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A Case Series Of Gingival Hyperpigmentation Treatment Using Laser And Scalpel Techniques

Case Series

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Abstract

The hyper-pigmentation in the gingiva is usually seen because of the excessive and unusual collection of melanin in the gingiva and presents as a darkened appearance of the gingival tissue. This abnormal gingival pigmentation usually jeopardizes smile and facial aesthetics and can be seen because of various physiological disarray. Various modalities to treat this condition are available. In this case series, effort has been made to assess the techniques of melanin depigmentation using conventional scalpel and laser method.

Keywords: Melanin Hyperpigmentation; Aesthetics; Laser; Scalpel; Dark Gums.

Introduction

In dentistry, aesthetics plays an important role. The health of the gingiva and it's appearance are essential components of aesthetics.1 Gingiva being the most common intraoral tissue affected by excessive melanin pigmentation, results in an unpleasant look. Melanin hyperpigmentation is frequently seen in the gingival tissue due to unusual deposits of melanin and even though it is not a medical issue to worry about, practitioners frequently face challenges of successfully bringing about aesthetics of the gingiva.

Melanin, a brownish pigment, is the most common cause of endogenic pigmentation of the gingiva and is the chief pigment of the mucosa. In the gingiva, it is seen in all ethnicities. This brownish or dark-black pigmentation and discolouration of the gingiva can be brought about by a variety of local and systemic factors.2 Long term usage of certain medicines, genetic component, systemic conditions such as, Albright's syndrome; endocrine disturbances, chronic pulmonary disease, hemochromatosis and racial pigmentation are known causes of oral melanin pigmentation. Tobacco use is a common cause3,4among local factors.

Today's evolving aesthetic worries amongst the patients call for the removal of unpleasant hyper pigmented gingiva in order to create an aesthetically pleasing smile.

Case Series

Following cases were taken from the outpatient periodontics department.

Case 1

A 22 year old female patient complained of brownish gums. She asked for surgical management through which her smile and aesthetics could be enhanced. Patient was fit medically and upon oral examination, scattered melanin hyperpigmentation in the attached gingiva both in the maxillary and mandibular arch was seen.

Keeping in mind the concern expressed by the patient about her unesthetic looks it was decided to perform gingival depigmentation procedure using scalpel technique in the maxilla and laser technique in the mandible.

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Case 2

A 18 year old female patient visited with a primary complaint of blackish gums. On examining, it was seen that she had diffuse melanin hyperpigmentation in the attached gingiva both in the maxillary and mandibular arch.

The patient was worried about the condition and asked for aesthetic treatment.

Keeping in mind the worries shown by the patient about her unpleasant smile it was decided to perform a depigmentation procedure of the gingival tissues using scalpel technique in the maxilla and laser technique in the mandible.

Case 3

A 46 year old patient visited with the primary complaint of dark gums. Oral examination showed heavily pigmented attached gingiva in both the maxilla and the mandible.

The patient requested for aesthetically better gums.

Keeping the concern of the patient In mind regarding her unpleasant appearance it was decided to carry out gingival depigmentation using scalpel technique in the maxilla and laser technique in the mandible.

Surgical Technique

In all three cases, before the start of the surgery, a detailed medical history and haematological investigation was done to rule out any contraindication for the surgery. Gingival depigmentation was planned based on the patient's concern. The entire procedure was explained to each of the patient and written consents were taken. Oral prophylaxis was carried out on all the three patients and oral hygiene instructions were given.

In The Maxilla

From the distal region of the right canine (13) to distal region of the left canine (23) in the anterior maxilla, regional anaesthesia was administered. A bard parker handle with a no. 15 blade was

Case 1.

Pre-operative Intra-operative Post-operative

Case 2.

Pre-operative Intra-operative Post-operative

Case 3.

Pre-operative Intra-operative Post-operative

used to remove the pigmented layer. After removing the visible pigmented epithelium along with a thin layer of connective tissue with the scalpel, the exposed surface was irrigated with saline. Coe-pack was placed at the operated site for 1 week.

In The Mandible

From the distal region of the right canine (43) to distal region of the left canine (33) in the anterior mandible, regional anaesthesia was administered.

A diode surgical laser Biolase Soft Tissue Diode Laser – EPIC X with a 400 micron tip and 1 W power was initiated and laser ablation was done from the mucogingival junction towards the free gingival margin including the papillae in a pulsed mode. Ablation was performed in light brushing stokes and remnants of ablated tissue was removed using sterile gauze dampened with saline solution. Protective eyeglasses were worn by the patient and the staff to fulfil the Food and Drug Administration laser safety rules.

The depigmentation procedure was carried out till no pigments were visible. Coe-pack was placed at the surgical area for 1 week.

Medication

In all three cases, the patients were prescribed analgesics Upto 5 days post-operatively.

Results

Patients were reviewed at the end of 24 hours followed by one week, one month and three months. At every visit, the operated area was irrigated with 1% povidone iodine4 after which the pain scores using the Present Pain Intensity Scale5 and the soft tissue healing using the Wound Healing Index6 were recorded.

After 24 hours, the patients experienced a pain score of 1(mild pain) following the scalpel technique in the maxillary arch and a pain score of 0(no pain) following the laser technique in the mandibular arch.

According to the WHI, at the end of 24 hours, the patients showed a score of 2(slight gingival oedema, erythema, and discomfort) following the scalpel technique in the maxillary arch and a score of 1(absence of gingival oedema, erythema, suppuration and discomfort) following the laser technique in the mandibular arch.

Following this, the patients experienced a pain score of 0 with both the scalpel technique and laser technique in the maxillary and mandibular arch respectively at the end of one week, one month and three months.While recording the soft tissue healing, a score of 1 was given following both the scalpel technique and laser technique in the maxillary and mandibular arch respectively at the end of one week, one month and three months.

To summarize, uneventful healing took place and no complications were seen post-operatively. All the patients experienced mild pain on the first day following conventional scalpel technique in the maxilla and no pain following the laser technique in the mandible.

At the end of one week the gingiva was re-examined. It was healthy, firm and resilient. At the end of one month, complete re-epithelisation had taken place and the cases were evaluated again at the end of three months. The patients were satisfied over the improved colour of the gingiva.

Discussion

Components of an attractive smile largely depend on the health and appearance of the gingiva. The gingival colour has a tremendous effect on not only the smile but also facial aesthetics1.As seen, it differs from individual to individual depending on its location in the oral cavity and seems to be correlated with the colour of the skin1.

The present study showed that both laser and scalpel technique showed favourable results in terms of bleeding, healing, discomfort, pain and re-pigmentation and is consistent with an article given by Harpreet S. while assessing the pain score following gingival depigmentation using laser and scalpel technique where no statistical significance was found between the two groups10.

However studies by Khalilian F7 and Girish S9. Comparing the efficacy of laser to conventional scalpel technique in gingival depigmentation showed reduced pain experienced by the patient and better operator comfort in the laser group compared to the scalpel group.

Depigmentation of the gingiva is a periodontal cosmetic surgical procedure wherein the abnormal and excessive pigmentation in the gingiva is removed or reduced by different techniques like conventional scalpel technique, Abrasion technique, Electro surgery, Cryosurgery, Laser, Radiosurgery, chemicals such as phenols and citric acid, Acellular dermal matrix autograft8.

The limitation of the study is that a larger sample has to be selected in order to determine the effectiveness of each technique in terms of bleeding, healing, discomfort, pain and re-pigmentation.

Conclusion

This study brings us to the conclusion that both conventional scalpel technique and laser technique gave results which are aesthetically acceptable with least discomfort to the patients. Epithelialization was complete and uneventful healing took place. There was no reappearance of pigments in both scalpel and laser technique at the end of third month.

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