Case Report

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Black to Pink: A Case Report of Treating Gingival Hyperpigmentation

Renganath M. J.[1], Ramakrishnan T.[2], Vidya Sekhar[3], Manisundar N.[3], Ebenezer M.[4], Anithadevi S.[1]

[1]III Yr Post-graduate student, APDCH, Melmaruvathur, Tamilnadu, India; [2]Professor & Head, Department of Periodontics, APDCH, Melmaruvathur, Tamilnadu, India; [3]Reader, Department of periodontics, APDCH, Melmaruvathur, Tamilnadu, India; [4]Senior Lecturer, Department of periodontics, APDCH, Melmaruvathur, Tamilnadu, India.

ABSTRACT

Aim: Gingival depigmentation is a periodontal plastic surgical procedure by which the gingival hyperpigmentation is removed or reduced by various techniques. The present case report aims at yielding aesthetically acceptable results by using scalpel for depigmentation that doesn't require any elegant instruments or apparatus.

Case Report: A 23 years old female patient with the chief complaint of blackish discoloration of her gums. On intraoral examination, the gingiva presented with generalized pronounced blackish melanin pigmentation which was un-aesthetic while smiling. Depigmentation using Scalpel was performed by complete removal of hyper-pigmented gingiva.

Discussion: Even though numerous techniques have been employed for depigmentation, the selection of a technique should predominantly based on clinical expertise, individual preferences and patient's affordability. Scalpel was chosen for the present case because of the superior properties like simplified procedure, cost-effective and also complete removal of hyper-pigmented gingiva could be achieved.

Conclusion: With the limitations of present study, it could be concluded that gingival depigmentation using scalpel was easy to perform, cost-effective and above all it causes minimum discomfort to the patients with excellent results and patient satisfaction.

Key Words: Gingival hyperpigmentation, Blackish gingiva, Melanin pigmentation, Scalpel depigmentation

INTRODUCTION

A charming smile can open doors and knock down barriers that stand between an individual and a fuller, richer life.[1] If the teeth is considered as the canvas of a painting, then the gum tissue will be the frame around the canvas. In other words, the gum tissue can make or break a smile.

The colour of the gingiva is determined by numerous factors that includes the size and number of blood vessels, thickness of the epithelium, the quantity of keratinization, and the pigments within the epithelium.

The colour of the attached and marginal gingiva is generally described as "coral pink" due to the thickness and degree of keratinization of the epithelium, the vascular supply and the presence of pigment-containing cells.[2]

Brown or dark pigmentation of the gingival can be caused by a array of local and systemic factors. Systemic conditions such as antimalarial therapy, malignant melanoma, Peutz-jeghers syndrome, Albright's syndrome, trauma, endocrine disturbances hemachromatosis, chronic pulmonary disease and racial pigmentation are the identified causes of oral melanin pigmentation.[3]

Melanin is a non- hemoglobin-derived brown pigment, present in all normal individuals but high levels of oral melanin pigmentation are observed in individuals of African, East Asian.

The distribution of pigmentation in oral cavity in black individuals is as follows: gingiva, 60%; hard palate, 61%; mucous membrane, 22%; and tongue, 15%. Gingival pigmentation occurs as a diffuse, irregularly shaped brown and light-brown patch. It may appear in the gingiva as early as 3 hours after birth, and it is often the only evidence of pigmentation.[4]

During recent years, the need for aesthetics in dentistry has

Corresponding Author:
Renganath M. J., III Yr Post-graduate student, APDCH, Melmaruvathur, Tamilnadu, India;
E-mail: renganatharjun@gmail.com

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increased, with a growing demand for a pleasing smile. This has made many individuals more aware of their gingival pigmentation, which may be apparent during smiling and speech. Gingival depigmentation is a periodontal aesthetic surgical procedure by which the gingival hyperpigmentation is removed or reduced by a range of techniques. The first and foremost indication for depigmentation is the patient's demand for improved aesthetics.

Traditionally, gingival depigmentation has been carried out with the use of nonsurgical and surgical procedures that includes electrosurgical, cryosurgical, and chemical techniques. However, those techniques were met with uncertainty because of their varying degrees of success. More recently, lasers have been used to ablate cells that produce the melanin pigment.[5]

The present case report reveals a simple and effective surgical depigmentation technique that doesn't require any elegant instruments or apparatus, but yields aesthetically acceptable results.

CASE REPORT

A 23 years old female patient reported to department of Periodontology, Adhiparasakthi Dental College and hospital, Melmaruvathur, with the chief complaint of brownish discoloration of her gums, by which she was feeling unpleasant while smiling. On intra oral examination, the gingiva presented with generalized pronounced blackish melanin pigmentation associated with a healthy periodontium [Fig:1]. The patient had acceptable oral hygiene levels, with good plaque control and no other systemic conditions.

Considering the patient's concern, an arch based surgical gingival de-pigmentation procedure was planned. Under local anaesthesia, the hyper-pigmented gingiva in the maxillary arch was de-epithelised using no.15 BP blade by scrapping off the pigmented gingiva in-between distal aspects of tooth no.13 to 33 [Fig:2]. Following de-epithelisation, the site was irrigated thoroughly with saline and the surgical site was secured by placing periodontal dressing (COE Pack™) over it [Fig:3]. One week following the surgery, the patient was reviewed and the periodontal dressing was removed where, the gingiva exhibited excellent healing and improved color change from brownish to pink at 1 week [Fig:4] and 1 month [Fig:5] post-operatively.

Thereby, the depigmentation for mandibular arch was instituted 2 weeks following de-pigmentation of maxillary arch. The procedure for mandibular arch was performed same as that of maxillary arch in-between distal aspects of tooth no.33 to 43 [Fig:6] using scalpel. Periodontal dressing was placed over the surgical site following de-pigmentation [Fig:7]. The periodontal dressing was removed 1 week following the surgery. The gingiva in mandibular anterior region also exhibited enhanced colour change from brownish to pink 3 months following the surgery [Fig:8].

DISCUSSION

Numerous techniques have been employed so far for the treatment of gingival hyperpigmentation and to enhance the aesthetics of the patient. Various techniques for gingival depigmentation include:

1. De-epithelization:
   a. Scalpel technique
   b. Gingival abrasion technique using diamond bur
   c. Combination of the scalpel and bur
2. Gingivectomy
3. Free gingival autografting, Acellular dermal matrix allograft.
4. Electrosurgery
5. Cryosurgery:
   a. Using liquid nitrogren
   b. Using a gas expansion system
6. Chemical agents:
   a. 90% phenol and 95% alcohol
   b. Ascorbic acid
7. Laser:
   a. Diode laser
   b. Nd:YAG
   c. CO2 laser
   d. Argon laser

Even though the above techniques may be employed for depigmentation, selection of a technique should predominantly based on clinical expertise, individual preferences and patient's affordability. They should be performed cautiously in such a way to protect adjacent tissue. Because inappropriate technique may lead to gingival recession, damage to the underlying periosteum and may even cause pain, discomfort and uneven wound healing. Scalpel have been chosen for the present case because of the properties like, relatively simple and effective, and most economical of all the other techniques available. Also de-pigmentation using scalpel does not require any sophisticated armamentarium, easy to perform and, most importantly, requires minimum time and effort.[6]

The procedure essentially involves surgical removal of the gingival epithelium along with a layer of the underlying connective tissue under adequate local anaesthesia and allowing the denuded connective tissue to heal by secondary intention. The new epithelium that forms is devoid of pigmentation.[7]

All remnants of the pigment layer should be removed cautiously to avoid probabilities of recurrences and in such a way without exposing the underlying bone.

Also, the healing period for scalpel wound is faster than other techniques; it would result in spiteful haemorrhage during or after surgery. Hence, it is obligatory to cover the surgical site with periodontal dressing for 1 week.[8]

Lasers when used, have the combined advantages of rapid healing of the scalpel surgery and the minimal bleeding of electrosurgery. A single step laser treatment is usually sufficient to eliminate the pigmented gingiva and does not require a periodontal dressing. However, laser surgery does have some disadvantages. Delayed type of inflammatory reaction may occur with mild post-operative discomfort lasting up to 1–2 weeks. Re-epithelialisation is delayed as compared to conventional surgery due to lack of wound contraction. Moreover, expensive and sophisticated equipment makes the treatment very expensive with added disadvantage of loss of tactile feedback with the use of lasers.[9]

Scalpel was chosen for the present case because of the superior properties like simplified procedure, cheapest and also complete removal of hyper-pigmented gingiva could be achieved.

Studies have reported that after surgery, it was crucial to cover the exposed lamina propria with the periodontal dressing for 7-10 days following surgical removal of hyper-pigmented gingiva. They also stated that it took apparent 6 weeks to heal and the surgical site left a subtle scar.[10] But, in the present case, there was no scar formation after healing time which was 2-3 weeks. The obtained results were admirable with 3 months follow-up.

Though the cryosurgery and laser therapy modalities achieved satisfactory results, they required refined equipment that is not commonly available in all the scenarios. Therefore, consideration the equipment constraints, is highly recommended that the scalpel surgical technique still exists as supreme technique of choice for gingival depigmentation at most circumstances.

It has been documented in the literature that, recurrence following depigmentation has occurred, within 24 days to as long as 8 years. The mechanism for recurrence suggested that the melanocytes gets proliferate and migrate into the depigmented areas.[11]

CONCLUSION

Gingival melanin pigmentations is a more common finding in Indian population. Though, not all the cases requires treatment to correct the melanin pigmentation of gingiva, certain individuals requires intervention due to aesthetic issues. Numerous techniques are available with some benefits and some downsides. The case presented here, have been treated with scalpel because of its simple and effective procedure for gingival melanin hyperpigmentation, which resulted in enhanced aesthetics and cosmetic appearance. However, further studies with large population and with long-term follow-up should be done to evaluate the clinical benefits, to observe the treatment stability and re-pigmentation patterns and also to focus on preventing the source of recurrence.

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Figure 1: Blackish hyperpigmented gingiva.

Figure 2: Depigmentation using scalpel in maxillary arch.

Figure 3: COE pack placed over the site.

Figure 4: Healing after 1 week.

Figure 5: 1 month post-operative showing improved outcome.

Figure 6: Depigmentation using scalpel in mandibular arch.

Figure 7: Placement of COE pack after depigmentation.

Figure 8: 3 months post-operative showing excellent aesthetics.