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Gingival Depigmentation – "Pink for Esthetics"- A Case Report

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ABSTRACT
Gingival depigmentation is a cosmetic procedure that eliminates the dark or discolored gums enhancing the esthetics and overall appearance of the smile. Different treatment options such as surgical techniques, laser ablation, and chemical agents are available for gingival depigmentation The aim is to highlight the various available techniques for treating gingival pigmentation. This provides insight into various methods available to depigment the gingiva, its advantages, and its potential disadvantages. Although not a serious issue, gingival pigmentation has a significant impact on facial appearance. Dentists must be careful enough to evaluate the patient thoroughly, assess the etiology of pigmentation, and provide a suitable technique to ensure the best possible outcome while keeping its potential complications minimal.

KEYWORDS: *Gingival pigmentation, laser, surgical ablation, esthetics, cosmetic procedure.*

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I. INTRODUCTION

Numerous intraoral and extraoral elements influence how a person's face looks. A vital intraoral issue called gingiva can look unsightly when it is pigmented. In addition to being unaesthetic, gingival pigmentation has psychological effects. The vasculature, keratin thickness, epithelium thickness, and pigments therein are the main factors that determine the gingiva's color, which differs from person to person. Melanin, iron, carotene, reduced hemoglobin, bilirubin, oxyhemoglobin, and/or pathological illnesses and circumstances all contribute to

pigmentation.[1] The term "gingival hyperpigmentation" refers to a darker-than-normal gingival hue that can appear as deep diffuse purplish discoloration or as dark striae, strands, or patches . The oral epithelium contains melanocytes in its basal and suprabasal layers.[2] It creates melanin, which can be seen as early as three hours after birth.[3] Gingival hyperpigmentation is a result of several physiological and pathological circumstances.

CAUSES OF GINGIVAL HYPERPIGMENTATION

Gingival pigmentation may have pathological or physiological origins.

Physiologic (ethnic/racial) gingival pigmentation

These appear as multifocal or diffuse melanin pigmentation, clinically. [4] It occurs during the first two decades of life. As pigmentation is asymptomatic, no medical intervention is necessary. Instead of an increase in the number of melanocytes, this is mostly caused by enhanced melanocytic activity. African, Asian, and Mediterranean populations frequently experience it. This type of pigmentation most frequently occurs in the attached gingiva.

Pathologic gingival pigmentation

There are several causes of pathological pigmentation, some of which are mentioned below:

Endocrine disorders: Acromegaly, Albright's syndrome, and Addison's disease.

Heavy metals include silver, bismuth, lead, and mercury. Silver-containing medicines, paint or lead-contaminated water, and mercury are all potential sources of lead exposure in children. The gingiva exhibits a bluish-black line along the gingival border

Malignant neoplasms: The most prevalent cancer associated with an HIV infection, Kaposi's sarcoma, affects the gingival color and results in intraoral lesions.

Drug-induced: Quinine, ketoconazole, bleomycin, and many other drugs have proven to have an influence on the colour of the gingiva.

Tobacco associated: Smoker's melanosis frequently affects the maxillary anterior gingiva.

Mucosal disorders include oral melanoacanthoma, lichen planus, hemangioma, nevocellular nevus, and blue nevus. The superficial connective tissue layer exhibits an increase in melanin-loaded macrophage generation in oral lichen planus.

Others: Amalgam tattoos, Graphite tattoos, etc. Graphite tattoos represent traumatic implantation from a lead pencil. An amalgam tattoo may arise from the unintentional displacement of metal particles during amalgam restorations. [5]

GINGIVAL DEPIGMENTATION TECHNIQUES

Different gingival depigmentation techniques were categorized by **Roshni & Nandakumar in 2005** as follows:

I. Methods used in removing the gingival pigmentation:

A. **SURGICAL METHODS:**

1. Bur abrasion method
2. Scalpel surgical technique
3. Cryosurgery
4. Lasers
5. Radiosurgery
6. Electro-surgery

B. CHEMICAL METHODS

1. Phenols
2. Alcohols
3. Ascorbic acid

II. Methods used in masking the gingival pigmentation:

- Acellular dermal matrix allograft
- Free gingival graft [6]

II. CASE PRESENTATION

CASE 1

Mr. Kalaimany, a 29-year-old female patient came to the Dept. Of Periodontics, with a chief complaint of dark gums.Upon intraoral examination, diffuse dark brownish discolouration was seen. According to the patient's medical history, the discolouration was evident from birth, which suggested natural melanin pigmentation. Significant bilateral melanin pigmentation was found during the clinical assessment. The patient's general health was good with no medical complications, and the procedure had no contraindications. The variety of aesthetic treatment choices that were available was discussed with the patient. The patient's agreement was obtained before the depigmentation operation was scheduled. Phase I therapy was administered to the patient, and the depigmentation process was done from the canine to the canine region. After local anesthesia, a partial thickness flap was excised using the number 11 blade, and therefore epithelium and the superficial connective

tissue were removed. With the scalpel blade, every last trace of melanin was carefully scraped away. A pressure pack made of sterile gauze was used to manage the bleeding. After that, the wound area was covered with a Coe-pak. Instructions on oral hygiene were provided. Analgesics and antibiotics were prescribed. After 10 days, the periodontal dressing was removed and the healing was found satisfactory with no post-operative complications. After 6 months, a well epithelialized gingiva appeared, which was pink.

(A)

(B)

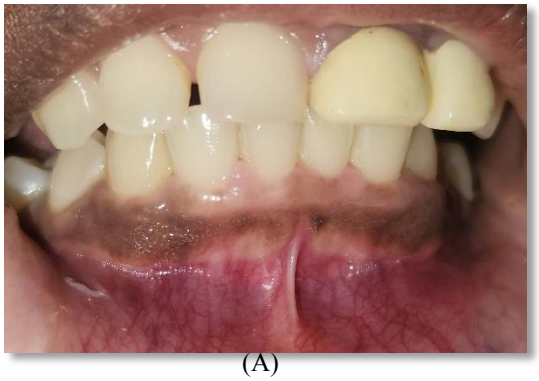
(C)

(D)

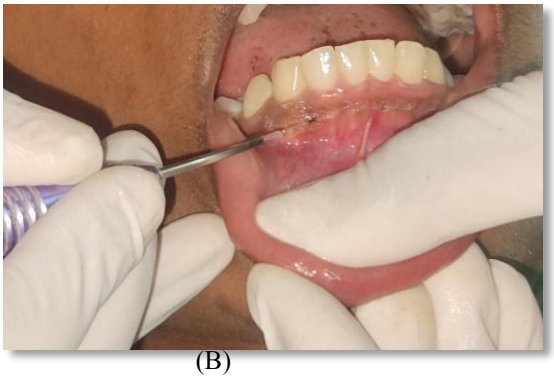
Fig-I: Scalpel technique: A. preoperative view; B. Partial thickness flap raised; C. Coe-pak placed; D. After 6 months.

CASE 2

Ms. Pragathi, a 23-year-old female patient came to the Dept. Of Periodontics, with a chief complaint of pigmented gums and wanted an esthetic correction. Upon intraoral examination, pigmented lower anterior gingiva was seen. The medical history revealed no local or systemic diseases. The patient was advised of laser depigmentation. The patient underwent phase-I therapy. Protective eyewear was used to shield the patient and the personnel from the laser. Local anesthesia was infiltrated in the anterior mandibular region. A handpiece with a 320µm diameter fiber optic filament set at 0.8W was utilized to operate a diode laser in contact mode. Every pigmented area was subjected to the treatment in a cervico-apical direction. Neither during nor after the procedure was there any bleeding or pain. It took a week for the ablated wound to fully heal. The gingiva looked pink and healthy after six months.



(A)



(B)

(C)

(D)

Fig-III: Laser technique: A. preoperative view; B. Diode Laser in Contact Mode; C. Immediate post – op; D. After 6 months.

III. DISCUSSION

Chemical cauterization, gingivectomy, knife scraping, and gingiva abrasion had all been used to treat gingival pigmentation in the past. The most current methods for gingival depigmentation that have been used successfully include cryotherapy, free gingival autograft, and laser therapy.[7] The clinical diagnosis, patient budget, and personal preferences should all be considered when choosing the gingival depigmentation technique. It takes roughly around 33 to 120 days for repigmentation.[8] In terms of equipment constraints, the scalpel approach is highly recommended for depigmentation as it is the most cost-effective and has a quicker healing period. Nevertheless, bleeding occurs during and after knife surgery, which is uncomfortable, necessitating the application of periodontal packs to protect the lamina propria for seven to ten days. The laser therapy group experienced less post-operative discomfort than the scalpel group because it closes the sensory nerve terminals and creates a protein coagulum on the wound surface. Known benefits include ease of handling, short treatment lines, homeostasis, sterilizing effects, and the elimination of the requirement for periodontal dressings. There could be a kind of delayed inflammatory response. The treatment is highly pricey due to the expensive and advanced equipment. The loss of tactile feedback that comes with laser use is another drawback. [9]

IV. CONCLUSION

Although it is not a serious issue, gingival pigmentation has a significant impact on the appearance of the face. The histological examination is definitive, but the patient's medical history plays a significant role in identifying the underlying reason, whether it be physiological or pathological. Consequently, the pigmentation is treated either surgically or chemically. It is reasonable to deduce, therefore, that the chosen technique ought to be easy to do, economical, less unpleasant, and need little tissue loss. It should also be pleasant for both the patient and the practitioner.

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