Diverse modalities of gingival replacement: A report of three cases

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Abstract

Gingival replacement is often a component of comprehensive prosthodontics. Gingival prostheses may be fixed or removable. It can be made from acrylics, composite resins, silicones or porcelain-based materials. This paper describes different clinical situations in which three types of gingival prostheses, removable acrylic veneer with melanin pigmentation, fixed ceramic veneer and flexible nylon based veneer, were used effectively.

Keywords: Acrylic veneer with melanin pigmentation, flexible nylon based veneer, gingival replacement

Introduction

Regenerative procedures, surgeries or gingival replacement prosthesis are different alternatives to replace the tissue lost through surgical gingival procedures, trauma, ridge resorption or traumatic tooth extractions. Gingival replacement prostheses are considered when other methods are unpredictable or impossible. With these prostheses, even large tissue volumes can be easily replaced. They take several forms, and various authors have described their uses and methods of construction. Materials used for gingival prostheses include pink auto-cure and heat-cure acrylics, porcelains, composite resins and thermoplastic acrylics, as well as silicone-based soft materials.[1-3]

This paper presents three cases; in the first case removable acrylic gingival replacement prosthesis with melanin pigmentation in conjunction with a fixed prosthesis was used to replace the lost tissue, where as in second case the lost tissue had been replaced with a complete fixed pink coloured ceramic material in conjunction with fixed prosthesis and in the third case soft and flexible nylon based thermoplastic material was used.

Case Reports

Case 1

A 23-year-old male presented with missing maxillary right central and left central and lateral incisors and mandibular right and left central and lateral incisors along with loss of alveolar bone in a road traffic accident. The patient was more concerned about replacement of his lost teeth and he was not interested in any additional surgical procedure to reconstruct his lost tissue as he had already undergone other oral and maxillofacial surgical procedures. In accordance with the patient’s wishes, a fixed prosthesis was planned in conjunction with the removable gingival replacement prosthesis. Even though an implant supported fixed prosthesis would have been a better choice considering the age of the patient, because of lack of adequate quantity and quality of bone and the cost factor, we had planned for a fixed prosthesis in conjunction with removable gingival replacement prosthesis.

Root canal treatment was performed for right lateral incisor and canine in maxillary arch and right and left canines in mandibular arch as they had already become non-vital. The abutment preparations to receive a fixed prosthesis were done to right lateral incisor and canine in maxillary arch and right and left canines and first premolars in mandibular arch. Impressions were made with Addition Silicone (Aquasil™ Soft Putty/Regular set and Aquasil™ LV Type 1 Low Viscosity). The fixed prosthesis was designed with undercuts in the interdental areas to retain the gingival replacement prosthesis [Figure 1]. An intraoral try-in of wax up of removable gingival prosthesis was accomplished. The patient found that the wax up significantly improved his aesthetics and his phonetic comfort. This wax-up was duplicated to form a removable prosthesis. As the patient had dark melanin pigmentation, we tried to incorporate the melanin pigment in the removable prosthesis to mimic his surrounding soft tissue. This removable prosthesis was relined with soft resilient liner from the intaglio surface to provide comfort during function [Figure 2].

Case 2

A 21 year old male patient presented with missing maxillary right and left central incisors and left lateral incisor with
loss of alveolar bone and soft tissue in a road traffic accident [Figure 3]. Because of the financial considerations of the patient, we planned for a fixed prosthesis. But the lengths of the pontics were becoming unaesthetically longer and hence the root portion of the pontics in the fixed prosthesis was built up with pink colour porcelain to mimic the lost soft tissue and to restore the crown length of the missing teeth to the ideal requirements [Figure 4].

Case 3
A 34 year male patient reported with lot of deposits and Grade 1 mobility of all teeth. Patient was diagnosed with chronic periodontitis. Even though the condition of the periodontium got stabilized after he underwent flap surgery, there was unusual exposure of root surfaces of all the teeth.

Figure 1: Fixed prosthesis with created undercuts in the interdental areas and on the cervical area of two central incisors for the accommodation of removable gingival prosthesis

Figure 2: Frontal view showing the removable gingival replacement prosthesis relined with resilient liner placed over the fixed prosthesis

Figure 3: Intraoral photograph showing missing teeth and alveolar defect

Figure 4: Intraoral photograph showing fixed gingival replacement prosthesis

Figure 5: Intraoral photograph showing gingival recession in chronic periodontitis patient

Figure 6: Intraoral photograph showing soft gingival veneer in place to cover the esthetic deficit
Vinnakota, et al.: Diverse modalities of gingival replacement

Discussion

Gingival defects can be treated with surgical or prosthetic approaches. The original tissue contours can be mimicked with successful surgical treatment. The disadvantages of surgical approach include need for bone augmentation, surgical costs, healing time, discomfort and unpredictability when large volume of tissue is missing. In such cases, prosthetic replacement is a more predictable approach for replacing the lost tissue architecture. The major advantage of these prostheses includes an aesthetically pleasing, functional restoration without undergoing any additional surgical procedures when a larger amount of tissue needs replacement. Added advantage is that, it is possible to show the patient a waxed-up result or even take try-in prosthesis directly to the mouth for evaluation before significant treatment is initiated.

A clear understanding of the clinical requirements is essential before soft-tissue replacement with either fixed or removable prostheses is planned. A fixed prosthesis has many advantages such as patient’s comfort and self-confidence and cost effectiveness but oral hygiene maintenance is difficult and tissue portion cannot be adjusted easily. Hence, its application is limited to situations where hygiene is manageable and the desired aesthetic result is achievable, as in the second case. Though there are certain disadvantages with a removable prosthesis, a larger volume of tissue can be replaced and hygiene maintenance is still feasible. It is easier to create an ideal contour with removable prosthodontic materials, and missing tissue can be replaced without disturbing the other dental units. Even the prosthesis can be adjusted as tissue changes occur. In the first case, because of the incorporation of melanin pigment, the patient was very much satisfied with the prosthesis.

In cases of generalised recession including loss of papillary height which is commonly seen post-treatment in patients with advanced periodontitis, as in the third case, surgical techniques cannot be used to treat the gingival defects successfully but these defects can cause significant aesthetic problems, particularly in the upper anterior segment. In such cases, gingival veneers can be used to mask the lost soft tissue after the periodontal tissues become stable following treatment. For this type of cases, acrylic or porcelain is not an acceptable material, because it is impossible to make hard veneers further distal than the canines because of the undercuts and also they might further damage the delicate gingiva. Hence for the third case soft, nylon based thermoplastic veneer was given as it can be extended as far as the molars because of its flexibility. The patient also appreciated a more natural feel without any discomfort.

Conclusion

This clinical report has presented diverse methods of using pink materials to create gingival prostheses. As white component and pink component are equally important in dental aesthetics, we need to clearly understand the colour and form requirements before fabricating prosthesis. Incorporation of gingival prostheses into prosthodontic treatment is essential to make sure that patients are offered all the possible options at the onset of treatment planning.

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