**Case Report**

# Exquisiteness of Gingiva - A Case report

## Syeda T Tabasum*

Associate Professor, Department of Periodontology and Implant Dentistry, College of Dentistry, Qassim University, Kingdom of Saudi Arabia
*Corresponding author email: **t.syeda@qu.edu.sa**

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## Abstract

Periodontal attachment loss in the anterior region can often lead to esthetic and functional clinical problems including disproportional and elongated clinical crowns, visible interdental embrasures and altered linguoalveolar-labiodental consonant production. Gingival replacement is often a component of comprehensive prosthodontics. Gingival prostheses may be fixed or removable and may be made from acrylics, composite resins, silicones or porcelain-based materials. Assuming fixed prosthetic reconstructions will be chosen to treat these areas, it becomes a hygienic compromise to fill these areas in with porcelain. In the presence of these problems, an acrylic resin gingival prosthesis is an easily constructed, inexpensive and practical device to optimize the esthetic and functional outcome in these special situations while permitting cleansing of the prosthesis and supporting tissues. Undercuts or dental attachments are used to secure removable prostheses, which are esthetically pleasing and easy to maintain. This article presents a case report and step-by-step technique for the fabrication of a gingival prosthesis.

## Key words

Gingival prosthesis, Heat cure acrylic, Esthetics, Periodontal disease.

## Introduction

Periodontal diseases result in the destruction of the supporting structures of the teeth, namely the bone and periodontal ligament. In many cases there is gingival recession of the teeth and this has always been a problem in the practical management of periodontal problems because the loss of the interdental gingival papillae leaves unsightly 'black triangles' between the teeth, P.R Greene 1994 [1].

Advanced loss of periodontal support in the maxillary anterior area presents a special challenge to the restorative dentist. The problems encountered in this situation may include open interdental spaces, elongated clinical crowns and

altered labiodental-linguoalveolar consonant production. In patients who manifest a prominent maxillary display with short upper lip, it becomes a very difficult challenge to maintain hygiene and yet create a proportional prosthetic replacement that phonetically seals these patient's interdental areas. The use of a removable resin veneer to simulate the missing pink gingival tissue may provide a solution to these problems. Although there is no specific terminology indicated in the *Glossary of Prosthodontic Terms* for this type of prosthesis [2], many references are found in the literature advocating its use [3-17].

This prosthesis can be used to cover the exposed root surfaces, improve esthetics, prevent food impaction and improve speech following periodontal surgery. It may be included in complete treatment of a patient or in transitional phases pending treatment.

With fixed or removable partial dentures. It may be used in combination with a fixed partial denture to mask severe alveolar bone loss or similar situations with a fixed implant prosthesis [18, 19]. Gingival replacement prostheses have historically been used to replace lost tissue when other methods (e.g. surgery or regenerative procedures) were considered unpredictable or impossible. With this method, large tissue volumes are easily replaced. Gingival prosthesis takes several forms and various authors have described their uses and methods of construction [14, 1, 20, 21, 22, 23, 24].

## Case report

A 25-year-old female patient had recently undergone full-mouth periodontal surgery. The surgery improved her periodontal condition but left the patient with a significant loss of papillae and root exposure. The patient was unhappy with the esthetic appearance of the "elongated teeth" and spacing between maxillary and mandibular anterior teeth. Because of the appearance of unsightly big front teeth, she was hardly smiling.

Intraoral examination revealed open interdental embrasures (type III) and exposed root surfaces indicating class IV gingival recession. Gingival recession was generalized in the maxillary arch and localized to the anterior teeth in the mandibular arch. The maxillary and the mandibular first premolar to first premolars exhibited grade II mobility due to chronic generalised periodontitis. Patient had a gummy smile which made esthetics more compromised. Due to loss of interdental papillae, she had unanticipated expectoration during speech (**Figure - 1**).

### Treatment Plan

The decision was made to fabricate an esthetic removable prosthesis using heat cure acrylic resin to close the spaces between the maxillary and the mandibular anterior teeth as the patient was not willing for orthodontic correction of malaligned teeth and was not a candidate for surgical correction because of reduced periodontal support.

**Figure - 1:** Intraoral View, showing Class IV gingival recession.

**Figure - 2:** Splinted maxillary teeth.

**Figure - 3:** Splinted mandibular teeth.

**Figure - 4:** Maxillary and mandibular casts.

**Figure - 5:** Extension of the margins of the wax pattern.

**Figure - 6:** Try-in of the wax pattern in patient's mouth.

**Figure - 7:** The final gingival prosthesis.

After the patient's consent was taken the gingival prosthesis was fabricated as follows. The maxillary and the mandibular first premolar to first premolars teeth were splinted using light cure composite reinforced with stainless steel wire (**Figure – 2, 3**). Perforated impression trays were selected. The maxillary and mandibular impressions were made using alginate (Zelgan 2002 Alginate impression material, Dentsply India Pvt. Ltd.). Casts were made with dental stone (KALSTONE Dental stone Class III) (**Figure - 4**). The lingual embrasures were blocked with utility wax. The extension of the prosthesis was outlined on the cast. It followed either the cementoenamel junction of the teeth or a proportional delineation to create a 66%:80% width-length ratio for the maxillary central incisors. The margins were placed in areas that were not conspicuous when the patient smiled or spoke i.e. extending from the maxillary and mandibular second premolar to second premolar (**Figure - 5**). The wax patterns were tried in the patient's mouth (**Figure - 6**). Then the gingival prosthesis was fabricated with veined heat cure acrylic (DPI heat cure, Denture base polymer resin, The Bombay Burmah Trading Corporation, Ltd.).

The final prosthesis was delivered to the patient, its retention and extension were checked. Instructions of how to use and maintain the prosthesis were given (**Figure - 7**). The esthetics of the patient changed drastically. The patient was extremely happy. The patient was examined during the recall visit over a period of 12 months.

The masks were checked regularly, at each recall visit with particular interest in plaque control and cleanliness. The patient gave satisfactory results.

## Discussion

It is possible to create esthetically pleasing and anatomically correct tissue contours when small volumes of tissue are being reconstructed, but this method is unpredictable when a large volume of tissue is missing. The surgical costs, healing time, discomfort and unpredictability make this choice unpopular, Trakol Mekayarajjananonth (2002) [24]. Prosthetic replacement, with acrylic, composite resins, porcelain and silicones is a more predictable approach to replacing lost tissue architecture. It is especially useful when a larger amount of tissue needs replacement. Ideal tissue contours can be waxed, processed and then coloured to match the surrounding tissue, Friedman M.J. (2000) [23]. The patient need not undergo any additional surgical procedures and receives an esthetically pleasing, functional restoration. It is possible to show the patient a waxed-up result or even take a try-in prosthesis directly to the mouth for evaluation, Botha P.J. (1999) [22]. With a removable prosthesis, a larger volume of tissue can be replaced and proper cleaning 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.

A clear understanding of the clinical requirements is essential before soft-tissue replacement with either fixed or removable prostheses. The final result can be esthetically pleasing and usually solves the clinical deficits, Izchak Barzilay & Irene Tamblyn (2003) [25].

Heat cure acrylic is dense and resistance to fracture as well as more colour stable over time when compared with cold cure acrylic. Hence the prosthesis was fabricated with heat cure resin. This procedure is a relatively easy, inexpensive, and practical way to allow an esthetic replacement of the gingiva that also permits hygiene procedures for the underlying prosthesis. Jaggers H. (1976) [26], Risch R. (1977) [12], Tallents RH (1983) [14].

Advantages of the gingival veneer include improved esthetics, phonetics and prevention of food impaction. Caution should be used when the interproximal areas are adjusted on delivery, because this step is crucial to overall success of retention. Patients with poor oral hygiene or dexterity are not candidates for this type of prosthesis, Trakol Mekayarajjananonth (2002) [24].

## Conclusion

Dental esthetics is based not only on the “white component” of the restoration but also on the “pink component.” A clear understanding of the colour and form requirements is essential for fabrication of the prosthesis and its acceptance by the patient. Understanding the methods used to incorporate gingival prostheses into prosthodontic treatment is vital and to ensure that patients are offered all possible options at the outset of treatment planning.

With the aid of the acrylic resin gingival veneer, the esthetic and phonetic characteristics of the anterior maxilla can be improved when loss of periodontal support is evident. Although such aprosthesis is considered auxiliary and is somewhat fragile, it can be made easily, with minimal additional effort and costs, to provide these patients with a greater sense of psychological satisfaction.

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