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CASE REPORT

MANAGEMENT OF A BLACK GUMMY SMILE: A CASE REPORT

[1]Anupam Deka and [*2]Swarga Jyoti Das

[1]Lecturer, Regional Dental College and Hospital, Guwahati-781032, Assam, India
[2]Professor & Head, Department of Periodontics, Regional Dental College and Hospital, Guwahati-781032, Assam, India.

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ABSTRACT

Gingival pigmentation may be physiologic or pathologic. It may occur alone or may be associated with skin lesions. Gingival pigmentation can be seen in isolated patches or may have a generalised distribution on the attached gingiva. Though pigmentation does not cause any medical issues, it's presence on the labial aspect of anterior teeth has become a great concern to an individual in terms of aesthetics. Various methods are available for Depigmentation of pigmented gingiva. Here, a case of pigmented gingiva with gummy smile is reported which is managed by depigmentation using the scalpel technique.

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INTRODUCTION

The harmony of a smile is attributable to the shape, colour, and position of the teeth in conjunction with the gingival tissue. Health and appearance of gingiva play an important role in creation of attractive smile, which is key point of an individual's self-confidence. Gingival colour is generally described as "coral pink". However, the colour of gingiva is determined by the thickness and degree of keratinisation of epithelium, vascularity and pigmentation (Newman *et al*., 2011). Gingival pigmentation may be physiologic (e.g. racial pigmentation) or pathologic, which is usually seen as manifestation of certain systemic diseases, such as in Addison's disease and in malignant neoplasms, namely melanoma and Kaposi's sarcoma (Kauzman *et al.* 2004). Physiologic gingival pigmentation usually results from melanin pigment, a non-hemoglobin-derived brown pigment produced by melanoblasts present in the basal and spinous layers of the gingival epithelium (Thangavelu *et al*. 2012). However, Dummett (1967) suggested that the degree of pigmentation is partially related to mechanical, chemical and physical stimulation, though genetically determined. Melanin pigmentation clinically manifests as a diffuse deep purplish discoloration or as irregularly shaped brown or black patches or strands. It is prevalent across all races, at any age and there is no gender predilection (Newman *et al*, 2011).

Corresponding author: **Swarga Jyoti Das,**
Professor & Head, Department of Periodontics, Regional Dental College and Hospital, Guwahati-781032, Assam, India.

This pigmentation usually does not present as a medical problem, but patients may complain of their unaesthetic black gums, which is intensified in the subjects with excessive gingival display at the time of smiling, regarded as "gummy smile". 'Gummy smile' can be due to incomplete/altered passive eruption, maxillary protrusion, excess vertical maxillary display, hyperactive muscle of lips, short lip, gingival enlargement, *etc*.,. Therefore, it's management depends on the relevant aetiology (Nikolovski *et al*., 2015). Correction of excess vertical maxillary display requires osseous resection surgeries, whereas gingival enlargement or altered passive eruption may be effectively corrected by gingivectomy procedures. Combined issues of pigmented gingiva and gummy smile always demand its correction. Removal of gingival pigmentation is referred to as gingival depigmentation (Deepak *et al*., 2005). Procedures aimed at removal of the pigmented gingiva include scalpel surgical technique, cryosurgery, electrosurgery, gingival abrasion using diamond bur and laser (Kasagani *et al*., 2012). Gingival pigmentation may be masked using free gingival grafts, acellular dermal matrix and allografts (Hiirzeler and Weng, 1999). Selection of the technique is based on diagnosis, clinical experience and individual preference.

CASE REPORT

A 22-year-old healthy male patient reported to the Out Patient Department of Periodontics, Regional Dental College and Hospital, Guwahati with chief complaint of unattractive

appearance of black gums on smiling (Figure 1). Past dental and medical histories were insignificant. On examination, gingival pockets (approximately 2 - 3 mm) were detected in the region between right second premolars to left second premolars in both the arches (maxillary and mandibular) along with diffused pigmentation of the gingiva which results in an unaesthetic smile. Oral hygiene was fair. There was no history of trauma or injury to that area. Extraorally, there was no swelling and the overlying skin was normal in color with no elevation of temperature. However, the upper lip was observed to be incompetent and lip approximation was difficult. Lymph nodes were non palpable. Family history was noncontributory.

Figure 1. Preoperative Facial View: Note the band-like black-colored pigmented gingiva extending from Right Second Premolar to Left Second Premolar in both the Maxillary and Mandibular Arches

Figure 2. Facial View of Gingiva immediately after removal of the excised gingiva and slicing of the pigmented gingiva

Figure 3. Postoperative Facial View (six months follow-up): Note the Gingiva with no sign of pigmentation in both the Maxillary and Mandibular arches compared to that of Figure 1.

The patient had no relevant systemic history. Complete haemogram of the patient was found to be within normal limits. The treatment protocol for this case included complete oral prophylaxis followed by surgical crown lengthening and depigmentation of gingiva in involved area. The treatment options were explained to the patient and written consent was obtained.

PROCEDURE

The surgical area was anesthetized using 2 % lignocaine hydrochloride and pockets were marked in the involved area using Krane Kaplan pocket marker, which gives bleeding points on the labial surfaces. An external bevel incision was made apical to the bleeding points at an angle of 45° following the course of the bleeding points, using a #15 no Bard Parker blade. The excised gingiva was removed. Then a slice of the pigmented gingiva, consisting of entire gingival epithelium and a thin layer of the underlying connective tissue was excised (Figure 2). Local haemostatic agent was used to control bleeding during the procedure. The exposed surface was irrigated with normal saline. After thorough removal of the pigmented layer and attaining haemostasis, the surgical wound was covered with Coe pack (periodontal dressing) for a week. The tissue was sent for histopathologic examination.

Antibiotics and analgesics were prescribed. The patient was recalled after 7 days. Periodontal dressing was removed after a week. The surgical area revealed satisfactory healing with newly formed epithelium devoid of pigmentation. On histological evaluation, the excised gingival tissue revealed numerous dark stained melanocytes in the basal layer of gingival epithelium. The healing was found to be uneventful without any postsurgical complications. The gingiva appeared firm in consistency and pink in color with no occurrence of pigmentation even up to one year of surgical observation (Figure 3). Similar procedure was carried out on the mandibular segment after two weeks of time.

DISCUSSION

Melanin pigmentation is frequently seen by melanin deposition through the active melanocytes located mainly in the basal layer of the oral epithelium (Newman *et al*., 2011). Dark pigmented gingiva, despite being healthy may be a cause of social embarrassment. In such situations, even the slightest display of gingival tissue may look unattractive and demands depigmentation. The treatment modalities for depigmentation are scalpel, electrosurgery, cryosurgery and lasers, *etc*., (Kasagani *et al*., 2012). However, selection of the method depends on the clinical experience, patient's affordability and individual preferences. In this case, depigmentation was carried out by scalpel, as it is observed to be economical, less time consuming, and do not need any special or costly armamentarium.

However, sometimes scalpel surgery causes unpleasant bleeding during and after the surgical procedure. To ~~to~~ overcome this problem, it is always advisable to use periodontal dressing for a week to cover the exposed lamina propria with the intention of providing comfort to the patient while eating. The healing was seen uneventful with minimum postoperative discomfort to the patient. The initial result of the depigmentation is highly encouraging; repigmentation (reappearance of pigmentation) is a common problem (Newman *et al*., 2011). Though the exact mechanism of repigmentation is not known, it may occur due to migration of the active melanocytes to the treated area from the adjacent pigmented tissues (Doshi *et al.*, 2012). Thus, long term follow up of these cases is necessary. The present case is still under

observation even after more than a year of depigmentation and it shows no sign of recurrence till now.

CONCLUSION

A comprehensive knowledge of the relationship and framework of dental hard and soft tissues is necessary to develop correct diagnosis for total dentofacial aesthetics. The external bevel gingivectomy combined with the scalpel depigmentation procedure described above offers a practical technique to improve patient's aesthetics dramatically.

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