PERI-IMPLANTITIS IN IMPLANT RETAINED AURICULAR PROSTHESIS
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ABSTRACT

Implant retained auricular prosthesis eliminates the need for the adhesives and provides better retention compared to conventional prosthesis. However, the main limitation with the use of craniofacial implants for retention of auricular prosthesis is the maintenance of good hygiene. Factors such as the bar type of attachment design, thick skin graft around implants and the poor hygiene compliance of the patients can result in peri-implantitis. This article presents a clinical report on peri-implantitis around craniofacial implants, which occurred due to a thick skin graft and its treatment modalities.

Keywords: Extraoral implant; Thick skin graft; Peri-implantitis; Hygiene maintenance

Introduction

Auricular defects result from acquired, congenital malformations, tumors or accidents, which create esthetic, functional and psychosocial problem to the patient. Rehabilitation of these defect include; either by surgical reconstruction or prosthetic rehabilitation. Extraoral implants have been used for better retention of the auricular prosthesis as compared to adhesives or frameworks. However, the main limitation with extraoral implants including implant retained auricular prosthesis is the need for maintenance especially of the soft tissue around the implants. Even though the Hader bar with ERA attachment provides stable retention for the auricular prostheses, this design limits access for hygiene procedures. Though the failure of rate for extraoral implants due to peri-implantitis is less, it can lead to failure of treatment due to associated pain and discomfort. This clinical report presents a case of peri-implantitis associated with an implant-retained auricular prosthesis due to thick skin graft and its successful management.

Case Report

A 40-year-old male patient was referred to the Maxillofacial Prosthetics Service for the prosthetic rehabilitation of his right auricular defect, which was occurred due to trauma occurred 6 months earlier (Figure 1). On examination, his partial antihelix was remaining (Figure 2). The treatment plan consisted of fabrication of implant retained right auricular prosthesis using Hader bar with ERA attachment design. After evaluation, first stage surgery was performed with the placement of two (3.7 mm X 4 mm) craniofacial implants (Entific, Gothenburg, Sweden) in the temporal bone (Figure 2). After 7 months, second stage surgery was performed with a partial thickness skin graft. Following healing, 5.5 mm abutments were secured to the fixture and Hader bar with ERA attachment was fabricated to retain the auricular prosthesis. The prosthesis was fabricated (Figure 3) with the silicon elastomer (MDX 4-4210, Dow Corning, USA) and home care instructions were given.

On a recall visit after one month, there was mild bleeding and accumulation of crusting's around both implants. The soft tissue reaction was graded as Hoglers grade III i.e., redness, moistness, and moderate swelling with tissue granulation around the abutment (Figure 4). The peri-implantitis was managed by daily cleaning the tissues around implants, removing the crusting's, cleaning of the implant abutments and Hader bar with hydrogen peroxide (1:1 diluted with normal saline) and with betadine (Figure 5-7). After three weeks, peri-implantitis subsided with Hoglers Grade 0: reaction free skin (Figure 8). The patient was strictly advised for hygiene maintenance of the implants and the prosthesis.

Discussion

The lack of seal between the soft tissue and the implants play an important factor in the occurrence of the peri-implantitis around craniofacial implants. The pathogens most commonly related to the soft tissue infection are; Staphylococcus aureus, Pseudomonas aerugenosa, Enterococcus spp and Klebsiella spp. If there is absence of a barrier to the microflora, the pathogens can easily penetrate into the deeper tissues and cause peri-implantitis. In extraoral implants, the factors related to peri-implantitis are thick skin graft, movement of skin around the abutment, bar-clip design for retention of the prosthesis, improper hygiene, humid environment and growth of opportunistic microorganisms. Furthermore, a thick skin graft may affect the seal of connective tissue due to its mobility and may also cause difficulty for the patient to maintain hygiene around the area. This may cause accumulation of debris and colonization of microorganisms, which may lead to peri-implantitis.

In this patient, the major soft tissue problems around implants (erythema with granulation formation, infection) was due to tissue mobility around the implants and excessive tissue thickness which were seen in this patient and continued poor hygiene. Hoglers grade III peri-implantitis was managed by cleaning with diluted hydrogen peroxide, betadine, curetage and regular hygiene maintenance. The rubber tip of the toothbrush or tufted dental floss were also advised to clean around the abutment. This reduces the bacterial load around the skin-abutment interface and promotes healing.

After the management of peri-implantitis, further treatment options were explained to patient. The first option was of changing Hader bar with ERA design to other mode of retention such as magnets. The magnets offer satisfactory retention but lacks resistance to lateral forces. The second option was
to surgically reduce the thickness of tissues around implants such that the area adjacent to implant is easy to clean. The soft tissue complications can be reduced by careful thinning of the skin flap during second-stage surgery. The third option was a combination of first and second options, which consists surgically reducing the thickness of the soft tissues around the implants and changing attachment to design to magnets. The hygiene maintenance for this treatment would be easier but would lead to a higher cost of the treatment. The third option was recommended and would be carried out in the near future as it would promote hygiene maintenance is even though the retention would be compromised to an extent.

Conclusion
The bone-anchored extraoral implants are reliable method for anchoring auricular prostheses. The skin graft (>4 mm) and Hader bar attachment design may predispose to peri-implantitis by impeding hygiene maintenance by the patient. Good hygiene compliance, proper attachment designs combined with thin and immobile peri-implant soft tissues are recommended to prevent peri-implantitis of the extraoral implants.

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