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### A rescue mission for gingival recession! Management of periodontally compromised teeth with poor prognosis

**Dr. Shashikanth Hegde, Dr. Jyosthna G Madhurkar, Dr. Anita Precilla Dsouza, Dr. Nithin Suvarna, Dr. Zahid Mohammed and Dr. Varsha P Bhat**

#### Abstract

**Background and Aim:** Gingival recession is one of the commonly encountered clinical conditions that leads to an unaesthetic appearance. Several treatment protocols have been proposed in the past to treat this which involve complex surgical procedures. Patient acceptance, long treatment and recovery time and multidisciplinary involvement of various dental specialties are factors that contribute to the complexities involved in the treatment. The following case reports an unconventional treatment of a 56-year-old patient with periodontally compromised teeth having poor prognosis.

**Keywords:** gingival recession, poor prognosis, multi-disciplinary, pink composite, Free Gingival Graft

#### Introduction

A beautiful smile goes a long way in boosting the personality and confidence of a person. In the current practice of dentistry, with the increase in beauty standards, the clinicians are faced with the challenge of not only addressing biological and functional problems, but also providing therapy that result in acceptable aesthetics. A pleasing smile depends on the appearance of the teeth, the amount of healthy visible gingiva and the lips framing it. All these components together form a harmonic and symmetrical entity.

The role of keratinized gingiva in the maintenance of periodontal health has been well documented. Inadequate attached gingiva and vestibular depth appear to affect the efficacy of oral hygiene practices. These areas with minimal amounts of attached gingiva could increase tooth mobility and facilitate subgingival plaque deposition. Furthermore, increased bacterial load due to the plaque accumulation and various contributory factors lead to active carious lesions on the root surface [1].

An ideal occlusion is a pinnacle for successful treatment as it maintains the anterior and posterior teeth in harmony along with functional jaw movements and therefore should be taken into consideration. A multidisciplinary treatment approach to any problem solving helps in newer understanding and better treatment planning of complex situations.

The following case report highlights the use of a multidisciplinary approach, in the management of multiple recession defects.

#### Case report

A 56-year-old female patient reported with the chief complaint of discoloured teeth, receding gums and difficulty in maintaining oral hygiene in the upper right teeth region. The medical history revealed that the patient was diabetic and under medication for the last 2 years. On intraoral examination (fig 1), Miller's class III recession in the 13 & 14 region was seen. The attached gingiva was inadequate, vestibule was shallow and tooth mobility was Grade I. On probing, the pocket depth was 1mm in relation to both teeth. Loss of attachment in relation to 13 and 14 was 12mm and 11mm respectively.

Amalgam restorations were seen in relation to teeth number 13, 14 (done 10 years ago) and 15 (done 1 year ago). Root caries were evident on teeth numbers 13 and 14. The occlusal plane was deranged in relation to the 1<sup>st</sup> quadrant.

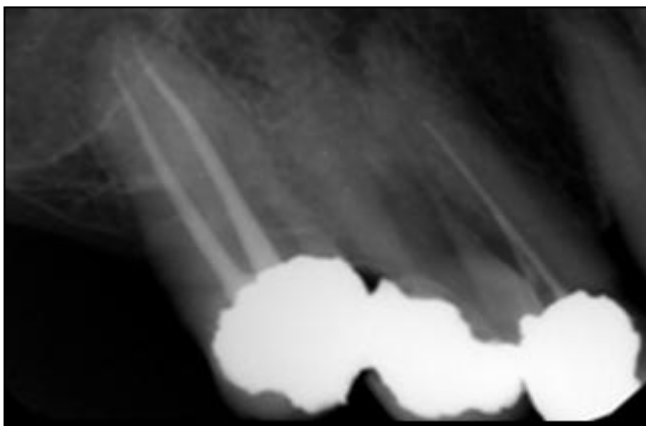
The oral hygiene status was fair. Past dental history revealed RCT in relation to 13, 10 years ago and on 15, 1 year ago.

On the radiographic examination (Fig 2), in relation to 13 and 15, obturation was inadequate. But clinically, the patient was asymptomatic. Percussion and pulp vitality tests using an electric pulp tester and cold test showed normal response in relation to 14.

The diagnosis was drawn as chronic generalised gingivitis with localized periodontitis in relation to 13, 14 and 15 regions. The overall prognosis was fair while individual prognosis was poor.



**Fig 1:** Miller's class III recession



**Fig 2:** Pre-operative x ray

#### A treatment plan was constructed as follows:

- **Phase I-**Scaling and root planning, Recall and maintenance
  - **Phase II-** Gingival augmentation, Endodontic therapy, Recall and maintenance
  - **Phase III-** Final restoration, Recall and maintenance
- Routine blood investigation was carried out and values were found to be within the normal limits. A physician's consent was obtained. Before starting the treatment, the treatment plan was thoroughly explained to the patient and an informed consent was taken.

#### Phase I

As a part of phase I therapy, scaling and root planning was done. Patient was advised to use soft toothbrush and desensitizing dentifrice. Patient was reviewed after 15 days. Gingival augmentation with free gingival graft was planned as a part of phase II therapy.

#### Phase II

Gingival augmentation procedure

Steps:

1. Preparation of recipient site (fig 3,4)
2. Preparation of donor site (fig 5,6)
3. Free gingival graft harvested (fig 7)
4. Interrupted and sling sutures placed (fig 8)
5. Periodontal dressing placed (fig 9)

Patient was recalled after 1 week for suture removal. Healing was found to be satisfactory (fig 10). Though the objective of gingival augmentation was to increase the width of attached gingiva, 3mm root coverage was achieved. As an added preventive measure, endodontic treatment was done in relation to 14 and re treatment in relation to 13 to reduce the existing and possible future bacterial load and contamination of the root canals.

Local anesthesia was administered. Existing amalgam restorations and secondary caries were removed. Non-surgical endodontic treatment was done in relation to 14 and retreatment was done in relation to 13. The canals were enlarged to size F2 using Protaper Gold files (Dentsply). Irrigation was done using 2.5% NaOCl and 17% EDTA (RC-Prep). Calcium hydroxide Intra canal medicament was placed in both teeth using lentulospirals and the cavities were temporized using Cavit.

The patient reported asymptomatic on the recall visit 1 week later. The canals were then obturated and access cavities were restored using composite. The root caries and recession were sealed with Glass ionomer cement.



**Fig 3:** Preparation of recipient bed



**Fig 4:** Deepening the vestibule



**Fig 5, 6:** Preparation of donor site



**Fig 9:** Dressing placed



**Fig 10:** post-operative 7 days



**Fig 7:** Harvested graft



**Fig 11, 12:** Armamentarium required for the Endodontic treatment.



**Fig 8:** sutures placed

**Phase III**

Following the endodontic therapy, the teeth 13, 14 and 15 were prepared to receive porcelain fused to metal full veneer crowns. The main was placed equi-gingival taking the adjacent healthy

gingiva as a reference mark. Splinted metal coping was planned to further stabilize the weak teeth. After this metal try-in was done. There was enough occlusal clearance and the metal margin adapted well to the prepared teeth margin. This was followed by full veneering of porcelain. Bisque trial was done and after correction of interfering points, the glazed prosthesis was cemented using GIC luting cement (fig 15, 16). At the 6 months follow up the gingiva around the crowns looked healthy (fig 17, 18).

The recession was not completely covered up by the flap, but the patient refused to go through another surgery. At the 9 months follow up, it was decided that the remaining exposed root should be restored using a novel pink composite (Beautiful, Shofu) which follows the S-PRG technology. This helped to enhance her esthetics further (fig 19, 20).

At the 1 year follow up, the patient returned with no complaints and examination revealed healthy attached gingiva and satisfactory esthetics (fig 21).

### Discussion

Preservation of the natural dentition is more important than replacing what is lost. In this case, the patient opted to save the teeth rather than getting the teeth extracted and placing implants. Implants are a treatment option in such cases but based on patient's preference it was not done in this case.

There is evidence indicating that sites with reduced amounts of keratinized tissue, in particular 'thin biotype' tend to develop more recession defects than sites protected by large and thick amounts of attached gingiva<sup>2</sup>. Since alveolar mucosa has not been considered suitable as marginal tissue, the establishment of an adequate zone of attached gingiva has become one of the major goals in mucogingival surgery<sup>13</sup>.

Miller's Class I and II gingival recession can be covered completely in a predictable manner. However, Class III recession can only be partially covered, while Class IV cannot be covered either fully or partially and one may only aspire to increase the size of the attached gingiva.

### 1996 World workshop in periodontics

Recommended gingival augmentation procedures to prevent soft tissue damage in the presence of alveolar bone dehiscence or halt progression of gingival recession. This will improve plaque control and patient comfort around teeth and implants and increase dimension of gingiva in conjunction to fixed or removable prosthetic dentistry<sup>14</sup>.

Among different surgical techniques, autogenous free gingival graft (FGG) is considered the gold standard surgery as well as the most common approach used for single and multiple recession defects. However, only a few studies report short- or medium-term data on stability of gingival margin after free gingival graft<sup>11, 5</sup>. In this case report, after augmentation with free gingival graft 1.5 years post operatively, 4mm increase in width of attached gingiva was seen. Along with obtaining adequate width of attached gingiva, which was the main objective, 5mm root coverage was achieved. Increased vestibular depth in turn improves oral hygiene maintenance.

Earlier studies on the microbiology of root surface caries placed emphasis on Gram-positive pleomorphic filamentous rods, particularly *Actinomyces viscosus* and *Actinomyces naeslundii*<sup>6</sup>. Lot more studies have come into light that show that other microorganisms might also be the cause of root caries. A study done by Dorita Preza *et al.* suggested that putative etiological agents of root caries include not only *S. mutans*, lactobacilli, and *Actinomyces* but also species of *Atopobium*, *Olsenella*, *Pseudoramibacter*, *Propionibacterium*,

and *Selenomonas*<sup>7</sup>.

In the present case, once the root caries progressed, the root surface became rough and more plaque and calculus deposited in the region. The fact that the patient also had chronic generalized periodontitis with gingival recession did not help in maintenance of the exposed root surfaces. A heavy infectious process on the root surface prevented the healing of the gingival mucosa and the root surface remained exposed. Therefore the only treatment option was to eradicate the bacteria and their biofilms from the root canals as the existing root caries could have been a future cause for pulp involvement of 14 and a possible reinfection of endodontically treated 13 and cover the exposed root surfaces with a graft followed by a prosthetic rehabilitation.

The bucco-lingual line angle was inferiorly placed in comparison with the adjacent healthy teeth. This produced an unaesthetic smile. This was corrected by prosthetic rehabilitation using splinted crowns. Splinted crowns were planned to further strengthen the teeth. Gingival ceramic to cover the root surfaces was avoided in order to help the patient maintain the oral hygiene and thus periodontal health.

Beautiful (Shofu, Kyoto, Japan) is a tooth colored restorative material that uses resin base and SPRG filler technology. It is a second-generation giomer introduced into market claiming better optical properties. It has the high flexural strength of composite resin and the biocompatibility and superior adhesion along with superior esthetics<sup>8</sup>. In a study done by S Tamil selvam *et al.*, Giomers showed better biocompatibility than conventional and ceramic reinforced glass ionomer cements and resin composite<sup>9</sup>.



Fig 13: 2 months post endodontic treatment.



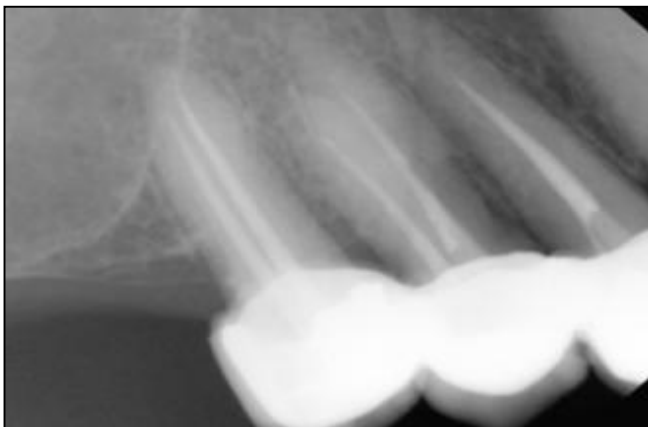
Fig 14: 2 months post endodontic treatment.



**Fig 15:** Crown preparations were made to re- establish the occlusal plane following the curves of Spee and Wilson.



**Fig 16:** Fabricated crowns were cemented.



**Fig 17:** 6 month follow up radiograph.



**Fig 18:** 6 months follow up showing crowns and posterior removable partial denture.



**Fig 19:** Beautiful II gingival shade composite



**Fig 20:** 9 months follow up appointment where Beautiful II gingival shade composite was placed in the remaining recession regions.5mm of increase in width of attached gingiva was achieved along with optimal vestibular depth.



**Fig 21:** 1 year post treatment follow up.

**Conclusion**

Extraction need not always be a solution for teeth diagnosed with poor prognosis. As De Van rightly states, “Perpetual preservation of what remains is more important than the meticulous replacement of what is missing.” Thus, saving the patient’s teeth must be our utmost aim.

We must not ignore the tangible benefits one may achieve through interdisciplinary approach for an overall oral rehabilitation of the individual. In this case, a conservative and esthetic treatment was done keeping in mind the demands of the patient.

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