Gingival Depigmentation: Black to Pink

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Abstract

Gingival pigmentation correlates to ethnic and racial backgrounds. The melanin pigment varies considerably and this could lead to range of pigmentation from pale pink to coral pink with elements of patches to diffusion. Melanin pigmentation of gums may be harmless but does pose a serious esthetic problem in patients especially with gummy smile. The present case report elucidates a simple and cost effective surgical depigmentation technique that does not require specialized instruments but give esthetic results.

Keywords: Gingival Pigmentation; Melanin; Gingival Esthetics; Depigmentation.

Introduction

Color of gingiva is variable for patients of various ethnic, cultural and racial backgrounds. The melanin pigment varies considerably in gums and this could lead to range of pigmentation from pale pink to coral pink with elements of patches to diffusion. Gingival color has a prime role in determining overall appearance of a person and which is further dependent on density of active melanocytes in it. Melanin is the principal pigment that is responsible to color the body tissues and gingivae. Pigmentation of gingiva with melanin is not harmful but does pose a serious esthetic problem in patients who are conscious of their appearance or with excessive display of gums during smiling.

Melanin has not its origin from hemoglobin and is derived neuro ectoderm wherein it is synthesized by melanocytes and it starts forming as early as 3 hours after birth. [1] Once synthesized these melanin granules are engulfed by melanophores which are located in epithelium and connective tissue.[2] There is a close association between Keratinocytes and Melanocytes as documented by Fitzpatrick et al and this dual association is coined as epidermal-melanin unit.[3] They put forth the hypotheses that at areas of pigmentation in gingivae there is active transportation of these pigmented granules from melanocytes to keratinocytes.

With increasing awareness about advancement in the field of cosmetic dentistry demand for gingival depigmentation has been increased in last few years. Treatment demand is usually made by the patients who have high esthetic concern. Till date various methods for depigmentation are proposed which include cauterization using chemicals on gingiva,[4] gingivoplasty and gingivectomy,[5] surgical scraping technique.[6] Apart from it can can also be achived through gingival abrasion using bur[7] cryotherapy by liquid nitrogen,[8] gingival

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autograft,[9] and LASER therapy[10]. This surgical depigmentation technique elucidates that it is simple; cost effective does not require specialized instruments and gives good esthetic results.

Materials and Method

A 24 year old female patient reported in OPD of department of periodontology, I.T.S Dental College and Hospital, Greater Noida with chief complaint of unsightly black gums since 6-7 months. History revealed that patient has been smoking 5-6 cigarettes per day from past 7-8 years. Although she has quit smoking from past 4-5 months .The patient had acceptable oral hygiene level with good plaque control.

No Past medical history suggestive of systemic disease or disorder was reported. Severity of gingival pigmentation was assessed by taking Dummett Pigmentation Index given by Dummett C.O. in 1964 according to which patient was given Score of 3.[11] All the observations and recordings were made in natural light.

The infiltration of local anesthesia was done at the depigmenation site. Using Blade no. 15 and Bard Parker handle no. 3 scraping off of the gingival epithelium and underlying pigmented layer of connective tissue was done. The raw surface was irrigated with normal saline. The surface was cleaned and bleeding was controlled. Once the bleeding was arrested the exposed depigmented surface was covered with periodontal dressing for one week. (Fig.1-6). Post operative analgesics were given. The patient was instructed to use chlorhexidine 0.12% mouthwash in the ratio of 1:1 twice daily for two weeks post operatively to control plaque.

Healing was uneventful and no post-operative pain, hemorrhage, swelling, infection were reported in any of the surgical sites on recall visits. Patient was satisfied with the treatment and its outcome. There was no repigmentation during follow up. The patient was followed up for a period of 6 months for monitoring any recurrence of melanin pigmentation.

Fig .1 Pre-operative

Fig.2 Demarcation of Surgical Site

Fig.3 Scrapping of Gingival Epithelium With No.15 Blade

Fig.4 Post Operative

Fig.5 Periodontal Dressing Placed

Fig.6 Post Operative After 6 Weeks

Discussion

Melanin pigmentation results from melanin granules synthesized by melanoblasts which are mostly localized in between epithelial cells of the gingival epithelium.[12] Gingival melanin pigmentation depends on multiple factors like ethnicity and race of an individual and sometime it is pathological. Melanin, a brown colored pigment, which has neuroectodermal origin and most common type of endogenous pigmentation of gingiva.[13,14]

Various procedures have been proposed till date to remove gingival melanin pigmentation, such as by chemical cauterization, abrasion with diamond bur, gingivectomy and gingivoplasty, soft tissue autograft, partial-thickness flap, cryosurgery, electro-surgery and lasers.[15] Although these techniques have reported satisfactory results in the literature but each technique have its own advantages and limitations.

It has been reported that electrocautry is better than scalpel for gingival depigmentation and possible explanation for this as given by Oringer's "exploding cell theory" which states that electric currents cause disintegration of molecules in melanocytes thus causing delay in recolonization of melanocytes at wound area.[16] The electro-surgery has added advantage of minimal bleeding from the surgical site but it has imitation that it may cause irreversible tissue injury to bone and underlying periosteum.[13,17]

The use of laser and cryosurgery for depigmentaion also has yielded good esthetic results, but again, they require advanced and expensive apparatus, which is not commonly available in dental hospitals and clinics.

In depigmentation technique with gingival scalpel procedure initially scrapping or dissection of gingival epithelium and underlying connective tissue containing melanophores is done. This scrapping technique creates raw surface and bleeding from the surgical site which mandates periodontal dressing on the raw wound area created during the procedure.[12] The newly formed epithelium that forms after healing is generally devoid of any melanin pigmentation[18,19]. Depigmentation with

scrapping technique using scalpel should be done carefully because injudicious use of scalpel may damage the underlying periosteum and bone causing gingival recession.[15]

Thus, the inference is that use of the scalpel technique for the depigmentation of dark gingivae is most cost effective as compared to other techniques, which require more expensive armamentarium.

Numerous theroies have been put forth till date to explain repigmentation of gingival following gingival depigmentation but most accepted migration theory postulates that there is active migration of melanocytes from the adjacent pigmented tissues to the non pigmented areas created post healing, causing repigmentation; possibly this can be attributed to melanocytes left during the surgical procedure.[13,19]

Conclusion

Thus gingival depigmentation procedure is done for cosmetic reasons is not permanent and tends to revert back and may require repetition of the procedure. Through this article we emphasize the use of scalpel technique for gingival depigmentation because of ease of availability of surgical armamentarium, cost effectiveness of the procedure, high patient acceptance and excellent results achieved by this technique.

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