

A conservative method to reproduce lost gingival tissue- an innovative approach

N Joshi, A Parolia, M Kundabala and ST Manuel

Department of Conservative Dentistry and Endodontics, Manipal College of Dental Sciences, Mangalore, Karnataka, India

Corresponding author: Dr. Neera Joshi, Specialist Resident, Department of Conservative Dentistry and Endodontics, Manipal College of Dental Sciences, Mangalore Light House Hill Road, Mangalore, Karnataka-575001, India; e-mail: neera_ktm@yahoo.com

ABSTRACT

One of the greatest assets a person can have is a smile that shows beautiful, natural teeth. The restoration of a smile is one of the most appreciated and gratifying services a dentist can render. The positive psychological effects of improving a patient's smile often contribute to an improved self image and enhanced self esteem. Periodontal attachment loss in the maxillary anterior region can often lead to esthetic and functional clinical problems. Lifelong motivation is essential to the supportive therapy for these patients, and the maintenance of good esthetics, combined with conducive to maintaining long term dental and professional health. This paper aims to demonstrate an innovative treatment option for dealing with aesthetic challenges posed by a patient.

Keywords: Esthetic rehabilitation, gingival recession, cervical abrasions, composite resin, ceramic tints.

INTRODUCTION

Awareness for various dental treatment modalities have increased among the patients now than a decade ago. Esthetic deformities include tooth discolorations (e.g., tetracycline staining, enamel hypoplasia, fluorosis), incisal edge fractures, tooth spacing, rotated and malaligned teeth, discolored composite resin restorations, dark metallic restorations, an unesthetic crown, missing teeth, an unesthetic denture or partial denture, and other conditions that include soft tissue defects. These are frequently seen by the patient, and they want to know what options are available to correct this problems.¹ Oral esthetic and functional rehabilitation can be achieved by restoring teeth and soft tissue defects to an ideal natural form. Ideal gingival esthetics may not be achievable in a compromised case. Gingival replacement prosthesis has historically been used to replace lost tissue when other methods such as surgery or regenerative procedures were considered unpredictable or impossible. With this method, large tissue volumes are easily replaced. Gingival prostheses take several forms, and various authors have described their uses and methods of construction.²⁻⁵

It is very important to take care of function, comfort, phonetics, longevity and ease of maintenance with preferably less cost. Materials used for replacing lost tissue architecture include pink auto cure and heat cure acrylics, porcelains, composite resins as well as silicon based soft materials.⁶ Gingival defect may be treated with high cost surgery following which healing may take longer time with unpredictable results, therefore making the choice unpopular.

The following case reports describe a new technique to replace the gingival tissue by an easier and quicker method which is more economical for the patient.

CASE REPORT

A male patient aged 56 reported to the Department of Conservative Dentistry and Endodontics with a chief complaint of sensitivity and dislodged restoration in maxillary and mandibular teeth. On examination, there was recession of the gums (from right maxillary second premolar to left maxillary second premolar) with cervical abrasions due to vigorous use of tooth brush and paste (Fig1, 2 and 3). Since the patient was concerned about his esthetics, treatment plan was formulated accordingly.

Patient was advised to go for oral prophylaxis followed by the restoration of cervical abrasion cavities using tinted composite resin material to reproduce gingival architecture. A treatment plan was established involving the following steps.

1. The topography of the soft tissue defect was evaluated.
2. The color of the soft tissue was determined to achieve the acceptable esthetics with tissue colored porcelain tints.
3. Shade and contour of gingiva and teeth were confirmed by curing the composite resin material over the lost tissue portion without application of etchant and bonding agent.

PROCEDURE

The teeth were isolated, acid etched with 35.0% phosphoric acid (3M ESPE Dental Products USA) for 15 seconds, teeth were blot dried and bonding agent



Fig. 1. Pre -operative front view

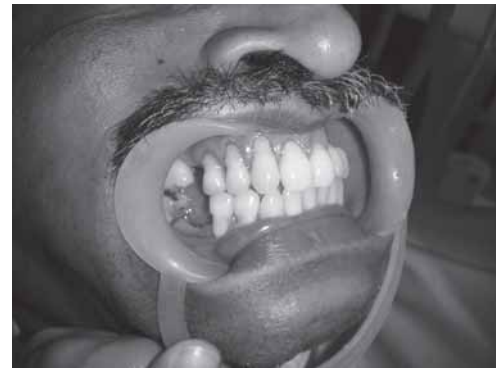


Fig. 2. Pre -operative right profile view

(Adper Single Bond 2 3M ESPE Dental Products USA) was applied and light cured according to manufacturer's instructions. In a well, ceramic tint powder (Number 704, Vita GmbH and Co.KG Germany) to match the shade of gingiva was taken. One to two drops of dentin bonding agent was added to dissolve the ceramic tint in it, composite resin material of selected shade was added to the mixture till a thick paste consistency was achieved. The gingiva was built up to the proper contour without any overhang of material. The material was then light cured. Finishing, polishing was done using composite finishing and polishing system (Enhance Dentsply Caulk Dentsply International Inc. Milford) (Fig 4, 5 and 6). A fiber composite splint was placed for two months from canine to canine for stabilizing the teeth to reduce the mobility.

DISCUSSION

Some of the young patients who have successfully completed treatment for aggressive periodontitis may have implications in terms of long term restorative maintenance. Restorations need to be carefully reviewed, maintained and replaced throughout the patient's life and the lifespan of some restorative options need to be carefully evaluated.

There are various treatment options to meet these challenges such as:⁷

1. Treatment with restorative camouflage
2. Treatment with extraction and immediate fixed replacement
3. Treatment with fixed appliance orthodontics
4. Treatment with gingival prosthesis
5. Treatment with ceramic crowns

The innovative technique, used here is a quicker (single sitting) and simpler. No elaborate laboratory procedures are involved. The porcelain stains used in this technique to get the shade of gingiva readily dissolved in dentin bonding agent, which shows that they must be chemically compatible with each other. The stains must have acted like mega fillers in the composite resin. They merged very well and this could be estimated by the high polishability of the restoration.

The advantages of this technique are:

- There is no composite resin impingement on to the soft tissue.
- Composite resin is blending well to root surface.
- Floss can be easily moved on and off the contact to maintain the oral hygiene
- The ceramic tints which are used in this technique help to get the exact shade of lost gingival tissue that may be difficult to achieve with composite stains.



Fig. 3. Pre-operative left profile view



Fig. 4. Post operative -front view



Fig. 5. Post-operative right profile view



Fig. 6. Post-operative left profile view

Fiber composite splint was used in case 1 to reduce the mobility of the tooth. Since we closed the diastema in this case, we could apply the composite splints on to the palatal surface without compromising esthetic needs, thus improving their function.

In these cases, shade selection was done by curing the composite resin material directly on to the tooth structure without acid etching and application of the bonding agent. Once the shade and contour were confirmed, composite material was nicked off the tooth structure. The procedure was repeated till the proper shade and contour were achieved, without harming the tooth structure. Only for final restoration acid etchant and dentin bonding agent were applied prior to building up the tooth structure with composite resin. Further studies have to be done to find out the chemistry of the mixture (bonding agent with ceramic tints) and long term evaluation of the cases to check the treatment outcome.

For patients with periodontally compromised teeth not willing for extraction, this technique is an option which is quicker, simple, more economical and conservative

for the remaining natural tissues. Thorough clinical examination should be carried out and the patient should be fully involved in the decision making during the treatment planning.

REFERENCES

1. Strassler HE. Insights and innovations. *J Esthetic Dentistry* 1992; 4: 64-6.
2. Botha PJ, Gluckman HL. The gingival prosthesis - a literature review. *South African Dental J* 1999; 54: 288-90.
3. Friedman MJ. Gingival masks: a simple prosthesis to improve the appearance of teeth. *Compend Contin Educ Dent* 2000; 21: 1008-16.
4. Blair FM, Thomason JM, Smith DG. The flange prosthesis. *Dental Update* 1996; 23: 196-9.
5. Mekayarajjananonth T, Kiat-amnuay S, Sooksuntisakoonchai N, Salinas TJ. The functional and esthetic deficit replaced with an acrylic resin gingival veneer. *Quintessence Int'l* 2002; 33: 91-4.
6. Barzilay I, Tamblyn I. Gingival prostheses- a review. *J Canadian Dental Assoc* 2003; 69: 74-8.
7. Craddock HL, Yorke VC, Chan FW-Y. Cosmetic rehabilitation following successful treatment of aggressive periodontitis. *Dental Update* 2007; 34: 91-6.