

Comparison of Different Method of Gingival Depigmentation: A Report

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ABSTRACT

Background: Appearance of gingiva plays an important role for a smile. Colour of gingiva is varied from patient to patients ranging from light to dark brown or black. The main reason for pigmentation is melanocyte. Management from this problem is still not clear. Depigmentation procedure includes the scalpel method, abrasive method, electrocautery etc. The following case series describe these three different methods and compare the result between these three. An abrasive method is more efficient, taking in consideration, time, technique sensitivity; equipment; patient comfort and reoccurrence rate.

Keywords: Depigmentation, Electrocautery, Melanocyte, Gingiva, Abrasive.

INTRODUCTION

Hyperpigmentation of the gingiva is caused by excessive melanin deposition by the melanocytes mainly located in the basal and suprabasal cell layers of the epithelium.¹ Systemic condition such as endocrine disturbance, Albright's syndrome, malignant melanoma, antimalarial therapy, peutz jeghers syndrome, trauma, hemochromatosis, chronic pulmonary disease, and racia pigmentation are known causes of oral melanin pigmentation.² High levels of oral melanin pigmentation are normally observed in individuals of African, East Asian, or Hispanic ethnicity. In general, individuals with fair skin will not demonstrate overt tissue pigmentation, although comparable numbers of melanocytes are present within their gingival epithelium.³

Hyperpigmented gingival may cause esthetics problems and low self-esteem, especially if the pigmentations are visible during speech and smiling. Demand for cosmetic therapy of gingival melanin pigmentation is common, and various methods including gingivectomy, gingivectomy with

free gingival autografting, electrosurgery, cryosurgery, chemical agents such as 90% phenol and 95% alcohol, abrasion with a diamond bur, ND: YAG laser, semiconductor diode laser and CO₂ laser have been used for this purpose.⁴

The laser and cryosurgical treatment modalities achieved satisfactory results, but they required sophisticated equipment that is not commonly available in hospitals and clinics. A free gingival graft can also be used to eliminate the pigmented. It requires an additional surgical site (donor site) and colour matching.⁵ furthermore, the presence of a demarcated line commonly observed around the graft in the recipient site may itself pose an esthetic problem removing the gingival margin by gingivectomy or the entire attached gingiva by "push back" procedure may also be used. However, these procedures are associated with alveolar bone loss, prolonged healing by secondary intention, and excessive pain and discomfort caused by exposure and denudation of the underlying bone.⁵

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MATERIAL AND METHODS

Ten patients from the outpatient department of periodontics NIMS Dental college; Jaipur Rajasthan with generalized melanin pigmentation were selected. Patients with esthetic requirements; high lip line; gummy smile young age 17-35 were enrolled. Patients with cardiac pacemakers; age greater than 35; systemic diseases and unwilling to participate were excluded from the study.

After oral prophylaxis following three treatment option were allotted randomly to every patient quadrant wise.

Option A: Scalpel Method

Option B: Abrasive Method

Option C: Electrocautery.

Surgical method: incision was placed around the periphery of pigmentation and split-thickness flap was reflected, and the layer of epithelium along with some connective tissue was removed. Care was

taken not to extend incision beyond mucogingival junction and close underlying bone.

Abrasive method: abrasive diamond points were used to abrade the gingival epithelium and expose the underlying connective tissue. Care was taken not to expose the underlying bone, and copious irrigation was used.

Electrocautery: rhomboid shape loop was used to scrape the gingival epithelium; the tip was moved in a shaving motion. The current was set on cut mode; with the intensity of 4. It was ensured that proper grounding was done and the patient was told to remove any metal jewellery. Medical history regarding cardiac pacemaker was enquired and if positive were excluded from the study.

The patient was kept on recall at 7th day; 28th day, 3months, 6th months, 12 months. Gingival color; healing pattern; patient discomfort; reoccurrence was noted at every recall.

RESULTS

Treatment option received	Patient comfort	Intra -op - time	Adverse outcome / bone exposure	Healing Pattern	Reoccurrence at 6 month	Reoccurrence at 12 month
Scalpel method	+	+++	+	+++	-	+
Electrocautry method	++	+	+++	+	+	+
Abrasion method	+++	++	++	++	-	+

DISCUSSION

Melanin pigmentation often occurs in the gingiva as a result of an abnormal or increased deposition of melanin. Brown or dark pigmentation and discolouration of gingival tissue, whether of a physiologic or pathologic nature, can be caused by a variety of local and systemic factors. This type of pigmentation is symmetric and persistent, and it does not alter normally.⁴

Architecture. This pigmentation may be seen across all races and at any age and has no gender predilection.⁶ A positive correlation between gingival pigmentation and the degree of pigmentation in the skin, seems, however, evident.⁷ Demand for treatment is usually made for esthetics reasons; however, there is not much information in the literature about the depigmentation of the

gingiva.⁸ elimination of these melanotic areas through surgery and laser surgery, as well as by cryosurgical. Depigmentation through the use of a gas expansion system, has been reported.⁷ These treatment modalities, however, are not widely accepted or popularly used. In the cases reported here, a simple and effective method of depigmentation which does not require any sophisticated instruments was used. The results were excellent and at 18 months follow-up, there were no evidences of repigmentation of the gingiva. Post-surgical repigmentation of gingiva has been previously reported.⁹ repigmentation is described as spontaneous and has been attributed to the activity and migration of melanocytic cells from surrounding areas. Perlmutter et al. have also reported gingival repigmentation that occurred

seven years after the removal of gingival tissues in one patient.¹⁰

In the present study, patient-reported more comfort with the abrasion technique followed by electrocautery and scalpel method. Time taken in electrocautery was least followed by abrasion and scalpel method. Also, reoccurrence was higher for electrocautery and abrasion techniques.

CONCLUSION

Among the various techniques described above; the scalpel method provided the best result for a period of 12 months. The scalpel is a more efficient method but requires more training. On the contrary abrasive method is quick to learn; more patient-friendly and time-efficient. Electrocautery is technique sensitive requires; electrocautery unit; strict patient criteria and burning and charring of tissue odour is an unpleasant experience for the patient. We thus suggest that the abrasive method is more efficient, taking in consideration, time, technique sensitivity; equipment; patient comfort and reoccurrence rate.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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