CASE REPORT

An Easy Solution for Coverage of Black Triangle: Gingival Mask

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ABSTRACT

Throughout history, considerable attention has been given for enhancement of smile and is one of the primary reasons of patients seeking elective dental treatment. On the other hand, periodontal disease, trauma, and congenital defects can result in disharmony between teeth and the periodontal complex, resulting in a smile that is likely to be perceived as unaesthetic. An acrylic resin gingival mask is an easily constructed, inexpensive, and practical device to optimize the esthetic and functional outcome in these kind of situations while permitting cleansibility of the prosthesis and supporting tissues. This article describes the prosthodontic techniques to improve gingival aesthetics using a traditional standard prosthetic acrylic material.

KEYWORDS: Black triangle, Gingival mask, Gingival prosthesis

INTRODUCTION

An esthetically pleasant smile is framed with both white and pink components including marginal gingiva and interdental papilla. Loss of papilla height, open embrasures and the establishment of "black triangles" between teeth distorts this proportion. The most common reason for recession in the adult individual is the loss of periodontal support due to plaque-associated lesions. Abnormal tooth morphology, faulty restorations, and traumatic oral hygiene practices may also negatively influence the position of the interdental soft tissues.[1] The black triangles that appear as a result of gingival recession can be corrected or managed by two approaches, namely mucogingival plastic surgery [2,3] or by gingival prosthetic substitutes.[4]

Mucogingival surgery or gingival plastic surgery, with gingival augmentation coronal to the recession, are suitable for Miller's Class 1 and Class II type of gingival recessions. In severe gingival recession conditions, as in Class III and Class IV recessions, mucogingival surgeries may give unpredictable esthetic outcome or might even result in recurrence. The gingival prosthesis has been proved as a good alternative to replace lost tissue. Also, gingival prosthesis is more acceptable as some patient might not be prepared to undergo surgical treatment.

Materials used for gingival prosthesis include pink auto-cure and heat-cure acrylics, pink porcelains, composite resins and thermoplastic acrylics, as well as silicone-based soft materials. They are classified into the flexible and non-flexible prosthesis. The advantages of flexible gingival prosthesis over the nonflexible gingival prosthesis are better aesthetics, increased compatibility with the tissues and comfort.[5]The synonyms of gingival mask include gingival veneers, gingival replacement unit, artificial gingiva, gingival epithesis, flange prosthesis.[6]

CASE REPORT

A 37 years old male patient visited Deptt. of Periodontology, Govt. Dental College & Hospital, Patiala with a complaint of elongated teeth and dark spaces in between upper front teeth. On examination, generalized Miller's class III recession with high smile line was seen (Fig 1 & 2). Periodontal pocket probing reveals normal

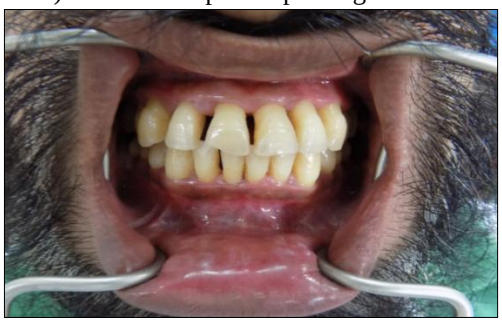

Fig 1: Patient presenting with recession of the anterior segment resulting in varying gingival heights due to periodontal disease

Fig 2: The same patient complaining of 'long teeth' and air and fluid escaping from between the anterior teeth and unaesthetic smile

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sulcus depth. The patient was explained about possible treatment modalities, each with their advantages and disadvantages. It was then decided to fabricate a removable acrylic gingival mask for the coverage of the lost tissues. The treatment procedure includes oral prophylaxis, followed by heavy and light body impression (Fig 3) after 2 weeks. Cast model was poured, and wax model fabricated. After try-in, the necessary modifications were made and sent for final prosthesis fabrication. The extension of the prosthesis was up to the distal aspect of the canines bilaterally. The distal border of the prosthesis was thinned out to merge with the natural gingiva (Fig 4). Instruction regarding prosthesis cleaning and storage was also given. Post Treatment follow-up was advised for inspection (Fig 5).

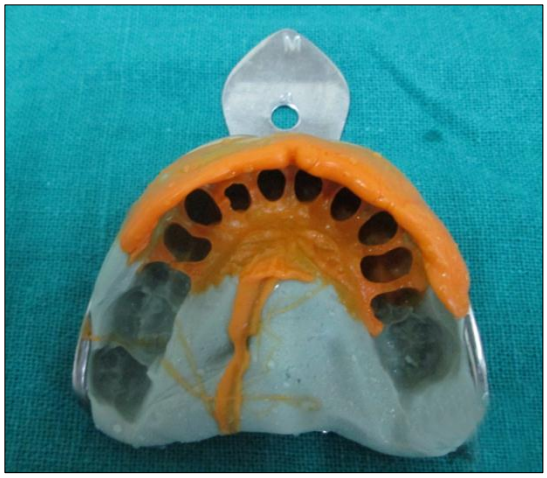

Fig 3: Impression taken with heavy and light body impression material

Fig 4: Final gingival prosthesis constructed and retained mechanically by the extension of the material interdentally between the roots of two adjacent teeth to improve retention while also optimizing gingival aesthetics

DISCUSSION

Mucogingival surgery or gingival plastic surgery, with gingival augmentation coronal to the recession, are suitable for Miller's Class I and Class II type of gingival recessions. In severe gingival recession conditions, as in Class III and Class IV recessions, mucogingival surgeries may give unpredictable esthetic outcome or might even result in recurrence. It was observed by Tarnow et al (1992) that when the vertical distance between the

Fig 5: Post-treatment with the gingival mask simulating the lost tissue and improve aesthetics

contact point and the crest of bone was ≤5 mm, the interdental papilla fill was present almost 100% of the time, whereas if the distance between the contact point and the crest of bone was ≥6 mm, only partial interdental papilla fill of the embrasure between the teeth was most commonly found. Considering that an approximately 1 mm thickness of supracrestal connective tissue attachment zone normally found[7], the observation indicates that the biologic height of the interdental papilla may be limited to about 4 mm. If the distance between contact point and bone crest is ≤5 mm and the papilla height is <4 mm, surgical intervention to correct the problem of an interdental "black triangle" by increasing the volume of the interdental papilla fill could be justified. However, if the distance between contact point and bone crest is located >5 mm, either due to loss of periodontal tissue support or due to improper contact relationship between the crowns, means to lengthen the contact area apically between the teeth or gingival prosthesis[4] should be selected instead of surgical intervention to improve the topography of the papilla.[1]

Gingival prosthetic replacement with acrylics, composite resins, porcelains and silicones are the predictable approaches to replace lost tissue structures. Gingival mask is retained mechanically by the extension of the material interdentally between the roots of two adjacent teeth (Fig 4). The pressure from the lip also contributes to the retention of the prosthesis. Part of the retention also comes from the capillary action by the saliva between the impression surface of the prosthesis and the facial surface of gingiva.[8] The acrylic gingival mask have the disadvantage of being hard, rigid and difficulty in fitting accurately when multiple teeth are involved. They have the advantage of being color stable and last longer.[9] Antony VV et al. (2013)[6] did a follow-up case of acrylic gingival veneer for 2 years and found no problem related to the prosthesis, indicating that such a prosthesis can be used effectively whenever indicated.

CONCLUSION

Gingival mask is good and easy treatment options for

patients in cases where there is an unpredictable surgical outcome or in the situation where there are surgical contraindications. They are quick and easy to fabricate and also easy to maintain.

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