Management of Peri-Implant Hypertrophic Scarring for an Ear Prosthesis

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Abstract: The clinical report describes a case of a 14-year-old patient with a traumatic amputation of the left auricle and severe hypertrophic scarring. The management of peri-implant soft tissue was challenging, but successful in the rehabilitation of a patient with auricular prosthesis retained by implants. The prosthesis restored the patient's facial aesthetics and contributed not only to function, but also to psychosocial well-being.

Key Words: Aesthetics, maxillofacial prosthesis, prosthesis retention, rehabilitation

The goal of any reconstructive procedure is to quickly restore the form and function as best as possible.[1] Facial prostheses can be attached to the face with transcutaneous osseointegrative (TCOI) implants that have better stability.[2] The most common surgical technique for craniofacial TCOI implants is realized in 2 steps, with 6 to 12 weeks between surgeries to allow time for osseointegration and edema subsiding. In these cases, the patients may still be at risk of infection.[3] However, a postsurgical stent can be attached to the abutments to divert the edema from the surgical site and decrease fibrin matrix formation around the abutments.[4] This article describes the management of hypertrophic scar tissue around the implants and the successful rehabilitation of ear prosthesis retained by TCOI implants in a 14-year-old male with a traumatic amputation of the left ear.

CLINICAL REPORT

A 14-year-old male presented at the School of Dentistry after traumatic amputation of his left external ear in a Rottweiler attack.

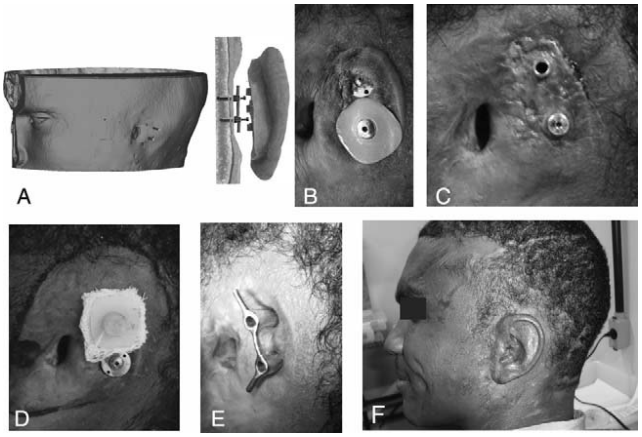

FIGURE 1. (A–F) Facial implants/prosthesis planning and management of peri-implant hypertrophic scarring by using composite figures. (A) Virtual location of the implants at the sites planned and mirroring of the virtual ear-prosthesis. (B) Hypertrophic scarring around implant. (C) Final view after surgical procedure. (D) Pressure stent affixed to the healing abutment. (E) Bar with extra-long abutments. (F) Final ear prosthesis held with bar/clip system.

The prosthetic rehabilitation determined was ear prosthesis with TCOI implants (Fig. 1A). The surgical procedure was performed into 2 stages. The first stage involved inserting 2 TCOI implants (4.1 × 6 mm; S.I.N. of the surgery Company, Sao Paulo, SP, Brazil) in the mastoid bone.[1] During the second stage (after 4 months postsurgery), the subcutaneous tissue around the implants was reduced and the skin was perforated with a circular biopsy punch.[1] The healing abutments were screwed into the TCOI implants. However, after 2 weeks, the patient had hypertrophic scarring and another surgical procedure was performed to thin the soft tissue because it was covering the 7 mm healing abutments (Fig. 1B and C). A custom orthosis was affixed to control hypertrophic scarring (Fig. 1D).

The patient was instructed to clean the peri-implant tissue only after 5 days postoperative using neutral soap and water, and a soft toothbrush and gauze. However, 15 days postoperative, the patient had inflammation, granulation, and moist erythematous tissue growing over the implant abutments. Treatment protocol included the daily replacement of bandages with topical application of the antimicrobial ointment (Neomycin Sulfate 5 mg and Bacitracin 250 UI, Nycomed Pharma Ind Co, Santo Amaro, SP, Brazil) on the suture line and around the abutments 3 times a day during the course of 2 weeks.[5] Forty-five days after surgery, the inflammation had significantly subsided (Fig. 1E).

An auricular prosthesis was cast from the tissue recovery with a high consistency silicone (MED 4014, NuSil Technology LLC, Carpinteria, CA). External painting was used to achieve a satisfactory color match. (Fig. 1F). The patient had clinical follow-ups for 4 years and inflammation in the peri-implant soft tissue has not been present for more than 3 years.

DISCUSSION

The most common complication with TCOI implants is skin reactions around the transcutaneous abutments.[5] Tissue reactions and hypertrophic scarring can occur from the moment the healing abutments are placed, which was observed in our clinical report. In these patients, when feasible, soft tissue around the implants should be removed during the first stage of the procedure to the extent that the epidermis, split-thickness dermis above the hair follicles, and periosteum remain. Initially, only the surgical

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removal of the hypertrophic scar could be recommended; however, this isolated method is likely to lead to recurrence.[6] In our study, the association of the surgical removal of hypertrophic scar, together with compressive therapy, was recommended by maintaining a polished acrylic orthosis in the region as a way of preventing recurrence. The differential of retaining the custom orthosis to a healing abutment was to apply pressure to the skin and direct the edema and subsequent collagen formation away from the peri-implant tissue.[7] In that way, the skin was immobilized and yet maintained an adequate blood supply, which was effective in preventing the recurrence of hypertrophic scarring and promoting adequate tissue to the prosthetic rehabilitation procedure.

It is important to emphasize that compressive therapy must be associated with topical medication and proper hygiene around the TCOI implant abutments. Normally, exogenous agents such as sebaceous secretion, epithelial remains, and keratin, accumulate around the abutments and need to be removed daily.[7] According to Klein et al,[5] postsurgical skin cleansing contributes to a healthy peri-implant. The probable reason for postoperative soft tissue complications in this study was poor personal hygiene, which caused skin irritation with the movement of the skin combined with hypertrophic scarring. On 1 rare occasion, the skin around the abutment became inflamed from a mild infection. Treatment with custom orthosis, followed by hygiene and topical medication, was successful against the risk of recurrence of hypertrophic scarring. However, in the case of serious percutaneous infections, it depends on the patient's cooperation in properly cleaning the area that had been previously committed to the procedures involved in making the facial prosthesis.

Therefore, the association of preventive and therapeutic methods seems to be promising in the treatment of hypertrophic scars as carried out in the clinical case presented in our study. Concern about the removal of preoperative subcutaneous tissue as a way to minimize skin mobility, in accordance with the patients' awareness regarding the importance of personal hygiene for tissue health, should be recommended for the future success of prosthetic rehabilitation.

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Pediatric Glial Heterotopia in the Medial Canthus

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Abstract: Glial heterotopias are rare, benign, congenital, midline, and nonteratomatous extracranial glial tissue. They may be confused as encephalocele or dermoid cysts and are mostly present in the nose.

An 8-month-old African female child presented with a slow growing paranasal mass. The mass had been present at the left upper medial canthus since birth and had slowly and progressively enlarged. There was no communication between the mass and the cranial cavity during the operational procedure. The mass was immunohistochemically positive for S-100 protein as well as for glial fibrillary acidic protein, but negative for proliferating cell nuclear antigen. This suggested that the mass was composed of benign glial tissues with many astrocytes.

The purpose of this report is to demonstrate the first patient with pediatric glial heterotopic tissue in the medial canthus and to report the clinical importance of its immunohistochemical findings.

Key Words: Astrocyte, glial fibrillary acidic protein, glial heterotopia, immunohistochemistry, medial canthus

Glial heterotopia (GH) is a rare developmental abnormality composed of collections of benign mature glial tissue in different locations that are distant to the central nervous system (CNS) with no intracranial connectivity. The most common involved site is the external and internal nose, and as a result, this type of GH is also known as nasal glial heterotopia (NGH) or nasal glioma.[1,2]

Glial heterotopia is not easy to differentially diagnose among frontonasal swellings. Dermoid or sebaceous cysts, hemangiomas, optic nerve gliomas, any form of astrocytomas, and congenital encephaloceles are also diagnosis possibilities. This rare GH could be thought of as an embryonic developmental disease at birth or in early childhood. Radiographic examination is essential to differentiate GH from encephaloceles and a histological final diagnosis

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