



(CASE REPORT)



Depigmentation procedure by scrapping technique for management of gingival hyperpigmentation: Case report

Restia Akwila * and Chiquita Prahasanti

Department of Periodontology, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia.

World Journal of Advanced Research and Reviews, 2024, 24(02), 338–341

Publication history: Received on 23 September 2024; revised on 28 October 2024; accepted on 31 October 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.24.2.3330>

Abstract

Background: Currently, periodontal treatments for esthetic purposes are increasing. This treatment could be done by periodontal plastic surgery. One of the procedures of periodontal plastic surgery is gingival depigmentation. Gingival depigmentation is the treatment for gingival discoloration. Gingival discoloration occurs due to the hyper-deposition of melanin by melanocytes on the basal gingival epithelium. This condition causes a dark color of the gingiva. The purpose of this case report is to explain the management of gingival discoloration.

Cases: A 22-year-old male patient with chief complaints of darkish gingival color and less confidence in smiling. The patient is not a smoker.

Case management: Anterior maxilla gingival depigmentation was performed using scalpel #15. An Orban knife was used to shape the interdental area, followed by saline irrigation. A periodontal pack is placed on the surgical area. Two weeks of evaluation found that wound healing is fine, as painless and no infection occurred.

Conclusion: Management of gingival discoloration by melanin with gingival depigmentation technique provides effective results.

Keywords: Gingival discoloration; Gingival depigmentation; Melanins; Surgery; Melanocytes; Wound Healing

1. Introduction

Gingival color is determined by several factors such as quantity and size of blood vessels, epithelial thickness, keratinization level, and quantity of pigment (Gómez-Polo et al., 2019). Melanin is a natural brown pigment, produced by melanocytes located in the basal layer of the epithelium gingiva (Pavlic et al., 2018). Melanin, Carotene, and Oxyhemoglobin are the main pigment that plays a role in physiological pigmentation in the oral cavity (Gulati et al., 2016). Excessive melanin deposition in the gingiva may cause hyperpigmentation that causes the gingival color to become darker. Gingival color due to Melanin Hyperpigmentation can vary from light to dark, brown or black. It depends on the amount and distribution of Melanin in Melanin tissue (Elemek, 2018; Gulati et al., 2016). Hyperpigmentation can cause discoloration of the gingiva and also can be caused by several factors, among others: physiological factors, systemic factors, genetics, use of tobacco, especially long-term consumption of antimalarial drugs and tricyclic antidepressants (Manohar & Abilasha, 2019).

High levels of melanin pigments can also be found in some races, namely Africa and East Asia. In general, individuals with white skin Hyperpigmentation are rare than people with dark skin. This difference is due to the melanin produced by melanocytes are not same even though the number of melanocytes is are same. Although melanin hyperpigmentation

* Corresponding author: Restia Akwila

that causes discoloration of the gingiva does not cause medical problems this condition causes esthetic problems(Farid et al., 2017).

As the times and needs of people for beauty, it made aesthetic treatments in dentistry are growing rapidly. One of the aesthetic treatments for discoloration of the gingiva is gingival depigmentation. Gingival depigmentation is aimed at eliminating color gingival due to excessive deposition of melanin pigment in the basal layer of the gingival epithelium. There are several techniques of gingival depigmentation frequently used, among other things: gingivectomy, gingivectomy with free gingival autografting, electrosurgery, cryosurgery, radiosurgery, the use of chemicals such as phenol and alcohol, abrasion techniques with diamond bur or with laser(Alasmari, 2018). Each technique has advantages and disadvantages itself. This case report aims to explain the management discoloration of gingiva with gingival depigmentation techniques using a scalpel.

2. Case

A 22-year-old male came to the Dental and Mouth Hospital, Faculty of Dentistry, Airlangga University with a complaint about the dark color of gum on the above front. The patient complains of a darkish color on his gum disturbing his esthetic gingival when he smiles. The patient wants to change the dark color to bright on his gums.

2.1. The treatment plan

- Phase I (dental health education)
- Phase II (gingival depigmentation from 13 to 23)
- Phase IV (maintenance)

2.2. Case management

In both cases, first apply aseptic, infiltration anesthesia on the mucobukal fold region from 13 to 23. The gingival depigmentation was performed on the maxillary anterior region using a scalpel #15 and a Kirkland knife. The interdental part was smoothed using an orban knife. Furthermore, the operating area was cleaned with sterile saline irrigation. Periodontal pack applied in the region of 13 to 23. After the operation, the patient was prescribed antibiotics and analgesics for 5 days. Patients are advised not to consume hot food or hot drinks. The periodontal pack was released after a week and observation postoperative. After a week postoperatively showed gingival conditions are still red, accompanied by a little pain when touched. Patients were instructed to use chlorhexidine mouthwash for a week. After two weeks post surgery there is no abnormality found, the surgery area showed normal color, and no complaints from the patient.



Figure 1 Gingiva before depigmentation



Figure 2 Gingiva one week after depigmentation



Figure 3 Gingiva one month after depigmentation **Figure 4** Gingiva three months after depigmentation

3. Discussion

Pigmentation occurs in all human races. No significant differences occur between men and women. The intensity and distribution of oral mucosal pigmentation varies, not only between races but also between individuals of the same race. Physiological pigmentation might be due to genetics, but the degree of pigmentation is affected by mechanical stimulation, physical or chemical, eg: due to exposure to mercury, lead, arsenic, bismuth, and nicotine (Gulati et al., 2016).

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. Clinically characterized by brown-black color on the attached gingiva-vestibule area. Hyperpigmentation clinically normal mucosa was no elevation of the gingiva. If hyperpigmentation accompanies mucosal elevation, there is a tendency to be benign or neoplasia (N Shahna et al., 2019).

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. Melanin also serves to neutralize free radicals. However, excessive deposition of melanin results in discoloration of the gingiva (Castro-Rodríguez, 2019; Goenka, 2023).

Gingival depigmentation is performed to eliminate excessive deposition of melanin pigment to obtain a good aesthetic. Gingival depigmentation can be either surgical or non-surgical (Houshmand et al., 2017). Non-surgical for example by chemical applications, locally on gingiva intended for peeling gingival epithelium. In addition to non-surgical, depigmentation can be done with surgery for example by gingivectomy techniques, either by using a laser or scalpel.

Gingival depigmentation is a surgical procedure most often used in cases of gingival discoloration because this treatment can restore gingival aesthetics. In this case, the gingival depigmentation was performed with a simple technique using a scalpel. Because with a scalpel, depigmented gingiva is quite simple and the results are effective (Wagle et al., 2018). This technique is most often used because it is easily performed to remove the gingival tissues that undergo discoloration. Gingival healing with this technique is quite well without any infection and excessive pain. The basic principle of this technique is to remove a layer of the gingival epithelium and connective tissue underneath which will be followed by secondary healing granulation tissue with epithelial form. Newly formed epithelium is pigmented without melanin (Suchetha A, Shahna N, et al., 2018).

After depigmentation, it's highly recommended to close an open wound with a periodontal application pack. It's intended because an open surgical wound can be protected from bacterial infection and irritation caused by food. Gingival depigmentation After the patient is instructed to control one week later. The periodontal pack was removed after one week and the patient was instructed to wear non-alcoholic mouthwash to accelerate the network re-epithelisasi.

After One week postoperative gingiva was still slightly reddish and after one month of the healing process, it looked normal, with no redness of the scar area. In the third month, it appears the black spots on some parts of the signaling occur repigmentation in the region of 13th and 23rd. This is because melanin pigmentation is very thick in the area so depigmentation can not be maximized. In some studies, results show repigmentation is a common problem. The gingival depigmentation procedure is only aimed at improving the aesthetic within a certain time because it can not provide permanent results. Repigmentation can occur within a period of one month to 8 years. In cases of hyperpigmentation that are thick on the gingiva, it is necessary to redo depigmentation to maintain without discoloration.

4. Conclusion

Gingival discoloration management due to melanin with gingival depigmentation techniques provides effective results.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

- [1] Alasmari, D. S. (2018). An insight into gingival depigmentation techniques: The pros and cons. *International Journal of Health Sciences*, 12(5), 84–89.
- [2] Castro-Rodríguez, Y. (2019). Melanosis gingival, una revisión de los criterios para el diagnóstico y tratamiento. *Odontoestomatología*, 21(33), 54–61. <https://doi.org/10.22592/ode2019n33a7>
- [3] Elemek, E. (2018). Gingival melanin depigmentation by 810 nm diode laser. *European Journal of Dentistry*, 12(01), 149–152. https://doi.org/10.4103/ejd.ejd_373_17
- [4] Farid, H., Saad Shinwari, M., Raza Khan, F., & Tanwir, F. (2017). Journey from black to pink gums: management of melanin induced physiological gingival hyper pigmentation Part of the Surgery Commons Recommended Citation JOURNEY FROM BLACK TO PINK GUMS: MANAGEMENT OF MELANIN INDUCED PHYSIOLOGICAL GINGIVAL HYPER PIGMENTATION. In J Ayub Med Coll Abbottabad (Vol. 29, Issue 1). http://ecommons.aku.edu/pakistan_fhs_mc_surg_surghttp://ecommons.aku.edu/pakistan_fhs_mc_surg_surg/650http://www.jamc.ayubmed.edu.pk132
- [5] Goenka, S. (2023). Sepia Melanin-Loaded Primary Human Gingival Keratinocytes: An In Vitro Model for Studies on Pigmented Gingiva. *Oral*, 3(2), 254–265. <https://doi.org/10.3390/oral3020021>
- [6] Gómez-Polo, C., Montero, J., Gómez-Polo, M., & Martín Casado, A. M. (2019). Clinical study on natural gingival color. *Odontology*, 107(1), 80–89. <https://doi.org/10.1007/s10266-018-0365-2>
- [7] Gulati, N., Dutt, P., Gupta, N., & Tyagi, P. (2016). GINGIVAL PIGMENTATION: REVISITED. In *Journal of Advanced Medical and Dental Sciences Research* |Vol (Vol. 4).
- [8] Houshmand, B., Janbakhsh, N., Khalilian, F., & Talebi Ardakani, M. R. (2017). Efficacy of Conventional Laser Irradiation Versus a New Method for Gingival Depigmentation (Sieve Method): A Clinical Trial. *Journal of Lasers in Medical Sciences*, 8(2), 88–94. <https://doi.org/10.15171/jlms.2017.16>
- [9] Manohar, J., & Abilasha, R. (2019). A Study on the Knowledge of Causes and Prevalance of Pigmentation of Gingiva among Dental Students. *Indian Journal of Public Health Research & Development*, 10(8), 95. <https://doi.org/10.5958/0976-5506.2019.01859.X>
- [10] N Shahna, ASuchetha, N Sapna BM Darshan, & SM Apoorva. (2019). Gingival pigmentation: A review of literature. *International Journal of Applied Dental Sciences*, 5(2), 83–91.
- [11] Pavlic, V., Brkic, Z., Marin, S., Cicmil, S., Gojkov-Vukelic, M., & Aoki, A. (2018). Gingival melanin depigmentation by Er:YAG laser: A literature review. *Journal of Cosmetic and Laser Therapy*, 20(2), 85–90. <https://doi.org/10.1080/14764172.2017.1376092>
- [12] Suchetha A, Shahna N, Divya Bhat, Apoorva SM, & Sapna N. (2018). A review on gingival depigmentation procedures and repigmentation. ~ 336 ~ *International Journal of Applied Dental Sciences*, 4(4), 336–341. www.oraljournal.com