

DEPIGMENTATION: A CASE SERIES – VARIOUS SOLUTIONS TO ELIMINATE A DARK PROBLEM

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ABSTRACT:

Gingival pigmentation is a major concern for many patients today as esthetics plays an important role in the patients day to day life. Excessive display of gingival pigmentation is a concern for many patients as esthetics is a booster of patients self confidence. Gingival depigmentation is not a medical problem but patients usually complain due to the unesthetic appearance of the gingiva. Gingiva is the most frequently pigmented intra oral tissue and the most commonly affected area is the incisor region. Out of the various techniques employed gingival depigmentation using scalpel is still the first and the most popular technique. This is a case series representing various techniques of depigmentation of hyperpigmented gingiva caused by excessive melanin deposition.

Keywords: Depigmentation, Scalpel, Diamond Bur, Repigmentation, Melanin, De-epithelialization



INTRODUCTION

Pigmentation is the discolouration of oral tissues / gingiva caused by melanin which is the primary pigment that colours the tissues. Gingival pigmentation is caused by five primary pigments melanin, melanoid, oxyhemoglobin, reduced hemoglobin and carotene out of which melanin is the common cause of gingival pigmentation with the maximum incidence rate. Melanocytes are deposited in the intra-epithelial layer (stratum spinosum) of the gingiva, pigmented areas are present only when melanin granules synthesized by melanocytes are transferred to keratinocytes. This close relationship is called the epidermal – melanin unit. Alex Farnoosh in 1990⁽¹⁾ said that the degree of pigmentation is attributed to the melanoblastic activity and the melanophores present in the gingiva.

Oral melanin pigmentation is considered to be multifactorial, both physiological and pathological and is caused by a variety of local and systemic factors. Depigmentation is a periodontal plastic surgical procedure which involves the reduction or elimination of the gingival hyperpigmentation. Demand for gingival depigmentation is made because it is a cause of embarrassment in smile conscious people. Ginwalla et al (1996)⁽²⁾ described the black band on gingiva as unsightly and suggested its removal.

Demand for surgical therapy is usually made by⁽³⁾ :

- a) Fair – skinned patients with moderate to severe gingival hyperpigmentation.
- b) Patients with high smile line .

Gingival depigmentation involves the de-epithelialisation of the gingiva. The de-

epithelialization essentially involves surgical removal of gingival epithelium along with a layer of the underlying connective tissue and allowing the denuded connective tissue to heal by secondary intention, and which is devoid of melanin pigmentation.

Various depigmentation techniques available are:

- a) Chemicals
- b) Abrasion with diamond burs
- c) Gingivectomy
- d) Soft tissue autografts
- e) Partial thickness flaps
- f) Cryosurgery
- g) Lasers
- h) Electrocautery.
- i) Depigmentation with scalpel (scrapping technique)

This article describes three techniques of depigmentation, with scalpel, electrocautery and abrasion with diamond bur. The purpose of this case series is to compare the convenience, healing and the treatment outcome.

CASE DETAIL:

Case no. 1

A 37 year old male patient reported to the Department of Periodontics, Nair Hospital Dental college, Mumbai with the chief complaint of blackish discolouration of gums. The patient was apparently alright

when he noticed the blackish discolouration 2 months back.

Procedure: scalpel technique (surgical stripping method)

After administering local anesthesia (lidocaine 2% with 1:80,000 epinephrine), the uppermost layer of the gingiva was carefully scraped using 15 number blade which was held parallel to the long axis of the teeth. Minimum force/pressure was used to avoid post-operative gingival pitting. Bleeding was controlled with a sterile gauze pressure pack. Surgical areas were covered with a periodontal pack and post-operative instructions were given. Analgesics were prescribed for the management of pain. After one week the pack was removed and the surgical area was examined. The healing was uneventful and satisfactory. No post-surgical complications were encountered.

Case no. 2

A 21 year old patient reported to the Department of Periodontics Nair Hospital Dental college with the chief complaint of blackish dis-colouration of gums. The patient was apparently alright when he noticed the dark gums 2 weeks back.

Procedure: electrocautery technique.

After administering local anesthesia (lidocaine 2% with 1:80,000 epinephrine), a loop electrode was used for depigmentation of gingiva. It was used in light brushing strokes. The tip was kept in motion all the time to avoid heat buildup on the tissues. The depigmented epithelium was carefully scrapped off with

minimal pressure to avoid pitting of the gingival tissue. Finally a periodontal pack was placed over the surgical area, and oral hygiene instructions and medications were given. The pack was removed after 1-week and the area debrided with saline.

CASE NO. 3 : Depigmentation with diamond bur.

A 28 year old male patient reported to the Department of Periodontics Nair Hospital Dental college with the chief complaint of blackish dis-colouration of gums.

Procedure: round diamond bur method.

For depigmentation with round diamond bur, revolving bur was used on the surface of the pigmented gingiva and moved with feather light strokes without giving any pressure. It was not kept at one place for a long time as it may result in thermal trauma and permanent harm to underlying tissue. Medium size straight bur was used because small bur might produce small pits rather than surface abrasion. The bleeding was controlled and checked for any pigmented area remaining and were removed to prevent relapse. Bleeding was stopped by applying pressure by a gauze piece on the denuded epithelium. Removal of gingival melanin pigmentation should be performed cautiously and the adjacent teeth should be protected, since inappropriate application may cause gingival recession, damage to underlying periosteum and bone, delayed wound healing, as well as loss of enamel

DISCUSSION

The procedure of depigmentation is effective as the patient can see the change in the colour of the gingiva immediately after the surgery. But the patient will be satisfied with the treatment only if the effects of the surgery are long lasting. As the pigmentation can recur over a period of time which is not specific as it varies from patient to patient, a prior counselling of the patient regarding the same should be done. All the cases shown in the case series above show an effective depigmentation procedure, the effects of which have successfully lasted over 9 months now. Different treatment modalities have been used for depigmentation. The selection of a technique for depigmentation should be based on clinical experience, patients affordability and clinicians comfort.

When comparing the three techniques while performing depigmentation, the diamond bur was comparatively simple, safe, non-aggressive method and it gave the clinician a better control for removing a uniform layer of gingival epithelium. But while using the diamond bur care should be taken to avoid applying extra pressure while using the bur at high speeds to avoid pitting in the gingival tissue.⁽³⁾ It is known that the healing period for scalpel wounds is faster than other techniques , however scalpel causes unpleasant bleeding during and after the surgery.⁽⁴⁾

The main advantage of performing depigmentation with scalpel and diamond bur is that they do not require the use of

any sophisticated equipment and are hence are economical.

With electrocautery, the advantages are short treatment time, excellent coagulation of small blood vessels leading to less bleeding. However electrocautery has several dis-advantages like delayed type of inflammatory reaction may take place with a mild post-operative discomfort lasting upto 1 – 2 weeks. Epithelial regeneration is delayed as compared to conventional techniques.⁽⁵⁾

Lasers, electrosurgery, and cryosurgery are not cost effective. Electrosurgery produces latent heat, causing damage to the surrounding tissues.⁽⁶⁾ Another problem with electrosurgery is difficulty in controlling the depth of the removal of the depigmented tissue. Gingivectomy and bone denudation are invasive surgical procedures causing patient discomfort and bone loss. FGG is a surgical procedure that requires two surgical sites (donor and recipient), the donor site has color-matching problems, and causes delayed healing of recipient site⁽⁷⁾. Out of all the available treatment options, this case series focuses on the use of scalpel, diamond bur and electrocautery surgical technique as these are easily available at the dental clinics. Though the initial result of the depigmentation surgery is highly encouraging, repigmentation is a common problem.⁽⁸⁾ Though the initial results of

depigmentation procedure are highly encouraging, there is a chance of repigmentation. Documented chances of repigmentation after scalpel technique are 21.4%, and electrocautery are 22.8%. This process may be attributed to the fact that active melanocytes from the adjacent pigmented tissues might migrate to the treated areas. conclude that the procedure adopted should be simple, cost effective and less painful with minimal tissue loss and should be comfortable to the operator as well as patient.⁽⁹⁻¹⁰⁾

CONCLUSION

Excessive display of pigmented gingiva is a major concern for many patients. Esthetic periodontal plastic surgery is a boon for patients having “dark gums”. This article shows 3 techniques for treating pigmented gingiva. Scalpel technique is still the most common technique used for depigmentation today. But depigmentation with a diamond bur is also a very feasible technique with a good post-operative result. The results obtained in all the patients are with minimum discomfort and maximum patient satisfaction, with no signs of recurrence after a 9-month follow-up period. The cases are being tracked to notice any signs of recurrence, as repigmentation may occur post depigmentation; with altered time durations as reported by multiple authors.

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FIGURES:

Case No. 1: depigmentation with scalpel.

Fig 1a : Pre-operative photo.



Fig 1b : Post – operative photo



Fig 1c : Recall



Case No. 2 : Depigmentation with electrocautery.

Fig 2a : Pre- operative photo.



Fig 2b : Post-operative photo

Case No. 3: Depigmentation with diamond bur.



Fig 2c : Recall



Fig 3b : Post-operative photo.



Fig 3c : Recall

