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The Use of Scalpel and Electrosurgery Technique In Gingival Depigmentation: A Comparison Case Report

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Abstract

Community awareness of esthetics and health increases the demand for esthetic dental treatments. Patients often complain of gingival pigmentation because it affects their appearance. Gingival pigmentation is treated with depigmentation. Several depigmentation techniques include chemicals, surgeries (gingival abrasion, scalpel technique), electrosurgery, and lasers. This case report aims to present depigmentation results using the scalpel technique and electrosurgery. Case**:** A 23-year-old woman reported to Prof. Soedomo Oral and Dental Hospital with a complaint of blackish upper and lower front side of her gingiva which caused a lack of self-confidence. Clinical findings found diffused broken black spots on the upper and lower labial gingiva from anterior to posterior. A scalpel depigmentation technique was carried out on the maxillary gingiva, followed by antibiotics, analgesics, mouthwash, and a 1-month evaluation. Electrosurgical depigmentation was carried out on the next visit to the mandibular gingiva, followed by antibiotics, analgesics, and mouthwash. Evaluation of scalpel depigmentation conducted one month after treatment found pain (-), pigmentation (-), pink coral gingiva, similar to surrounding tissues. Evaluation of electrosurgical depigmentation ten days after treatment found pain (-), pigmentation (-), and some redness in the surgical area, indicating the wound healing process. Gingival depigmentation using the scalpel and electrosurgery techniques produced an excellent gingival healing process. Therefore, these techniques can be used as healthier and esthetic gingiva alternatives.

Keywords: Gingival depigmentation; scalpel technique; electrosurgery

1. Introduction

Community awareness of esthetics and health increases the demand for esthetic dental treatments. One of the esthetic periodontal surgeries is depigmentation [1, 2]. Gingival appearance is an important aspect of a person's smile [3]. Medical problems do not usually cause gingival pigmentation (hyperpigmentation). However, patients often complain because it affects their appearance [1].

Gingival pigmentation (hyperpigmentation) is a condition where melanin is deposited in the basal and suprabasal layers of epithelia, giving the clinical appearance of irregular brown or black spots. Melanin is derived from melanoblasts' activities. Hyperpigmentation can cause concern, and patients may seek treatment [4, 5, 6]. Gingival pigmentation can be classified into physiological and pathological pigmentations. The former can be caused by genetics and race, while the latter can be caused by endocrine, heavy metal, malignancy, drugs, post-inflammatory pigmentation, smoking, hemangioma, and amalgam [5].

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Several techniques for gingival pigmentation include chemicals, surgeries (gingival abrasion, scalpel technique, free gingival grafting, acellular dermal matrix allograft (ADMA)), electrosurgery, lasers, cryosurgery, and radiosurgery [6]. The scalpel technique provides many advantages, including cost-effectiveness, simplicity, and ease of use. Meanwhile, electrosurgery provides minimal bleeding and a lower risk of scar tissue formation [6, 7].

2. Case Report

A 23-year-old woman reported to RSGM UGM Prof. Soedomo with a complaint of black upper and lower gingiva, which caused a lack of self-confidence. The complaint was felt for 3 years without pain. The patient denied having any allergy or systemic disease. She did not have a history of smoking. However, she lived in an environment dominated by people who smoke. The extraoral examination was uneventful. Intraoral examination found broken, diffused black spots on the upper and lower labial gingiva from anterior to posterior (Figure 1). The patient had good OHI.

Figure 1. Pigmentation on upper and lower gingiva.

Scaling and polishing were carried out on the first visit, followed by education to maintain oral hygiene. On the second visit, depigmentation with the scalpel technique was carried out on the upper anterior to posterior right and left gingiva. Asepsis was performed using povidone-iodine, followed by infiltration anesthesia on the mucobuccal fold of the upper labial and buccal gingiva. Depigmentation was carried out using a scraping technique using blade no. 15 to remove all pigmentations (Figure 2). The surgical area was then rinsed with saline and dried. Periodontal dressing was placed on the location. The patient was given analgesics, antibiotics, and chlorhexidine-containing mouthwash and instructed for follow-ups one week and one month after treatment.

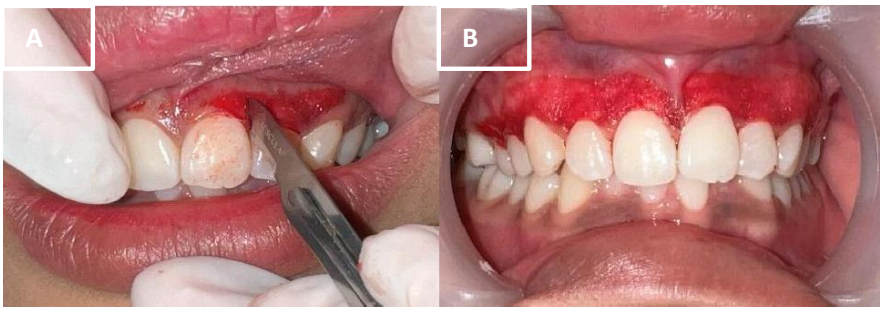

Figure 2. Depigmentation using scalpel technique; A. Depigmentation using blade no. 15, B. The appearance of upper gingiva after scraping.

Evaluations were conducted ten days and one month after depigmentation. Follow- up 10 days after treatment showed that the gingiva was still in the healing process, marked by a white area and some redness in the surgical area (Figure 3). The pigmentation on the upper gingiva was gone one month after treatment (Figure 3).

Figure 3. Post Depigmentation with scalpel technique; A. Evaluation after 10 days, B. Evaluation after 1 month.

Electrosurgical depigmentation was carried out for the lower gingiva on the next visit. Asepsis was performed using povidone-iodine, followed by infiltration anesthesia on the mucobuccal fold of the lower labial and buccal gingiva. Electrosurgical depigmentation was performed on 1-4.5 mHz wavelength (Figure 4). The electrosurgical tip (power=3) must always be moved around to prevent heat accumulation and water spray must be used to rinse the tissues. The procedure was carried out until all pigments were gone. The surgical area was irrigated with saline and dried. Periodontal dressing was placed, and the surgical area was closed. The patient was given anti-inflammatory medicines, antibiotics, and chlorhexidine-containing mouthwash. She was instructed for follow-ups one week and one month after treatment.

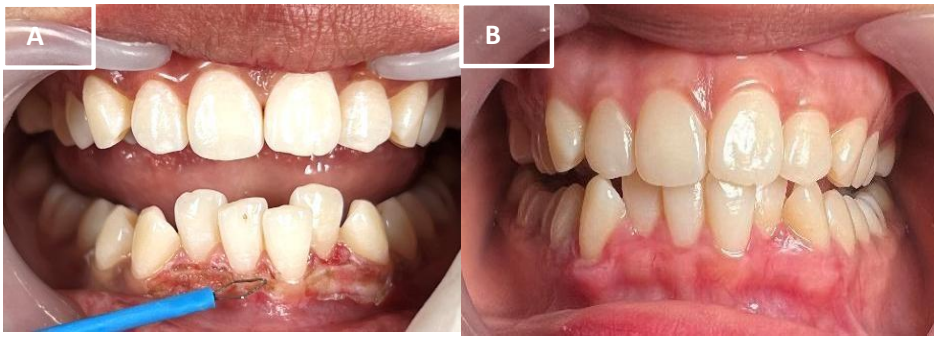

Figure 4. Depigmentation of lower gingiva; A. Depigmentation using electrosurgery technique, B. Surgical depigmentation evaluation on lower gingiva after 10 days.

Evaluation was performed ten days and one month after depigmentation. Gingiva was healing on the 10-day follow-up but was still in the healing process (Figure 4). The patient did not come for 1-month follow-up.

3. Discussion

The gingival pigmentation in this patient was racial and also affected by the environment, including exposure to cigarette smoke. A study on 50 non-smoking women stated that 54% of them had gingival pigmentation. This indicates a significant correlation between gingival pigmentation and women frequently near smokers. The common location of pigmentation in passive smokers is the upper and lower labial gingiva. Another study found a broken form of pigmentation in passive smokers, albeit not statistically significant [8, 14]. This case had one or more broken bands of pigmentation around the gingival margin, attached gingiva, and interdental papilla [9]. The

pigmentation, in this case, can be caused by inhaled cigarette smoke that enters blood circulation and affects gingival melanocytes to produce melanin pigment in the gingiva. Other than that, stimulants in cigarette smoke, such as nicotine and benzopyrene, can be dissolved in saliva and penetrate through the mucous membrane [8, 15].

The scalpel technique and electrosurgery have their advantages and disadvantages. Gingival pigmentation scraping with a scalpel is cost-effective, and the armamentarium is easier to obtain than more advanced tools. However, this technique causes more bleeding during the surgery, making it uncomfortable for the patient and requiring more attention and control for the operator [7, 12, 13]. On the fourth day after surgery, the patient reported that the periodontal pack came off and had no complaints. Post-surgical evaluation on day 10 showed white areas and some redness in the surgical area with no pigmentation. On day 30 after surgery, evaluation showed no pigmentation (-) and coral pink gingiva with texture unstippling.

Electrosurgery requires a shorter duration and better bleeding control than the scalpel technique. However, it can have an aroma and smoke that may be uncomfortable for the patient. The heat it produces can also cause unwanted tissue damage [7, 10, 11]. On day five after surgery, the patient reported that the periodontal pack came off and had no complaints. On day 10, the clinical evaluation of electrosurgery found no pigmentation and some white and red areas on the surgical site.

Based on the operator's experience, the electrosurgery depigmentation technique requires less time than the scalpel technique but requires more caution when working. The results of depigmentation using the electrosurgery technique and the scalpel technique show comparable tissue repair results in the wound healing process. Both techniques produced similar results in the wound-healing process. Both techniques showed no pigmentation and no bleeding on day ten after surgery.

4. Conclusion

A beautiful smile is one of the factors affecting social life and can improve self- confidence. Gingival depigmentation esthetic surgery using the scalpel technique and electrosurgery can be a good alternative to obtain healthy and esthetic gingiva. Both techniques showed the same gingival healing process after depigmentation, and the results were also similar. Therefore, the patient was satisfied with her current gingiva appearance.

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