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Case Report

Gingival Depigmentation: A Case Series

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ABSTRACT

Gingival hyper-pigmentation usually occurs due to the abnormal accumulation of melanin in the gingival tissue and confers a dark appearance to the gingiva. Gingival hyperpigmentation often compromises smile esthetics and can occur due to several physiological disorders. Several treatment options are available for this condition. In the present case series, effort has been made to assess the procedure of melanin depigmentation with the help of scalpel and rotary abrasive technique.

Key words: Gingival depigmentation, Scalpel technique, rotary abrasive

INTRODUCTION

In dentistry, esthetics has a major role. The gingival health and their appearance are essential components for the esthetics. [1] The gingiva is the most commonly affected intraoral tissue which is responsible for an unpleasant appearance. Melanin pigmentation often occurs in the gingiva as a result of an abnormal deposition of melanin. Eventhough it does not present a medical problem; clinicians are often faced with a challenge of achieving gingival esthetics.

Melanin, a brown pigment, is the most common cause of endogenous pigmentation of gingiva and is the most predominant pigmentation of mucosa. In gingiva, it occurs in all races. This brown or dark pigmentation and discolouration of gingival tissue can be caused by a variety of systemic and local factors. [2] Prolonged administration of certain drugs, genetic factors, systemic conditions such as endocrine disturbances, Albright's syndrome, Hemochromatosis, chronic pulmonary disease and racial pigmentation are known causes of oral melanin pigmentation. Amongst local factors tobacco use is a common cause. [3,4]

Melanin hyper-pigmented gingiva is an esthetic problem in many individuals, particularly if the hyper pigmentation is on the facial aspect of gingiva and visible during speech and mastication especially in patients with gummy smiles. Today's growing esthetic concerns among the patients require the removal of unsightly pigmented gingival areas to create an esthetically-pleasant-smile

CASE REPORT

Both the cases reported to the department of periodontology and oral implantology, Maharaja Ganga Singh dental college and Research centre.

CASE -1

A 26 years old male patient came with the chief complaint of heavily pigmented dark gums.

On oral examination, it was revealed that she had diffused melanin hyper pigmentation in the attached gingival region both in the maxilla and mandible. [FIGURE

1A] The patient was concerned for the same and requested for esthetic management.

CASE -2

A 24 year old female patient reported with the chief complaint of dark black gums. She requested for cosmetic surgery through which her smile and esthetics can be improved. Patient was medically sound and upon clinical examination, diffuse melanin hyper pigmentation in the attached gingival both in maxillary and mandible was seen. [FIGURE 2A]

In view of concern expressed by the patients about their unesthetic looks it was decided to perform gingival depigmentation procedure with rotary abrasive in case 1 and scalpel technique in case 2.

SURGICAL TECHNIQUE:

In both the cases, prior to the surgery, a complete medical history and blood investigation were carried out to rule out any systemic contraindication for the surgery. The gingival depigmentation was planned based on patient' concern. The entire procedure was explained to the patients and the written consent was obtained. Oral prophylaxis was carried out on both the patients and oral hygiene instructions were given.

In case -1: Local anesthesia was infiltrated in the maxillary anterior gingival region from distal side of right canine (13) to distal side of right canine (23). A high speed hand piece with a rotary abrasive (diamond bur) along with copious saline irrigation was used to remove the pigmented layer. [FIGURE 1B]. The surgical bur was used with minimal and feather light brushing strokes without holding the bur in one place to avoid overpitting of the gingival surface or removal of excessive tissue due to high speed. Pressure was applied with sterile gauze soaked in local anesthetic agent to control hemorrhage during the procedure. After removing the entire pigmented epithelium along with a thin layer of connective tissue with the rotary abrasive, the exposed surface was irrigated with saline. [FIGURE 1 C]

While using the rotary tool, minimal pressure was applied with feather light brushing strokes and without holding it in one place. Care was taken to see that all remnants of the pigment layer were removed. Later the surgical area was covered with a periodontal dressing for one week.

CASE 1: ROTARY TECHNIQUE

FIGURE 1A:PRE- OPERATIVE VIEW

FIGURE 1B: ROTARY ABRASIVE TECHNIQUE

FIGURE 1C: IMMEDIATELY AFTER DEPIGMENTATION

FIGURE 1D: POST OPERATIVE VIEW AFTER ONE WEEK

FIGURE 1E: POST OPERATIVE VIEW AFTER 3 MONTH

In case -2:

Local anesthesia was obtained with infiltration (2% Lidocaine with Adrenaline 1:2,00,000) in relation to the gingiva in the surgical site extending from distal side of right canine region(13) to distal side of left canine region(23). The gingival epithelium was excised with Bard Parker blade number 15 [FIGURE 2B]. The excision involved the entire pigmented area extending from the free gingival margin to the mucogingival junction, with the blade placed almost parallel to the long axis of the teeth with care taken not to expose the underlying bone. The entire epithelium was removed. [FIGURE 2C] The remaining tissue tags and exposed connective tissue surface were removed by surgical scissors. Bleeding was controlled using a pressure pack and the site was covered with a periodontal dressing for a period of 1 week.

In both the cases, antibiotics and analgesics were prescribed post-operatively for 5 days. The patient reviewed at the end of one week. Healing was uneventful with no post-operative complications. The gingival was healthy, firm and resilient.[FIGURE 1D and FIGURE 2D] The patient expressed satisfaction over the enhanced colour of gingival. At the end of one month, complete re-epithelisation was obtained and the cases were re-evaluated after 5 months.

CASE 2: SCALPEL TECHNIQUE

FIGURE 2A: PRE- OPERATIVE VIEW

FIGURE 2B: SCALPEL TECHNIQUE

FIGURE 2C: IMMEDIATELY AFTER DEPIGMENTATION

FIGURE 2D: POST OPERATIVE VIEW AFTER ONE WEEK

FIGURE 2E: POST OPERATIVE VIEW AFTER 3 MONTHS

DISCUSSION

Gingival health and appearance are the essential components of an attractive smile. The color of the gingiva has a tremendous impact on the esthetics of the smile. [1] As seen clinically, it varies from person to person in different areas of the mouth and appears to be correlated with the color of skin. [1] According to Dummett (1959), color of the healthy gingiva is variable ranging from pale pink to deep bluish purple and this is determined by several factors namely size, and number of the blood vessels, epithelial thickness, quantity of keratinization and pigments within the gingival epithelium. [5]

Most of the pigmentation is caused by five primary pigments that are Melanin, Melanoid, Oxy-hemoglobin, Reduced hemoglobin, and Carotene. [6] Melanin amongst above pigments is a non-hemoglobin derived brown pigment, and is the most common endogenous pigment which is produced by melanocytes present in the basal layer of epithelium. Melanocytes have a round nucleus with a double nucleus membrane and clear cytoplasm lacking desmosomes or attachment plates. [7]

Gingival depigmentation is a periodontal plastic surgical procedure whereby the gingival hyper-pigmentation is removed or reduced by various techniques such as Scalpel technique, Abrasion technique (using straight, diamond or straight bur),Gingivectomy, Electrosurgery, Cryosurgery, Laser, Radiosurgery, chemicals, free gingival graft, Acellular dermal matrix autograft. [8]

In the above cases, no repigmentation was seen in case number 2[FIGURE 2E] and slight re-pigmentation was seen in case number 1 in the form of small patches in interdental papilla and mucogingival junction region at the end of the 3rd month.[FIGURE 1E] Different studies shows variation in the timing for early repigmentation. To return to the full clinical baseline repigmentation it takes about 1.5 to 3 years. This variation may be due to the different techniques performed or due to the patient's race. Re-pigmentation refers to the clinical reappearance of melanin pigment following a period of depigmentation. The exact mechanism of repigmentation is not known but according to the "migration theory" the active melanocytes from the adjacent pigmented area migrates to the treated area and cause failure. [9]

In the present case series, the scalpel technique gave better result when compare to rotary abrasive technique. And the similar results were obtained in the study conducted by Sinha A et al in 2015 [10] where he compared scalpel technique with rotary abrasive, laser and electrosurgery and found that scalpel technique to be relatively simple and easy to perform as also cost effective. Above all, it causes less discomfort and is esthetically acceptable to the patients.

There are various depigmentation technique which has its own advantage, disadvantage and success rate. However the selection of depigmentation technique is based on clinical experience, availability of resources, and affordability of the patients. Among all available technique, we focused on scalpel and rotary abrasive because its economical, less time consuming, convenient, patient friendly and provides faster healing. Even though, the scalpel technique does lead to unpleasant bleeding, however, it has the advantages of delayed recurrence of repigmentation in the present case series.

CONCLUSION

Scalpel technique and rotary abrasive method yielded esthetically acceptable results with minimal discomfort to the patients. Healing was uneventful and complete re-epithelialization occurred. No repigmentation occurred in scalpel technique at the end of 5^{th} month whereas mild pigmentation patches were noticed in rotary technique. A study with large sample has to be conducted to know the efficacy of each technique in terms of healing, bleeding, pain, discomfort, re-pigmentation, etc.

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