure therapy for cartilage exposure in microtia reconstruction

Dear Sir,

Autologous cartilage staged reconstruction remains the most common procedure chosen by plastic surgeons for microtia repair.[1] Currently the more frequently used techniques are variations of the procedures described by Brent, Nagata and Firmin.[2]

Complication rate is hugely variable, with an incidence ranging from 0% to 72,9%.[1] Among these, those of the recipient site are relatively frequent and, more specifically, delayed wound healing leading to skin necrosis and cartilage exposure.[3] Conservative treatment is considered when the defect is very small and there is no cartilage exposure or the cartilage surface exposed is minimal. Nevertheless, when the cartilage framework is exposed, a salvage method is mandatory and a flap is needed in the majority of the cases.

To our knowledge, there are no previous reports of the use of negative pressure wound therapy in microtia reconstruction when cartilage is exposed. We present a case of framework exposure treated by negative wound pressure with total resolution without any additional procedures needed.

We report a case of an 8 year old woman with a lobular microtia. We planned a two stage reconstruction technique. First stage surgery was performed without complications and the patient was discharged at 5 days postoperatively. Some not well delimited skin suffering was noted at first revision and finally, skin necrosis was clearly established at 15 days postoperatively. Then, surgical debridement was performed showing a defect of 2×1 cm, where two areas of cartilage exposure were identified (Figure 1). We planned treatment with negative pressure therapy SNAP™ (Acelity®) at −125 mmHg. This is a portable and quite comfortable negative pressure wound therapy that allowed the patient to continue her normal activity (Supplementary figure). Revisions were made once a week and SNAP™ therapy was maintained for 3 weeks leading to complete granulation and total cartilage coverage. Complete epithelization was achieved 2 weeks later (ointment dressings were changed daily by the parents during that period) (Figure 2).

Several flaps have been widely used for cartilage coverage in microtia reconstrucion.[1,3] Temporoparietal fascial flap (TPF) is usually applied in the second stage of auricular reconstruction but it can also be used to cover defects of the anterior surface of the framework especially when they appear in the upper third. When TPF is not available, deep temporoparietal fascial flap (DTF) can be used in a similar way, taking into account that vascularization of this flap is weaker than TPF. Mastoid fascial flap is an easily dissected and reliable flap that perfectly covers the posterior surface of the framework and defects of the lower two thirds. Oyama et al. consider this flap as the first choice for salvage of cartilage exposure.[4] Local skin flaps can be an option for small defects in the posterior surface but their use is restricted due to their unstable vascular supply and limited size.

Negative pressure therapy is difficult to apply to the ear due to its irregular surface and round contour that make it almost impossible achieve vacuum. Kim et al. published a customized negative pressure system to treat

Figure 1 Skin necrosis and cartilage exposure 15 days postoperatively after microtia reconstruction.

Figure 2 Complete epithelization after treatment.

an ear wound.[5] The system achieved granulation tissue that was finally grafted. However, the main disadvantage of their system is the necessity of hospitalization due to the connection to wall suction. SNAP™ therapy adds a sticky hydrocolloid dressing that achieves total sealing even in irregular surfaces.

We propose a negative pressure system as first choice therapy for small areas of cartilage exposure in microtia reconstruction. Granulation and epithelization can be achieved within few weeks with a very comfortable equipment and no additional surgical intervention needed.

Conflict of interest statement

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.bjps.2018.10.044.

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