

FABRICATION OF ATTACHMENT RETAINED GINGIVAL PROSTHESIS - AN APPROACH FOR MASKING ANTERIOR MAXILLARY ALVEOLAR DEFECT IN CLEFT LIP AND PALATE CASES

ABSTRACT

Cleft lip and palate often results in impaired aesthetics due to anterior alveolar and mucosal defect. Surgical approach involving hard and soft tissue augmentation can be unpredictable with increased healing time. This article describes a technique for fabrication of fixed dental prosthesis (FDP) with detachable gingival portion as a replacement for missing hard and soft tissue defect. It facilitates oral hygiene and restores lost lip support.

Keywords: Attachment retained; Gingival prosthesis; Maxillary alveolar defect.

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J Ind Dent Assoc Kochi 2021;3(2):26-9.

INTRODUCTION

Cleft palate patients commonly present with congenitally missing anterior teeth and anterior alveolar and mucosal defect (Fig.1). 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. Prosthetic replacement, with acrylics, composite resins, porcelains and silicones, is a more predictable approach to replacing lost tissue architecture.



Fig.1 Maxillary alveolar ridge defect.

A conventional fixed dental prosthesis can be used in the prosthetic treatment of a unilateral cleft and palate patient for replacement of missing teeth.¹ A gingival prosthesis is considered for restoring the missing alveolar and mucosal defect when surgical procedure is unpredictable. Consequently, good function and esthetics can be achieved, and the long term success is more predictable.²

An alternate treatment option involves implant placement in the area of the defect. But It often involve adjuvant complex surgical procedure like bone augmentation, distraction, sinus lift etc.³ Another option is application of gingival colored porcelain to crowns to compensate for the loss of soft tissue on the anterior maxilla.⁴

This article proposes a technique to fabricate a FDP with extra coronal attachment to retain a removable gingival prosthesis.

TECHNIQUE

1. Prepare the teeth to receive metal ceramic FDP and make impression with Polyvinyl siloxane (PVS) impression material (Elite HD,

Light body normal set; Zhermack and Putty soft normal set; Zhermack).

2. Make wax pattern of FDP and attach a resilient attachment (OT Cap Distal attachment; Rhein 83) onto the wax pattern of the framework.
3. Evaluate the metal framework intraorally for extension and location of attachment portion (Fig.2).
4. Fuse porcelain onto the framework, finish and glaze, and cement the prosthesis (Fig.3).



Fig. 2 Trial of metal framework incorporated with attachment component.



Fig. 3 Cemented partial FDP with attachment extension.

5. Make impression in irreversible hydrocolloid (Tropicalgin; Zhermack) and pour in type III dental stone (Labstone; Kalabhai Karson Private Ltd). Fabricate a custom tray over labial surface of teeth and gingiva with autopolymerising acrylic resin (Rapid repair; Pyrax). Do border molding with putty consistency of PVS and use addition silicone PVS material to make impression of labial surface of teeth to sulcus (Fig.4). Pour the impression with type III dental stone.

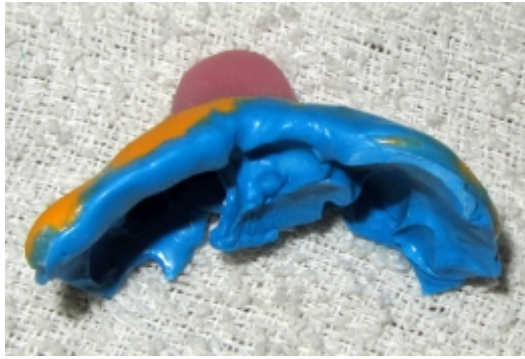


Fig. 4 Impression for gingival part of prosthesis.



Fig. 7 Removable gingival part attached to FDP.



Fig. 5 Gingival wax pattern trial.

6. Make a wax pattern (Cavex set up hard modelling wax; Cavex) of the gingival prosthesis on cast and evaluate intraorally for extensions, fullness, and lip support (Fig.5).
7. Process the gingival wax pattern in heat polymerized acrylic resin (Acryl-Hi; Pyrax) of appropriate shade, finish, and polish the prosthesis.
8. Attach the Nylon ring (OT Cap; Rhein 83) to



Fig. 6 Removable gingival part with nylon cap.

the tissue side of the gingival veneer by using pick up technique with autopolymerising acrylic resin (Fig.6).

DISCUSSION

A technique for fabricating a FDP with extra coronal attachment to retain a removable gingival prosthesis in a cleft lip and palate patient is described. It consists of a removable gingival portion attached to a fixed dental prosthesis (Fig.7). In such an approach, with both fixed and removable elements, dental attachment increase support and retention.⁵

The fixed part of prosthesis gives the patient significant comfort and boosts self confidence. The removable portion aids in restoring lost volume of tissue, creates an ideal contour, and facilitates proper hygiene maintenance. This design may be contraindicated in patients who have difficulties in inserting the removable part because of compromised motor skills. Also use of attachment increases cost and treatment time significantly. Alternate methods to enhance retention includes use of magnets; however, corrosion, and size limit their use intraorally.⁶ The removable part of the prostheses can be self cleansed by the patient on a daily basis. The fixed part of the prostheses has to maintained as a normal fixed partial denture with adequate mechanical cleansing.

SUMMARY

A technique is described to fabricate attachment retained gingival prosthesis for providing additional support and retention while maintaining esthetics and allowing ease of cleaning.

REFERENCES

1. Randow K, Glantz P-O, Zöger B. Technical failures and some related clinical complications in extensive fixed prosthodontics: An epidemiological study of long-term clinical quality. *Acta Odontol Scand* 1986; 44: 241-55.
2. Reisberg DJ. Dental and Prosthodontic Care for Patients with Cleft or Craniofacial Conditions. *Cleft Palate Craniofac J* 2000; 37: 534-7.
3. Özkurt Z, Kazazoğlu E. Treatment modalities for single missing teeth in a Turkish subpopulation: an implant, fixed partial denture, or no restoration. *J Dent Sci* 2010; 5: 183-88.
4. Canpolat C, Özkurt-Kayahan Z, Kazazoğlu E. Prosthetic rehabilitation of maxillary dentoalveolar defects with fixed dental prostheses: Two clinical reports. *J Prosthet Dent* 2014; 112: 418-22.
5. Brygider RM. Precision attachment-retained gingival veneers for fixed implant prostheses. *J Prosthet Dent* 1991; 65: 118-22.
6. Sadamori S, Makihira S, Nakai N. Application of magnetic attachment for connecting a fixed partial denture and a detachable gingiva: A clinical report. *Int Chin J Dent* 2006; 6: 89-92