

**Gingival depigmentation using scalpel technique: Case report**

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**Abstract**

Excessive gingival pigmentation is a major esthetic concern for many people. Though, it is not a medical problem, many people complain of dark gums as it appears to be unesthetic. Gingival hyperpigmentation is believed to be a genetic trait in populations and is more appropriately termed physiologic or racial gingival pigmentation; a condition, which affects all races differently. Gingival depigmentation is the treatment modality used to remove the melanin hyperpigmentation for esthetic reasons. Several techniques have been employed such as scalpel surgery, gingivectomy with free gingival autografting, electrosurgery, cryosurgery, chemical agents such as 90% phenol and 95% alcohol, abrasion with diamond bur, diode laser and Co2 laser. A

case is reported here where surgical depigmentation was performed for the purpose of esthetics.

**Keywords:** Depigmentation, Gingiva, Melanin, Scalpel Surgery, Esthetics.

**Introduction**

Health and appearance of gingiva are important part of a smile.[1] The color of gingiva varies among different individuals and is thought to be associated with cutaneous pigmentation.[2]Pigmentation of gingiva not just has an impact on esthetics but also creates psychological negativity. Physiological pigmentation of the oral mucosa is clinically manifested as multifocal or diffuse melanin pigmentation with variable amount in different ethnic groups (Cicek,2003).[3]

Melanin hyperpigmentation of gingiva usually does not present as a medical problem, but many patients may consider their black gums to be unesthetic. This problem is aggravated in patients with a “gummy smile” or excessive gingival display while smiling. Gingival depigmentation is a periodontal plastic surgical procedure whereby the gingival hyperpigmentation is removed or reduced by various techniques.[4] The elite indication for depigmentation therapy is the demand by a person for improved esthetics. Various methods as gingivectomy (Bergamaschi et al,1993), gingivectomy with free gingival autografting (Tamizi& Taheri, 1996), acellular dermal matrix allografts (Pontes et al, 2006), electrosurgery (Gnanaesekhar& Al-Duwairi, 1998), cryosurgery (Yeh, 1998), abrasion with diamond bur (Bishop,1994), and various types of lasers (Stabholz et al, 2003) have been used for cosmetic therapy of gingival melanin depigmentation.

The present case report, describes a simple and effective surgical scalpel depigmentation technique that does not require complex apparatus yet yields esthetically acceptable results along with patient’s satisfaction.

### **Case Report**

A 24-years old female patient reported to Department of Periodontology and Oral Implantology, in Himachal Institute of Dental Sciences Paonta Sahib, Himachal Pradesh, with a chief complaint of blackish discoloration of the upper and lower front gingival regions (**Figure 1**) which she felt as esthetically unappealing. Her oral examination revealed that she had pigmented gingiva from right first premolar to left first premolar, both in the upper and lower arches. The patient requested for an esthetic treatment which could make her blackish discoloured gums esthetically better. The discoloration was not associated with other symptoms like paresthesia, ulceration or discharge and was systemically healthy and non-smoker.

The depigmentation procedure with scalpel was planned accordingly. After the administration of a local anesthetic solution, a Bard Parker handle with a No. 15 blade was used to remove the pigmented layer. Pressure was applied with sterile gauze to control hemorrhage during the procedure. The entire pigmented epithelium along with a thin layer of connective tissue was removed. The exposed surface was irrigated with saline; the surgical area was covered with a periodontal dressing. Post-surgical instructions were given along with antibiotics (Amoxicillin 500 mg, three times daily for 5 days) and anti-inflammatory analgesics (Ibuprofen and Paracetamol twice daily for 3 days). The patient was advised to use 0.2% chlorhexidine gluconate mouth wash 12 hourly for 1 week. Follow-up was done after 1 week and 3 months.



Fig. 1 a : Pre-operative view



Figure b



Figure c



Fig. 2: Follow-up after 7 days



Figure d



Fig. 3: Follow-up after 3 months



Figure e

Figure b, c, d and e depicting gingival pigmentation removal using scalpel technique

### Discussion

Four factors are responsible for giving color to the gingiva - vascular supply, thickness of the epithelium, degree of keratinization of epithelium, and presence of pigment-containing cells. Melanin pigmentation is frequently caused by melanin deposition by active melanocytes located mainly in the basal layer of the oral epithelium. Physiologic pigmentation is probably genetically determined, but as Dummet suggested, the degree of pigmentation is partially related to mechanical, chemical, and physical stimulation. The foremost indication for depigmentation therapy is the demand by a person for

improved esthetics. Various methods as gingivectomy, gingivectomy with free gingival autografting, acellular dermal matrix allografts, electrosurgery, cryosurgery, abrasion with diamond bur, and lasers have been used for cosmetic therapy of gingival melanin depigmentation. Selection of the technique should be based on clinical experience, patient's affordability and an individual preference of the clinician. [3][4]

Electrosurgery requires more expertise than scalpel surgery. Contact with periosteum or alveolar bone and vital teeth should be avoided (Ozbayrak et al, 2000).[5] Cryosurgery is followed by considerable swelling, and it is also accompanied by increased soft tissue destruction. Depth control is difficult, and optimal duration of freezing is not known, but prolonged freezing increases tissue destruction (Almas & Sadiq, 2002).[6] Depigmentation with lasers achieves good results, but they require refined equipment which occupies large space and is expensive.[7] A free gingival graft can also be used to eliminate the pigmented areas. However, it requires an additional surgical site (donor site) and color matching (Mokeem, 2006).[8] These treatment modalities, however, are not widely accepted or popularly used.

Scalpel surgical technique is highly recommended in consideration of the equipment limitations that may not be frequently available in clinics (Almas & Sadiq, 2002). It is known that the healing period for scalpel wounds is faster than other techniques. However, scalpel surgery may cause unpleasant bleeding during and after the operation, and it is necessary to cover the exposed lamina propria with periodontal dressing for 7 to 10 days (Almas & Sadiq, 2002).[9]

Post-surgical repigmentation of gingiva has been previously reported in few studies. Repigmentation is described as spontaneous and has been attributed to the activity and migration of melanocytic cells from

surrounding areas (Mokeem, 2006). The mechanism of repigmentation is not understood completely, but according to the "migration theory," active melanocytes from adjacent pigmented tissues migrate to treated areas causing repigmentation.[10] Pigment recurrence has been documented to occur, following the surgical procedure, within 24 days to 8 years long period. In the present case, no areas of repigmentation were seen at the end of 3 months (Figure 3). The case is being followed up to assess if there is any recurrence of melanin pigmentation.

### Conclusion

In this age of smile-consciousness, there is a growing demand for aesthetic dental treatment. Gingival melanin hyperpigmentation is a commonly encountered aesthetic problem. The surgical depigmentation procedure described in this case report was found to be simple, economical and clinically effective treatment modality for the management of gingival melanin pigmentation leading to an aesthetically pleasing outcome.

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