



GUM BLEACHING –A PART OF ESTHETIC DENTISTRY

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<p>Article Info <i>Received 15/12/2014</i> <i>Revised 27/12/2014</i> <i>Accepted 11/01/2015</i></p> <p>Key words: Gingiva, Melanin, Depigmentation, Scraping Technique, Esthetics.</p>	<p>ABSTRACT In dentistry, esthetics has a special place. Although gingival melanin pigmentation does not present a medical problem, clinicians are often faced with a challenge of achieving gingival esthetics. The harmony of the smile is determined not only by the shape, position and color of the teeth but also by the gingival tissues. Gingival health and appearance are essential components of an attractive smile. Gingival pigmentation results from melanin granules, which are produced by melanoblasts. The degree of pigmentation depends on melanoblastic activity. Different treatment modalities have been reported for depigmentation of gingiva such as bur abrasion, scraping, partial thickness flap, cryotherapy, electrosurgery and laser. In the present case, depigmentation was done with scraping technique, which is simple, effective and yields good results, along with good patient satisfaction.</p>
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INTRODUCTION

The appearance and color of the gingival tissues surrounding the teeth plays an important role in the esthetics of the anterior maxillary and mandibular region of the mouth[1]. Color of healthy gingiva varies from pale pink to deep purplish blue. The gingiva is the most commonly affected intraoral tissue, which is responsible for an unpleasant appearance. Between these limits of normalcy are a large number of colors depending primarily on the depth of epithelization, the degree of cornification, arrangements of vascularity, and degree of melanogenesis. Melanin pigmentation often occurs in the gingiva as a result of an abnormal deposition of melanin. Hyperpigmentation of the gingiva is caused by excessive melanin deposition by the melanocytes located mainly in the basal and the suprabasal cell layers of the epithelium [2].

Melanin hyperpigmentation of gingiva does not present a medical problem, although complaints of black gums may cause esthetic problems and embarrassment, particularly if the pigmentation is visible during speech and smiling [4,5]. Oral melanin pigmentation is considered to have multifaceted etiologies including genetic factors,[2,3]

tobacco use,[4,5]systemic disorders[6] and prolonged administration of some drugs, especially antimalarial agents [7,8] and tricyclic antidepressants. Melanosis of gingival is frequently encountered among dark skinned ethnic groups as well as in medical conditions such as Addison’s syndrome,Peutz–Jeghers syndrome, and von Recklinghausen’s disease (neurofibromatosis).[9,10] Melanin hyperpigmentation of gingiva usually does not present as a medical problem, but many patients may consider their black gums to be unaesthetic. This problem is aggravated in patients with “gummy smile.”Gingival depigmentation is a procedure in which gingival hyperpigmentation is removed by various techniques. The indication for depigmentation is patient’s demand for esthetic reasons. Various depigmentation techniques have been employed. These include gingivectomy, [11] gingivectomy with free gingival autografting, [12] acellular dermal matrix allografts, [13] electrosurgery, [14] cryosurgery, [15] abrasion with diamond burs and various types of lasers [16, 22]. Gingival depigmentation is a periodontal plastic surgical procedure whereby the gingival hyperpigmentation is removed or reduced by various



techniques. The first and foremost indication for depigmentation is the patient's demand for improved esthetics. Various pigmentation techniques have been employed, with similar results. Selection of a technique should be based on clinical experience and the patient's preferences. Removal of gingival melanin pigmentation should be performed cautiously and the adjacent teeth should be protected, since inappropriate application may cause gingival recession, damage to underlying periosteum and bone, delayed wound healing, as well as loss of enamel.⁶ The present case report introduces a simple and effective surgical depigmentation technique that does not require sophisticated instruments or apparatus, but yet yields esthetically acceptable results. The method is simple, safe, and non-aggressive and can be easily repeated if necessary.

CASE REPORT

A 21-year-old male patient visited the Department of Periodontics. With the chief complaint of "blackish gums." On examination, it was found that the patient had generalized maxillary and mandibular gingival melanin pigmentation. The patient had good oral hygiene. The patient requested for any kind of esthetic treatment, which could make his 'black' colored gums look better. A scalpel surgery was planned to perform the depigmentation. The entire procedure was explained to the patient and written consent was obtained. A complete medical examination, family history and blood investigations were done to rule out any contraindication for surgery. Local anesthesia was infiltrated in the maxillary anterior region from premolar to premolar and mandibular anterior region canine to canine (2% lignocaine with adrenaline in the ratio 1:1, 00,000). A Bard Parker handle with a No. 15 blade was used to remove the pigmented layer (Fig. 2). Pressure was applied with sterile gauze soaked in local anesthetic agent to control hemorrhage during the procedure. After removing the entire pigmented epithelium along with a thin layer of connective tissue with the scalpel, the exposed surface was irrigated with saline. Care was taken to see that all remnants of the pigment layer were removed. The surgical area was covered with a periodontal dressing. Post-surgical antibiotics (amoxicillin 500 mg, thrice-daily for 5 days) and analgesics (Imol plus, thrice-daily for 3 days) were prescribed. The patient was advised to use chlorhexidine mouthwash 12-hourly for one week. He was reviewed at the end of one week. The healing process was proceeding normally and patient did not report any discomfort. The patient was asked to continue the chlorhexidine mouthwash for another week. At the end of one month, re-epithelialization was complete and healing was found to be satisfactory. Patient had no complaints of postoperative pain or sensitivity (Fig.5). At the end of six months, the gingiva appeared healthy and no further repigmentation was seen (Fig 1-5).

DISCUSSION

The gingival color in normal healthy persons is determined by the degree of vascularization, the thickness of keratinized layer, and the amount of the pigment containing cells. Physiologic pigmentation is probably genetically determined. Dummet (1960) suggested that the degree of pigmentation is partially related to mechanical, chemical, and physical stimulation. [17] Melanin pigmentation is frequently caused by melanin deposition by active melanocytes located mainly in the basal layer of the oral epithelium. Pigmentation can be removed for esthetic reasons. The various depigmentation techniques used currently are gingivectomy, scalpel scraping procedure, electrosurgery, cryosurgery, and lasers. The selection of a technique for depigmentation should be based on clinical experience, patient's affordability, and individual preferences. Electrosurgery requires more expertise than scalpel surgery. Prolonged or repeated application of current to the tissue induces heat accumulation and undesired tissue destruction. Contact with periosteum or alveolar bone should be avoided. In 1975, Nixon et al. histologically evaluated the healing of electrosurgical and scalpel wound. It was observed that healing of electrosurgical wounds was an inflammatory response and more tissue destruction was observed. [18] In 1970, Glickman and Imber compared electrosurgery and periodontal knives and found that in deep gingival resection, inflammation was intense, and loss of crestal bone height occurred with electrosurgery. [19] In 2001, Gnanasekhar studied electrosurgery and its application in dentistry, and concluded that electrosurgery can never replace the scalpel and it requires high skills to achieve predictable and good wound healing. (14) Cryosurgery is followed by considerable swelling and is also accompanied by increased soft tissue destruction as the depth of penetration cannot be controlled. [20] CO₂ laser causes minimum damage to the periosteum and underlying bone. It can remove thin layer of epithelium cleanly. Healing of laser wound is slower than that of scalpel wound. The treated gingival and mucosa do not need any dressing when treated with laser and reepithelialization is completed within 2-3 weeks. [21] In 2004, Robert A. Convissar studied the biologic rationale for the use of lasers in dentistry and found that lasers interact with oral tissues, depending on the ability of the target tissue to absorb the laser energy. The absorption of the energy by soft tissues varies with pigmentation, vascularity, and water content. The dark melanotic gingiva absorbs the laser energy much more easily and cuts more rapidly than the clinician would like, possibly damaging the tissue or creating a layer zone of thermal necrosis around the target tissue. [22]

Although cryosurgery and laser therapy achieve satisfactory results, they require highly sophisticated equipments that are costly. Therefore, scalpel surgical technique is highly recommended as it is easy to perform, cost-effective with minimum discomfort, and esthetically acceptable to the patient.



Figure 1.



Figure 2.



Figure 3.



Figure 4.



Figure 5.



CONCLUSION

The depigmentation procedure was successful and the patient was satisfied with the result. Among the mentioned techniques, we found the scalpel technique to

be relatively simple and easy to perform as also cost-effective. Above all, it causes less discomfort and is esthetically acceptable to the patients.

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