Short Communication

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Pink Gingiva is it the Needle or the Light!

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Abstract

Objectiv: *Gingival depigmentation is an aesthetic periodontal procedure that is carried out to eliminate gingival hyperpigmentation. Numerous depigmentation modalities are used namely surgical scraping, gingival autograft, cryosurgery, electrosurgery, and lasers. Microneddling(MN) is a novel technique that is conservative involving the creation of micro wounds and has been tried for depigmentation.*

Material and Methods: *A 23 yrs old female patient without any systemic conditions reported to the Outpatient Department of Periodontology, Krishnadevaraya College of dental sciences and Hospital, with the chief complaint of dark-colored gums. Depigmentation with micro needling was done in the lower anterior and laser in the upper anterior region.*

Result: *There was a considerable reduction in the oral pigmentation scores (Dummett Oral Pigmentation Index) using both techniques in the first and the fourth week. The Visual Analogue Scale score showed lesser pain in the microneedling area.*

Conclusion: *Depigmentation using microneedling and lasers is effective. Microneedling is a simple, economical, and viable option for the removal of gingival depigmentation.*

Introduction

The color of the oral mucosa varies from person to person depending on the quantity and melanogenic activity of melanocytes, the thickness of the keratinized epithelium, and the level of vascularization [1]. The gingival color is one of the gingival characteristics that influence soft tissue aesthetics and the overall appearance of a smile. Melanin, a brown pigment, is the most prevalent natural pigment that contributes to the gingiva's endogenous pigmentation. Melanocytes in the stratum basal produce melanin. A single melanocyte can color between 30 and 40 keratinocytes [2]. Through dendritic tentacles, melanocytes cytologically transfer melanosomes (melanin transporters) into keratinocytes in the prickle and basal cell layers.

One of the most efficient, and dependable methods for gingival depigmentation is now known as laser. With varied degrees of success, many lasers, including diodes, Nd: YAG Er: YAG, Er:Cr: YSSG, and CO2 lasers, have been utilized for gingival depigmentation. Though laser is the best option in recent times there is a question of the cost. Thus a more economical option for depigmentation would be welcome.

Percutaneous collagen induction therapy, also known as microneedling (MN), has been reported as a beneficial therapeutic strategy for a variety of dermatological problems, including skin renewal and medicine distribution after MN [3]. As part of the MN procedure, the skin must frequently be pierced with sterile microneedles. Theoretically, the theory of MN is based on physical trauma. When a needle pierces the skin, it creates microscopic pores called micro-conduits, which start a wound-healing pathway that involves inflammation, proliferation, and remodeling [3,4].

Based on the idea of treating hyperpigmented skin with microneedling. The purpose of this study is to determine the effectiveness of microneedling over laser for Gingival depigmentation(GD).

Case Report

A 25-year-old Female individual came to the Department of Periodontology and Oral Implantology, with a chief complaint of black gum. On general examination, the patient was moderately built and nourished. A preoperative smile was recorded in the photograph. On intraoral examination, there was the presence of

generalized diffused blackish hyperpigmentation of gingiva on both arches. Pigmentation was classified as score 3 according to Dummet and Gupta's classification [5].

According to the patient, pigmentation was physiological and had been present since childhood without being related to any recognized medical conditions. The patient was well explained about the condition and available surgical approach for gingival depigmentation with their pros and cons. A laser technique for maxillary arch and microneedling for lower arch depigmentation was planned and patient written consent was obtained. With the help of a laser tip, a thin layer of gingival epithelium with connective tissue was removed from 15 to 25 And Microneeedling was done in the lower arch 35 to 45.

In the laser technique, the fiber optic laser tip having a 300-micrometer diameter at 2.5W power was kept in contact mode and the laser was emitted in gated pulsed mode and operated wavelength of 800nm. For the MN procedure, LA was administered and a derma pen with 32 micro-needling cartridges was used. The depth of penetration of MN was adjusted according to the gingival thickness.

Derma pen was laid perpendicular to the gingiva and MN was carried out in horizontal, vertical, and diagonal directions until micro bleeding was visible [6]. The patient received a total of 4 sessions of MN spaced out by 7 days intervals [7]. The patient was instructed to mouthwash for 1 week followed by an analgesic tablet to use as needed.

Discussion

The removal or reduction of gingival hyperpigmentation is accomplished using a variety of procedures, including bur abrasion, free gingival grafting, and mucosal stripping, cryosurgery, electrosurgery, laser [8]. In this instance, we used a micro needling to achieve Gingival depigmentation (GD).

Many people are concerned with gingival hyperpigmentation as a cosmetic issue. The suggested method should be simple yet successful The surgical treatment, which tends to be the gold standard, is carried out most often to treat gingival hyperpigmentation. It is based on the complete elimination of the papillary and epithelial connective tissue layers, with the secondary goal of repairing the connective tissue that has been removed. Although laser has recently been the greatest option, there is an economic issue. Thus, a more affordable depigmentation solution would be preferred.

Ozsagir et al. conducted a study recently, in which they contrasted the use of i-PRF alone or in conjunction with microneedling for gingival augmentation. They came to the conclusion that, compared to the group utilizing only i-PRF, the group using i-PRF in conjunction with micro-needling displayed a statistically significant increase in gingival thickness after six months [9].

It has been shown that MN functions better in keratinocytes, which improves the regulation of melanosome transfer between keratinocytes and melanocytes. This helps to reverse hyperpigmentation and cellular activity and signaling between keratinocytes and melanocytes [10]. According to histological analysis of melanocytes after MN, this results in fibroblast proliferation and increased extracellular matrix deposition. A decrease in melanocytes, and basal membrane remodeling [9]. Additionally, increased keratinocyte turnover improves the removal of melanin from the epithelium. Following the first day of the procedure, the gingiva showed a change in texture with white and red-colored areas representing gingival inflammation, edema, and irritation in both maxillary as well as mandible.

MN procedure showed a decrease in pain score compared to a laser that is a score of 3 according to the VAS method. The present study revealed that treatment with MN and laser significantly reduced pigmentation score at 4th week. The therapy for gingival melanin hyperpigmentation described in this case report was easy and effective and the patient's aesthetics and cosmetic appearance were improved.

Result

There was a considerable reduction in the oral pigmentation Dummets score of 3 to 0 using both techniques in the 1st and 4th week.

Conclusion

Depigmentation with micro needling and laser is effective Microneedling is a simple and economical option over laser for gingival depigmentation.

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laser for the maxillary

3 week after laser

1st session of MN

2nd session of MN

3rd session of MN

4th session of MN