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Combination Technique For Gingival Depigmentation: Case Report

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ABSTRACT

Background: *Gingival hyperpigmentation most often caused by genetic factors, and the condition is different at every race that occurs due to excessive deposition of melanin pigment in the basal layer of the gingival epithelium. Gingival depigmentation is treatment that aimed at eliminating gingival discoloration that causes gingival color becomes darker. Several techniques can be used for gingival depigmentation treatment such as using laser and scalpel. The purpose of this case report is to describe the effectiveness of laser, scalpel, and the combination technique in the treatment of gingival depigmentation.* ***Case and case management:*** *A 21 years old female patient with chief complain of darkish gingival color and less confidence of wide smiling. Patient is not a smoker. Depigmentation performed on the maxillary gingiva area 21 to 23 using a laser, area of 11 and 12 using a scalpel #15, and area of 13 using a combination of laser and scalpel, then the exposed surface was irrigated with sterile saline solution. Application periodontal pack on the area 11 and 12, and giving oxyfresh™ on the area which not given periodontal pack. Patient adviced not to eat and drink hot, and controls several times after surgical treatment.* ***Conclusion:*** *Combination technique of the laser and scalpel gives the best results because gingival color looks normal even in the first day after surgical treatment. The patient feels very comfortable.*

Keywords*: gingival depigmentation, laser, scalpel*

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BACKGROUND

A smile is a method of communication and is a mean of socialization and attraction. The harmony of the smile is determined by the shape, the position and the color of the teeth or lips as well as by the gingival tissues, unfortunately this condition can't be achieve because of gingival hyperpigmentation.[1]

Oral pigmentation is a discoloration of the gingival/oral mucosa, associated with several exogenous and endogenous factors. Etiological factors are varied which include drugs, heavy metals, genetics, endocrine disturbances, syndromes as Albright's syndrome, Peutz Jegher's syndrome, and also in inflammation. Adverse habits such as smoking can also stimulate melanin pigmentation and the intensity of pigmentation is related to the duration of smoking and the number of cigarettes consumed. The pigmentation is mostly localized at the anterior labial gingiva, affecting females more than males.[2]

Melanin pigmentation of gingiva occurs in all the races. Melanin, a brown pigment, is the most common natural pigment contributing to endogenous pigmentation of gingiva and the gingiva is also the most predominant site of pigmentation on the mucosa.[3] Melanin pigmentation is caused by melanin granules in gingival tissue, which are produced in melanosomes of melanocytes. Melanocytes are primarily located in the basal and suprabasal cell layers of the epithelium. In addition, the oral pigmentation is due to the activity of melanocytes rather than the number of melanocytes in the tissue.[1]

The degree of gingival pigmentation of the gingiva and skin is reciprocally related. Fair-skinned individuals are very likely to have non pigmented gingiva, but in darker skinned persons, the chance of having pigmented gingiva is extremely high. The highest rate of gingival pigmentation is observed in the area of the incisors.[4]

Gingival depigmentation can be considered a periodontal plastic procedure whereby the gingival hyperpigmentation is removed by various techniques and the technique selection should primarily be based on clinical experiences and individual preferences with primary indication of demand for improved esthetics.[2] There is a various techniques for gingival depigmentation like scalpel, free gingival autografting, electrosurgery, cryosurgery, abrasion with diamond bur, and various types of lasers. The foremost indication for depigmentation therapy is the demand by a person for improved esthetics.[3] 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.[5] There is no specific indication for using any methods that was described before, the purpose of this case report is to compare the effectiveness of new method like laser, conventional method like scalpel, and the combination both of them in the treatment of gingival hyperpigmentation**.**

CASE AND CASE MANAGEMENT

A 21 year old woman visited to the Dental Hospital, Department of Periodontics, Faculty of Dentistry, University of Airlangga with complaints of blackish color of her upper and lower front gum, and this condition make her feel less confident while smiling widely. Since esthetic is main concern, patient want to eliminate the black color in her gums. in intraoral examination found gingivsl hyperpigmentation in upper and lower. There was no marginal gingival inflamation. Patient medical history was non contributory and she had no complain or discomfort. Patient is not smoker.

In this case, the first action is aceptic, and then an infiltration anesthesia on mucobucal fold on area 13 to 23 (2% scandonest with adrenaline in the ratio 1:100,000). Depigmentation performed on maxillary gingiva area 21 to 23 using a laser, and area of 11 and 12 using a scalpel #15 and the area of 13 using a combination of laser and scalpel, then the exposed surface was irrigated with sterile saline solution. Application periodontal pack on the area 11 and 12, and giving oxyfresh^{TM} on the area which not given periodontal pack. After surgery the patients were prescribed antibiotics (Amoxsan 500mg 3 times daily) and analgesics (Mefinal 500mg 3 times daily) for 5 days. Patient was advised not to eat / drink hot and not to brushed her front teeth. Controls 1 day post surgery showed better healing in the area of 13 that are taken care by a combination of techniques laser and scalpel. Patient did not report any pain. On the area 21-23 still shows a blackish color because the effects of the laser use. On the area 11 and 21, pack was loosed and was not re-pack because it looks a good healing process. Evaluation 3 days postoperative showed a reddish color had started to disappear, the former blackish color laser use have also started to disappear, a new gingiva began to form. Evaluation 7 days postoperative showed gingival color is starting to back normal, the black color is disappearing. Evaluation for 14 days, that all three give good results, there is no pain or infection, and gingiva showed normal color.

Fig 1. Before depigmentation procedure

Fig 2. Depigmentation with laser on region 21-

Fig 3. Depigmentation with scalpel Region 11 and 12

Fig 4. Post surgery

Fig 5. Application periodontal dressing

Fig 6. Control 1 day post surgery

Fig 7. Control 3 days post

Fig 8. Control 7 days post surgery

Fig 9. Control 14 days post surgery

DISSCUSION

Pigmentation occurs in all human races. No significant differences that occur between men and women. The intensity and distribution of oral mucosal pigmentation varies, not only between races but also between individuals with the same race.[6] Physiological pigmentation might be due to genetic, but the degree of pigmentation is affected by mechanical stimulation, physical or chemical, for example as a result of exposure to mercury, lead, arsenic, bismuth, and nicotine.[6]

Excessive pigmentation causes discoloration of the gingiva. The pigmentation is due to excessive deposition of melanin pigment in the basal layer of the gingival epithelium.[7] Clinically characterized by brown-black color on the attached gingival-vestibule area. There is no elevation of the gingival mucosa in normal hyperpigmentation. If hyperpigmentation accompanied by elevation of the mucosa there is a tendency to be benign or neoplasia.[7,8]

Basically, melanin pigments also function as a barrier to ultraviolet light. Exposure to ultraviolet light causes the stimulation of melanocytes to produce melanin. Melanin produced will absorb ultraviolet radiation at the cellular level.[9] Melanin also serves to neutralize free radicals. Nevertheless, excessive deposition of melanin resulting in discoloration of the gingiva and may caused esthetic problems.[9,10]

Gingival depigmentation aim to eliminate excessive deposition of melanin pigment to obtain a good esthetic. Gingival depigmentation can be either surgical or non-surgical.[9] Non-surgical treatment, for example by chemical applications locally on gingival intended that the gingival epithelium chipped. In addition to non-surgical, depigmentation can be done by surgical technique for example by gingivectomy, either by using laser or scalpel.[12]

Gingival depigmentation is a surgical procedure that is most often used in cases of gingival discoloration because this treatment can restore gingival esthetics. In this case, depigmentation gingiva is done by technique using a scalpel, laser, and combination both of them, to compare the result of that three technique.

After depigmentation procedure, the scalpel technique area was covered with periodontal dressing to protect the open wound from mechanical trauma and stability of the surgical site during healing process, and the other advantages include: patient comfort, good adaptation to underlying gingival, prevention of post hemorrhage or infection.[13] The others area was given oxyfresh^{TM} to soothe tissue inflamation and oral wounds, and enhanced healing process and deodorise oral wounds.

The depigmentation procedure was successful and the patient was satisfied with the result. Among the mention technique, it is found that the combination technique is the best technique because of the healing process post surgical was great even the first day post surgical treatment. Gingival color of combination technique looks more normal that the other site because laser have biostimulant effect that can make epithel growth faster. We have that effect with laser technique, but we can not go too deep because laser

can make bone necrotic. In combination technique, we use laser only for control bleeding and to obtain biostimulan effect. Combination technique does not require any periodontal dressing and that make patient very comfortable.

With laser, easy handling, short treatment line, homeostasis, sterilization effects and excellent coagulation (small vessels and lymphatics) are known advantages. Also, elimination of using periodontal dressing is possible by using laser. However, laser surgery has some disadvantages. Delayed type of inflammatory reaction may take place with mild post-operative discomfort lasting up to 1–2 weeks. Epithelial regeneration (re-epithelialization) is delayed (lack of wound contraction) as compared to conventional surgery. Also, expensive and sophisticated equipment makes the treatment very expensive. Another disadvantage is loss of tactile feedback while using lasers.[14]

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