Blackish, Gummy Smile: A Periodontal Approach

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Abstract

Introduction: Major determinant of the aesthetics of a smile is the amount of gingival display, which can be excessive in cases of altered passive eruption. Other factor influencing the aesthetics of smile is hyperpigmentation of gingiva.

Case report: A 20 year old girl came with chief complaint of a blackish, gummy smile. On clinical examination blackish pigmentation of gingiva was present with excessive gingival display in anterior region. Hence, patient was considered for depigmentation of gingiva with aesthetic crown lengthening with depigmentation that was achieved with soft tissue diode laser on one side and by scalpel on contralateral side.

Conclusion: Excessive gingival display negatively affects the aesthetics of an individual’s smile. Depigmentation using laser technology procedure can be accomplished with less invasive methods, a more relaxed appointment and less patient discomfort.

Keywords: Hyperpigmentation; Excessive gummy smile; Lasers

Introduction

A proposed major determinant of the aesthetics of a smile is the amount of gingival display, which can be excessive in cases of altered passive eruption. Within the face, the mouth carries nearly a third of the importance in the hierarchy of factors that determine whether a person is judged to be attractive or, not. (Goldstein, 1969) The prevalence of excessive gingival display has been estimated at 10% of the population between the age of 20 and 30 years, and it is seen more in women than in men (Tjian et al., 1984). Excessive gingival display is a condition characterized by excessive exposure of the maxillary gingiva during smiling, commonly called a “gummy smile” (Silberberg et al., 2009). Excessive gingival display (EGD) or a “gummy smile” presents a negative impact on the aesthetics of an individual’s appearance (Robbins, 1999). EGD may be caused due to hyperactivity of the elevator muscle of the upper lip, vertical overgrowth of the maxilla, gingival enlargement, and/or altered passive eruption (Foley Timothy and Sandhu Harinder, 2003). In altered passive eruption, gingival complex is positioned more coronally on the anatomic crown due to abnormal eruptive patterns of the dentogingival unit. The management of EGD may involve a variety of treatment modalities, depending on its specific aetiology. Crown-lengthening surgery (CLS) is a widely used periodontal procedure performed to treat EGD. It is used to provide adequate supragingival tooth dimensions to enhance aesthetics. If the EGD is related to altered passive eruption or gingival
enlargement, it can be effectively corrected by numerous periodontal procedures. Melanin pigmentation is the most common pigmentation of gingiva. Depigmentation of gingiva is the periodontal plastic procedure where pigmentation is reduced or removed by various procedures such as scalpel technique, abrasion with bur, electrosurgery and cryosurgery. The most advanced depigmentation technique is a laser procedure (Anoop et al., 2012). The aim of this case report is to present the management of a case with hyperpigmented excessive gingival display (EGD) by aesthetic crown lengthening and depigmentation of gingiva by a split mouth design that is laser technique on right side and scalpel technique on left side.

Case Report
A 20 year old girl reported to the Department Of Periodontology, Govt. Dental College and Hospital Aurangabad, with chief complaint of blackish gums and gummy smile (Figure 1).

Figure 1 Pre-operative clinical photograph

On intra-oral examination, hyperpigmentation of gingiva was present in upper and lower anterior region of jaws with excessive gingival display (EGD). Probing depth was found to be 4mm on labial aspect of 12, 11, 21, 22, 32, 31, 41 and 42. In this case, the EGD was due to altered passive eruption. The gingiva was normal without inflammation. Radiograph showed normal bone architecture. Medical history and family histories of the subject were taken to rule out any possible aetiologies and/or, contraindication for surgery. Blood investigations done were found to be normal.

Surgical procedure: Flapless crown lengthening procedure was done. Local anaesthesia was achieved by 2% lignocaine with vasoconstrictor (1:80,000) in upper and lower anterior region of jaw. Then, with the help of 15 no. surgical blade, scalloped external bevel incision was given from the distal surface of 12 to 22 and 32 to 42 to remove 3mm of excess of gingival margin and to expose the clinical crown of all teeth with EGD (Figure 2).

Figure 2 Aesthetic crown lengthening

Following this procedure, the patient was considered for depigmentation that was achieved by laser technique in relation to the right upper and lower while scalpel technique for left upper and lower sides of the gingiva. In laser technique, soft tissue diode laser was used with short light paint brush strokes in horizontal directions to remove melanin pigmentation. Neither bleeding nor pain was experienced by patient. Saline wet gauze was used to remove the charred tissue and clean the field. In scalpel technique, a Bard Parker handle with 15 no. surgical blade having 1 mm of bevel was used to remove the pigmented layer. Pressure was applied with local anaesthesia soaked wet gauze to stop bleeding (Figure 3, 4). After removing the entire pigmented area on left side, a periodontal dressing was applied on both sides. Post-operative instructions were given.

Figure 3, 4 Immediate post-operative clinical photographs

Postoperative medication included Ibuprofen 400 mg on an as and when required basis. Postoperative instructions were given and the patient was advised to
use 0.12% chlorhexidine mouth rinse twice a day for 15 days. After 1 week, pack was removed and the surgical area was examined. Healing was found to be uneventful without any post-operative complications.

Healing observed was similar on both the sides. Patient was followed up to 3 months with no recurrence of pigmentation on comparison of the clinical examination of the areas treated (Figure 5, 6).

![Figure 5, 6 Pre-operative and at 3 month follow-up](image-url)

**Discussion**

The word Laser is acronym of light amplification by stimulated emission of radiation. Maiman in 1960 developed first working laser. Soft tissue lasers are claimed to aid healing and reduce inflammation and pain. Ameet et al. compared three different surgical techniques for gingival depigmentation: Lasers, scalpel and abrasion with diamond bur on the same patient with a 3 month follow-up (Anoop et al., 2012).

The result of present case report also showed that both laser and scalpel techniques were equally effective for depigmentation of gingiva giving similar aesthetic results. However, there are many advantages of lasers over other procedures including: (Anoop et al., 2012).

1. Instant sterilization of the surgical site;
2. Reduced bacteraemia;
3. Reduced mechanical trauma;
4. Dry and bloodless surgery;
5. Minimal postoperative discomfort; and
6. Minimal postoperative sequelae that are seen with other procedures, especially surgical.

**Conclusion**

A gummy smile can have an adverse impact on the perception of a patient’s attractiveness, friendliness, trustworthiness, intelligence, and self-confidence. Proper treatment plan should be established before any clinical procedures. With the aim of it, a thorough examination including clinical examination and radiographic assessment are essential. With correct diagnosis of and appropriate therapy for excessive gingival display (EGD) and melanin hyperpigmentation, dental aesthetics can be improved, as demonstrated by the case reported here.

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