

## CASE REPORT

# Anterior Esthetic Rehabilitation: Harmonizing the White and Pink

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## ABSTRACT

Esthetics is the science of beauty, re-establishing dental esthetics is one of the most gratifying services that a dental professional can provide. When the complaint is associated with both hard and soft tissues, it becomes even more challenging to harmonize these structures. A multi-disciplinary approach is the preferred protocol for such cases. This article discusses a case report of successful rehabilitation of anterior esthetics involving both white and pink esthetics.

**Keywords:** Discolored tooth, Calcium hydroxide, Depigmentation, Gingivoplasty, Composite veneers

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## INTRODUCTION

A beautiful smile is one of the biggest aspirations for many and often sought after treatment from dentists. Frequently, when treating esthetic concerns for the patients, clinician focusses on the teeth (white), and the gingiva (pink) are often ignored. This can have catastrophic effects on overall treatment outcome despite delivering the best white esthetics.<sup>[1,2]</sup>

Thus, an optimal balance of both the white and pink oral tissues must be considered while planning any esthetic corrective procedure. It is not unusual to restore maxillary anterior teeth which are naturally out of form and esthetics or due to some pathology with direct or indirect veneers. However, assessment of smile must be done to gain information about the relationship of teeth with surrounding soft tissues.<sup>[3]</sup> This forms the key element to proper diagnosis, treatment planning and providing the best possible treatment outcome to the patient.

The current case report discusses one such interdisciplinary approach to harmoniously restore the white and pink esthetics to patient's utmost satisfaction.

## CASE REPORT

A female patient of age 18 years reported to the Department of Conservative Dentistry and Endodontics, with the chief complaint of pain and swelling in upper front teeth since few days, discolored gums, and compromising smile [Figure 1].

Clinical examination revealed Ellis Class II fracture involving 11 and 12. There was intraoral sinus tract in relation to these teeth. The teeth were tender on percussion. All teeth were hypoplastic, and there was the presence of midline diastema.

There was an irregular grayish black discoloration involving the anterior attached gingiva that presented with an esthetic concern for the patient. The gingival margins and zenith were nonuniform for all teeth [Figure 2].

The patient gave a history of trauma before 6 years but did not seek any dental intervention at that time. Past dental history and medical history was non contributory.

Pulp sensibility tests were performed. Tooth 11 and 12 had no response in electric and thermal (heat) test whereas 13, 21, 22, and 23 gave normal response to these tests.

Radiographic examination revealed diffuse periapical radiolucency of size 2 cm × 2 cm around apices of 11 and 12. Open apex was present in relation to 11. Remaining anterior teeth showed no periapical changes [Figure 3].

A final diagnosis of the chronic periapical abscess was made for 11 and 12. There was associated idiopathic melanin hyperpigmentation of gingiva.

The patient presented with a complaint of both hard and soft tissues. Hence, an elaborate interdisciplinary treatment was planned to restore the tooth form n function along with esthetic rehabilitation of white and pink structure of the oral cavity.

Phase I therapy involved management of pain and associated complaint in teeth 11 and 12. This involved non-surgical endodontic therapy. Under local anesthesia and rubber dam isolation, access cavities were prepared in 11 and 12. Working length was determined

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**Figure 1:** Pre-operative photograph



**Figure 2:** Non-uniform gingival



**Figure 3:** (a and b) Pre-operative radiograph



**Figure 4:** Working length radiograph



**Figure 5:** Intracanal medicament placed

using apex locator and was confirmed with an intraoral periapical radiograph [Figure 4]. The canals were prepared using stainless steel K files till apical file no 60 using copious irrigation of 1.3% sodium hypochlorite and normal saline.

Intracanal dressing of calcium hydroxide was given in both the teeth and teeth were sealed with the interim restorative material. The patient was kept under regular recall to evaluate healing of periapical tissues and check the formation of a calcific barrier with respect to the open apex of 11 [Figure 5].

At 8 months recall, healing of periapical radiolucency was quite satisfactory and the apical barrier was evident in 11 on radiographic examination [Figure 6].

The completeness of barrier was ascertained using a 15 No K file. The canals were cleaned well, dried and 11 and 12 were obturated using cold lateral condensation technique [Figure 7].

Phase II involved considering the gingival tissues; the irregular zenith was corrected using gingivectomy and gingivoplasty. The melanin hyperpigmentation was removed using Laser. Periodontal pack was given. At follow-up visit, healing and reconfigured soft tissue architecture was satisfactory. Hence, final definitive hard tissue esthetic rehabilitation was performed [Figure 8].

This Phase III included vital bleaching of teeth 13–23 using Pola Office bleaching (30% H<sub>2</sub>O<sub>2</sub>) after application of gingival barrier. This eradicated the hypoplastic chalky white areas in these teeth [Figure 9].

Teeth 12–22 were prepared for direct composite veneers. These were delivered using total-etch technique and nanohybrid composite resin (Ivoclar Vivadent). Canines were reconfigured, and final finishing and polishing of all 6 anterior teeth were done [Figure 10a and b].



**Figure 6:** Follow-up after 8 months



**Figure 7:** Obturation radiograph

## DISCUSSION

Non-surgical endodontic therapy aims at thorough disinfection of the root canal system to facilitate periapical healing. For this purpose, calcium hydroxide has resisted the test of time. Its high alkaline pH affects the bacterial cell wall and DNA leading to their elimination.<sup>[4,5]</sup>

Open apices of teeth pose a special challenge with regard to inability to provide an apical stop to limit instrumentation and subsequent obturating materials.<sup>[6,7]</sup> Variety of materials have been proposed for apexification in non-vital teeth. These include calcium hydroxide, MTA, Biodentine to name a few.<sup>[8-10,12]</sup> MTA and Biodentine are the newer biocompatible materials used for this purpose but a costlier option. Calcium hydroxide is an economical alternative to these. Considering the financial status of patient, calcium hydroxide apexification was carried out. It provided a calcified barrier of osteo dentin, osteo cementum, or both within a span of 1 year.<sup>[11]</sup>



**Figure 8:** Post-operative photograph after gingivoplasty and depigmentation by LASER



**Figure 9:** Post-operative photograph after in office bleaching



**Figure 10:** (a and b) Post-operative photograph after direct composite veneer restoration

Gingival smile line is an anatomical feature that exposes gingiva superior to maxillary anterior teeth.<sup>[13]</sup> Improving smile esthetics before restorative is often one consideration that the patients seek. Assessment of smile provides information about the relationship between the teeth and surrounding pink tissue and is the key element in diagnosis and treatment planning in cosmetic dentistry.<sup>[14]</sup>

An unattractive soft tissue surrounding a beautiful restoration has a negative impact on the esthetic result.

Harmony of a smile is determined not only by the shape, position, and color of teeth but also by the gingival tissues. Although melanin pigmentation of the gingiva is completely benign and does not present a medical problem, complaint of black gums is common especially in patients with very high smile line.<sup>[15]</sup>

Perio Aesthetic treatments modalities strive to achieve a harmonious interrelationship of pink with the white, which is imperative for all treatment procedures.

Depigmentation procedures can be done using bur abrasion, scraping, partial thickness flap, cryotherapy, electrosurgery, and laser. Lasers provide a simple and

effective option providing good results along with patient satisfaction.<sup>[16-18]</sup>

Diode laser uses radiation energy that is transformed into ablation energy causing cellular rupture and vaporization. There is minimal heating of surrounding tissues thereby providing a bloodless field.<sup>[19-22]</sup>

Hypocalcified areas in teeth present an esthetic concern. Vital bleaching can be done for such teeth to lighten the shade of tooth before final restorations. The anterior teeth were short and had spacing between them. Hence, direct composite veneers were done as an esthetic and economic option to correct the abnormal of tooth form, alignment and spacing, and color.<sup>[23,24]</sup>

## CONCLUSION

This interdisciplinary approach is suggestive of successful management of disharmony of white and pink. Various conservative and economic modalities are available to harmonize the form and function of maxillary anterior teeth. Calcium hydroxide apexification and bleaching with direct composite veneers are the most conservative and cost-effective options for the patient. Similarly, lasers for gingival esthetics allow a quicker and predictable outcome. Thus, a combination rendered a gratifying service to the patient.

## REFERENCES

- Hungund S, Gohil D, Mishra R. Smile architecture and pink aesthetics: A successful methodology in cosmetic dentistry. *Eur J G Dent* 2012;2012:85-9.
- Hadyaoui D, Daouahi N, Nouira Z, Cherif M. Gingival harmony in anterior aesthetic restorations. *Dent J* 2014;2:155-62.
- Claman L, Alfaro MA, Mercados A. An interdisciplinary approach for improved esthetic results in anterior maxilla. *J Prosth Dent* 2003;89:1-5.
- Mohammadi Z, Dummer PH. Properties and potential clinical applications of calcium hydroxide in endodontics and dental traumatology. *Int Endod J* 2011;44:697-730.
- Rotstein I, Friedman S, Katz J. Apical closure of molar roots with help of calcium hydroxide. *Oral Surg Oral Med Oral Pathol* 1990;70:656-60.
- Pace R, Giuliani V, Pini Prato L, Baccetti T, Pagavino G. Apical plug technique using mineral trioxide aggregate: Results from a case series. *Int Endod J* 2007;40:478-84.
- Genur B, Aydinbelge HA. Mineral trioxide aggregate apical plug for the treatment of nonvital immature permanent maxillary incisors: Three case reports. *J Conserv Dent* 2012;15:73-6.
- Simon S, Rilliard F, Berdal A, Machtou P. The use of mineral trioxide aggregate in one-visit apexification treatment: A prospective study. *Int Endod J* 2007;40:186-97.
- Holden DT, Schwartz SA, Kirkpatrick TC, Schlinder WG. Clinical outcomes of artificial root end barriers with mineral trioxide aggregate in teeth with immature apices. *J Endod* 2008;34:812-7.
- Giuliani V, Baccetti T, Pace R, Pagavino G. The use of MTA in teeth with necrotic pulps and open apices. *Dent Traumatol* 2002;18:217-21.
- Torabinjad M, Hford TR. Root end filling materials: A review. *Endod Dent Traumatol* 1996;12:161-78.
- Khatavkar RA, Hegde VS. Use of matrix for apexification procedure with mineral trioxide aggregate: Case report. *J Conserv Dent* 2010;13:54-7.
- Ahmad I. Anterior dental aesthetics: Gingival perspective. *Br Dent J* 2006;199:195-202.
- Simon Z. Challenge in achieving gingival harmony. *CDA J* 2010;38:583-90.
- Cicex Y, Ertas U. The normal and pathological pigmentation of oral mucous membrane. A review. *J Contemp Dent Prac* 2003;4:76-86.
- Thangovelu A, Klavarasu S, Jayapalan P. Pink esthetics in periodontics-gingival depigmentation: A case series *J Pharm Bioallied Sci* 2012;4:186-90.
- Deepak P, Sunil S, Mishra R, Sheshadri. Treatment of gingival pigmentation: A case series. *Indian J Dent Res* 2005; 16:171-6
- Wolffe GN. Lengthening clinical crowns: A solution for specific periodontal, restorative and aesthetic problems. *Quintessence Int* 1994;25:81-8.
- Ishikarva I, Aoki A, Takasaki AA. Potential application of erbium: YAG laser in periodontia. *J Periodontal Res* 2004;39:275-85.
- Murthy MB, Kaur J, Das R. Treatment of gingival hyperpigmentation with rotary abrasive, scalpel+laser techniques: A case series. *J Indian Soc Periodontol* 2012;16:614-9.
- Sushma L, Yogesh D, Mahavarc PP. Management of gingival hyperpigmentation using surgical blade and diode laser therapy: A comparative study. *J Oral Laser Appl* 2009;9:41-7.
- Patil KP, Joshi V, Kanakande V. Gingival depigmentation: A split louth comparative study between scalpel and cryosurgery. *Contemp Clin Dent* 210;6:97-101.
- Korut B, Yanikoglu F, Fundy M. Direct Composite laminate veneers: 3 case reports. *J Dent Res Clin Dent Prospects* 2013;7:105-11.
- Azzaldeen A, Muhamad AH. Diastema closure with direct composite: Architectural gingival contouring. *J Adv Med Dent Scie Res* 2014;3:1-6.