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A Maxillary Gingival Prosthesis Attached with Acrylic Partial Denture opposing Mandibular Balanced Denture with Metal Denture Base: A Case Report

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Abstract: *The periodontium is a functional unit and consists of the gingiva, periodontal ligament, cementum, and alveolar bone. The gingiva surrounds the tooth like a collar and is firmly attached to the alveolar bone and cervical portion of the tooth. The most coronal edge of the gingiva is the gingival margin. Gingival recession caused due to periodontal disease disturbs patients because of sensitivity and esthetics. Gingival prosthesis may be fixed or removable and can be made from silicones, acrylics, composite resins or ceramics according to what is best suited for the case. The gingival veneer is esthetically appealing and easy to maintain. This case report describes the use of gingival veneer as a treatment modality for recession.*

Key words: *gingival prosthesis, periodontium, gingival recession*

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I. Introduction

The periodontium is the specialized tissues that both surround and support the teeth, maintaining them in the maxillary and mandibular bones. It consists of four principal components, namely:[1] Gingiva, Periodontal ligament (PDL), Cementum, Alveolar bone proper. The gingiva is the part of the oral mucosa that covers the alveolar processes of the jaws and surrounds the necks of the teeth. The gingiva is divided anatomically into Marginal, attached and Interdental gingival. Marginal Gingiva or unattached, gingiva is the terminal edge or border of the gingiva surrounding the teeth in collarlike fashion. Attached Gingiva is continuous with the marginal gingiva. It is firm, resilient, and tightly bound to the underlying periosteum of alveolar bone. Facial aspect of the attached gingiva extends to the relatively loose and movable alveolar mucosa and is demarcated by the mucogingival junction.[1, 2, 3]

Gingival recession, also known as receding gums, is the exposure in the roots of the teeth caused by a loss of gum tissue and/or retraction of the gingival margin from the crown of the teeth. Beauty of smile is not only by the hard tissue (teeth) of oral cavity but also includes soft tissues. Any periodontal disease affects the soft tissue components of periodontium, cause severe loss in aesthetics. Gingival recession is a periodontal disease which affects the aesthetics of patient. Patient will lose the confidence during smile. Gingival recession will lead to bone loss, sensitivity, and interdental black triangles. Mild gingival recession can be corrected with the surgical approach but in severe recession surgery is not effective. Sometimes patients are also refuses the surgical root coverage procedure due to cost and surgical phobia. For such patients gingival prosthesis play a major role in achieving the aesthetics and confidence. Gingival veneer/mask/flange prosthesis is worn on the labial aspect of dental arch which aims to restore the mucogingival contour and esthetic areas where periodontal tissues are deficient. Different materials used to fabricate include-acrylic resins (heat/auto-polymerised), silicones, porceleans and resin composites matching the colour of the gingiva. The following case report describes a technique to replace gingival tissue with a comfortable and accurately fitting gingival prosthesis and rehabilitation of missing teeth. This is a useful, stable, economical, and esthetically acceptable method.[4, 5, 6]

II. Case report

Fig. 1: Pre-op intraoral upper arch occlusal view showing inter-dental spacing and missing 21

Fig. 2: Pre-op intraoral arch showing edentulous mandibular arch

Fig. 3: Pre-op intraoral upper arch front view showing interdenta spacing, gingival recession and

Fig. 4: Manibular arch final impression

Fig. 5: Maxillary diagnostic model with curve plate for plane correction

Fig. 6: Maxillary arch with adapted vacuum form sheet and on it trimming the supraerupted teeth on for plane correction

Fig. 7: Metal denture base fabricated for lower denture

Fig. 8: Try-in for maxillary acrylic partial denture and mandibular complete denture with metal denture base

Fig. 9: Finished and polished mandibular balanced denture with metal denture base

Fig. 10: Maxillary acrylic partial denture and manibular denture showing balanced occlusion

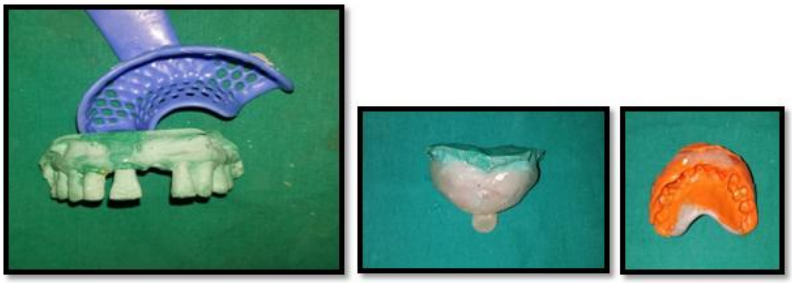

Fig. 11: Impression for gingival prosthesis; a) labial custom tray b) labial impression on custom tray

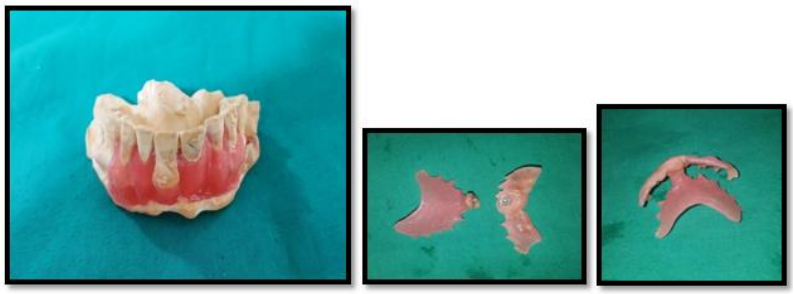

Fig. 12: Maxillary gingival prosthesis wax-up

Fig. 13: Gingival prosthesis attached with acrylic partial denture with the help of button

Fig. 14:Post-op view showing gingival prosthesis

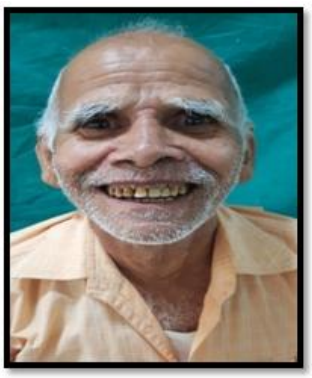

Fig. 15: Post op smiling view showing upper gingival prosthesis attached with acrylic partial denture opposing mandibular complete denture with metal denture base

Seventy three years-old male patient reported in Post Graduate clinic of Department of Prosthodontics, Career Post Graduate Institute of Dental Sciences & Hospital, Lucknow with a complaint of bad appearance, missing teeth, sensitivity and food lodgment in the maxillary anterior region and difficulty in eating due to complete loss of mandibular teeth. On intraoral examination it was found that missing 21 and generalized gingival recession and inter-dental spacing in maxillary anterior region. His mandibular arch was also edentulous. The patient expressed dissatisfaction with esthetics of his existing dentition. On examination, generalized recession was seen in maxillary anterior region with 21 missing, [Fig. 1] as the patient was not willing for any surgical procedures hence a conservative approach was undertaken i.e. gingival prosthesis (in upper anterior region) attached with acrylic partial denture in relation to 21 was planned. This was to be followed by rehabilitation with complete denture with metal denture base for the mandibular arch. Treatment plan, duration, cost was discussed with the patient and his relatives and they were agreed for the same. Fig. 1, 2, 3

Phase 1 therapy was given to patient first. It included oral hygiene instructions, scaling and root planning. Patient was motivated to maintain good oral hygiene. Proper brushing method was instructed to patient.

Primary impressions for maxillary and mandibular arch were taken with the help of alginate and impression compound respectively and models were retrieved. Maxillary primary cast was surveyed and on its occlusal surface curved metal plate is placed. Occulsal plane discrepancy was marked with the help of metallic curved plate and designing of acrylic partial denture was done to replace 21. On mandibular primary cast, special tray was fabricated and border-molding and final impression done. Fig. 4, 5

Soft splint was adopted with vacuum form sheet on maxillary arch. Vacuum form soft splint was kept on maxillary cast and all marked supra-erupted teeth were trimmed with help of BP blade so as to correct the plane. Now this vacuum form soft splint was placed in patient's mouth (upper arch). All supra-erupted teeth were exposed from the hole. Within the limitation, enameloplasty was done to correct the plane. After plane correction and mouth preparation, final impression of maxillary arch was done. Fig. 6, 7

Mandibular cast duplicated after placing the spacer and refractory was cast retrieved. On refractory cast wax pattern was fabricated for permanent metal denture base. Sprue attachment and casting was done. After finishing and polishing of mandibular metal denture base, tried-in patient's mouth. Jaw relation was done and models were articulated. Teeth setting and try-in were done. final consent was taken from patient regarding esthetics. Fig. 8, 9, 10

Special tray was fabricated on labial surface for gingival prosthesis. All inter-dental areas were blocked with modeling wax before final impression with special tray. After taking final impression for gingival prosthesis, cast is retrieved. Final wax-up and processing was done. Finishing and polishing of gingival prosthesis was completed and tried in patient's mouth. Heat cure acrylic resin was used for processing of gingival prosthesis. Chit button was used to attach gingival prosthesis with the acrylic partial denture. Chit button male part is first fixed up on acrylic partial denture and female part is picked up in gingival prosthesis. Patient was recalled periodically for checkup and was satisfied with the gingival prosthesis, acrylic partial denture and mandibular complete denture. Fig. 11, 12, 13, 14 , 15

III. Discussion

The treatment of gingival recession and inter-dental spacing can be surgical, but patient acceptance for surgical treatment is questionable. Most of the time patient will not accept the surgical intervention due to phobia and the cost of surgery. Sometimes the results after surgical approach will not be as good as expected. This situation is troublesome for clinician and patient both. Prosthodontic approach of correction of gingival recession and interdental spacing is always a excellent option, if surgical approach is discarded. Gingival prosthesis restores the esthetics, confidence and phonetics of the patient. Different researchers and clinicians had given many methods of fabrcication of gingival prosthesis but in this case report the method taken was simple and economical. Chit button was used to attach the prosthesis with acrylic partial denture. Chit button is easily available and simple to incorporate in prosthesis.[1, 6, 7, 8, 9, 10, 11]

The gingival prosthesis can replace a large volume of tissue that has been lost to the disease process or its treatment. The advantage of the prosthesis is that it can be easily cleaned, creates an ideal contour with removable prosthodontic materials, and does not disturb the other dental units. However, dramatic esthetic results have been achieved using gingival veneers..[7,8,9]

In this case report gingival prosthesis, acrylic partial denture and mandibular denture with metal denture base was fabricated in same visits. Mandibular residual ridge was severely resorbed so metal denture base was incorporated in mandibular denture.

Gingival veneer is a viable treatment option for restoring anterior esthetics in clinical situations where there are esthetic concerns caused by significant gingival recession. Materials used for prosthesis include pink auto cured and heat cured acrylics, porcelains, composite resins, and thermoplastic acrylics as well as silicone based soft materials. Greene PR in 1998 described two stage impression techniques for construction of two identical masks. Two masks are used on alternate days. The gingival prosthesis replaces a large volume of tissue in patients with generalized attachment loss due to periodontal disease. The gingival prosthesis can be easily maintained and provides good esthetics.[10, 11, 12, 13]

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