ORIGINAL RESEARCH PAPER

Volume-8 | Issue-5 | May-2019 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

GINGIVAL DEPIGMENTATION- REPORT OF TWO CASES

Periodontology

Dr Arun Kumar BDS, MDS

Dr Needhika chibber* BDS, MDS *Corresponding Author

Dr Ettishree Sharma BDS, MDS

KEYWORDS

INTRODUCTION-

Gingival health and appearance are the essential components of an attractive smile. Gingiva is the most frequently pigmented intraoral tissue and common esthetic concerns which require patients to seek cosmetic treatment for their unsightly pigmented gingiva. There are several factors responsible for the color of gingiva, namely number and size of the blood vessels, epithelial thickness, quantity of keratinization and pigments within the gingival epithelium. According to Dummett[1] color of the healthy gingiva is variable, ranging from pale pink to deep bluish purple. Infections, trauma, drugs, hormone deficiency, and some systemic factors, such as Addison's disease, also can cause gingival pigmentation.[2-4] Among the various types of pigments, melanin is the most common pigment contributing to the normal color of the gingiva. Several studies have been done on melanin pigment as it is the most important pigment of the skin. Melanin hyperpigmentation of gingival usually does not present as a medical problem, but many patients may consider their black gums to be unesthetic. This problem is more embarrassing in patients with 'gummy smile.' Clinically, in the facial aspect of the gingiva, gingival melanin hyperpigmentation appear as light to dark brown and sometimes blue black area. Attached gingiva is the most common site. The color is often a diffuse, symmetric, ribbon like dark band or irregularly shaped patch with a well-demarcated border.[5]

According to Dummett: Gupta Oral Pigmentation Index[6] (DOPI) : (1964)

0 — no clinical pigmentation (pink gingiva).
1 — mild clinical pigmentation (mild light brown color).
2 — moderate clinical pigmentation (medium brown or mixed pink and brown color).
3 — heavy clinical pigmentation (deep brown or bluish black color).

Melanin synthesis occurs only in the cytoplasm of melanocytes, present at the epidermal-dermal junction of the skin and the mucous membranes.[7] Various treatment modalities have been made for cosmetic removal of pigmented area with unpredictable results. These include gingivectomy[8] gingivectomy with free gingival autografting[9] abrasion with diamond burs,[10] acellular dermal matrix allografts[11] cryosurgery,[12] electorsurgery[13] and various types of lasers[14] Each technique had its own supremacy in efficiency and also draw back. Demand for cosmetic therapy is mostly seen in patients with a high smile line, i.e. gummy smile. Gingival depigmentation is one of a periodontal plastic surgical procedure through which the gingival hyperpigmentation is removed or reduced by various techniques. This article describes two cases of depigmentation technique using scalpel technique with round diamond bur for contouring of gingiva.

SURGICAL PROCEDURE

A scalpel surgery with bur abrasion was planned to perform the depigmentation. The entire procedure was explained to the patient and written consent was obtained. A complete medical, family history and blood investigations were carried out to rule out any contraindication for surgery. Local anesthesia was infiltrated in the anterior region from premolar to premolar (Lignocaine wih adrenaline in the ratio 1:100000 by weight). A Bard Parker handle with a No.15 blade and a high speed hand piece with diamond bur were used to remove the pigmented layer (Fig. 2). After removing the entire pigmented epithelium along with a thin layer of connective tissue with the scalpel, abrasion with diamond bur was done to get the physiological contour of the gingiva, the exposed surface was irrigated with saline. While using the bur minimal pressure was applied with feather light brushing strokes and without holding bur in one place. Care was taken to see that all remnants of the pigment layer was removed. Post-surgical antibiotics (Amoxicillin 500mg, thrice daily for five days) and Analgesics (ibuprofen with paracetemol, thrice daily for three days) were prescribed. The patient was reviewed at the end of 1 week. The healing process was proceeding normally and patient did not report any discomfort. Re-epithelialization was complete and healing was found to be satisfactory. Patient had no complaints of postoperative pain or sensitivity. However, certain localized areas of repigmentation were seen in case 2. At the end of 12 months, the gingiva appeared healthy and no further repigmentation was seen in case 1.

CASE REPORTS

Two cases of gingival hyperpigmentaion managed by deepithelialization of the gingiva using a surgical blade are documented here. The procedures were explained verbally to the patients and the consent forms were signed. Twelve months follow up showed no signs of repigmentaion in case 1 however slight patch of repigmentation was seen in case 2.

Case 1

A 20-year-old male reported to a private dental clinic in Amritsar, Punjab with the concern of unaesthetic anterior gingiva. Melanin hyper-pigmented gingiva was found on the labial surface of both maxillary and mandibular arches. The color of gingiva was dark brown (Fig.1). Depigmentation was done by surgical abrasion using BP handle with a No.15 blade and with diamond bur to get the physiological contour of the gingiva under local anesthesia (Fig. 2 a,b). A periodontal pack was placed to reduce the postoperative discomfort. The healing was uneventful with a considerable improvement in aesthetics (Fig. 3).

Figure 1

Figure 2 (a)

Figure 2 (b)

Figure 3

Case 2

A 25-year-old male had a chief complaint of "black gingiva" (Fig. 4). The procedures were performed with the same parameters and methods as in the previous case (Fig. 5). The wound healing was satisfactory after 2 weeks (Fig. 6). No pain or bleeding complications were found. The gingiva became pink and healthy post operatively. At 12 months follow up, there was slight recurrence of gingival hyperpigmentation (Fig. 7).

Figure 4

Figure 5

Figure 6

Figure 7

Discussion

Melanin pigmentation is frequently seen by melanin deposition through the active melanocytes located mainly in the basal layer of the oral epithelium. Pigmentation can be removed for esthetic reasons. No sign of repigmentation was seen with respect to case no. 1 and however, slight repigmentation was seen in case no. 2 (Figure 7) at an interval of one year postoperatively that too in the form of a small patches. Repigmentation refers to the clinical reappearance of melanin pigment following a period of clinical depigmentation. The exact mechanism of repigmentation is not known but according to 'migration theory', active melanocytes from adjacent pigmented tissues migrate to treated area and cause failure.[15] Irrespective of various techniques the problem of repigmentation was seen by many other authors, though there may be considerable variation in there follow-up period. The result of the gingivectomy procedure used by Dummett et al[16] to remove pigmented gingiva showed the repigmentation in 67% of the areas, with in 33 days after surgical removal however in 33% of areas, repigmentation did not occur up to 431 days after surgery. Hirschfeld et al[17] used phenol (90%) and alcohol (95%) and observed repigmentation which was soon developed in three patients; the rest of the subjects met with the same results within a shorter duration of time. Sameer et al[18] treated three cases of gingival hyperpigmentation by abrasion with a high-speed hand piece and diamond bur and reported no repigmentation in a follow-up period of 18 months contrary to this Farnoosh[19] reported slight repigmentation in two cases after a period of 20 months with similar technique. Bergamaschi et al[8] studied melanin repigmentation after gingivectomy and concluded that the gingival resective procedures, offer no permanent results if performed solely for cosmetic reasons. Tal et al[20] used cryosurgery for the removal of gingival pigmentation and reported no repigmentation up to a 20-month followup period. The results of Perlmutter and Tal[15] studies with scalpel technique showed that gingival repigmentation occur after seven years in one patient however in other, treated areas remain depigmented even after 8 years follow-up duration. Thus, the mixed results were seen with different techniques. Some were positive while some were negative for repigmentation occurrence. The various depigmentation techniques with different success rate have been reported in the literature with their own advantages and disadvantages, however the selection of a technique for depigmentation should be based on clinical experience, availability of the resources and affordability of patients. Among all the available technique we have focused on the scalpel technique because of the its economical, less time consuming, faster healing and without the requirement of any special or costly armamentarium. Dummett and Bolden[16] et al used gingivectomy to remove pigmented gingiva but found the mixed results regarding repigmentation. Chemical agents like phenol (90%) and alcohol (95%) worked by destroying tissue down to and slightly below the basal layer of the mucous membranes. It was found that these agents were harmful to oral soft tissue cause pain and tissue necrosis along with the repigmentation which was observed later.[17] It is often difficult to control the depth of deepithelization by using bur abrasion or surgical bur technique. Moreover, there is a possibility of postoperative bleeding and pain. Electrosurgery requires more expertise than scalpel surgery. The study done by Glickman and Imber in 1970 compared electrosurgery and periodontal knives and concluded that in deep gingival resection, inflammation was intense, and loss of crestal bone height occurred with electrosurgery.[21] When comes to Cryosurgery it requires technical skill, expensive instrument which is not commonly available in the clinics moreover it is also accompanied by increased soft tissue destruction as the depth of penetration cannot be controlled.[22] Recently laser therapy is also used for the same Atsawasuwan[23] et al used Nd:YAG laser for the treatment of hyperpigmented gingiva and reported no recurrence in a period of 11 to 13 months of follow-up this could be because of laser beam even destroys the epithelial cells including those at the basal layer, and hence reduces repigmentation. It was also suggested that Nd:YAG laser should be used cautiously. The advantage of using laser beam is that it produces bloodless field for surgery, causes minimum damage to the periosteum and underlying bone, and the treated gingiva and mucosa do not need any dressing. This has the advantages of easy handling, short treatment time, hemostasis, and decontamination and sterilization effects. But this approach needs expensive and sophisticated equipment, which makes the treatment very expensive so this technique is not widely accepted or popularly used at present.

Conclusion

The gingival tissues play an important role in healthy and beautiful smile. Hyper pigmentation of gingiva is a common esthetic but not a medical problem. The surgical procedure described here for depigmentation was found to be simple, still popular, economical and clinically satisfactory with least discomfort and minimal tissue removal of the patients. In the present cases the patients have reported feeling better about their appearance, with complete satisfaction especially during smiling and speech.

REFERENCES-

1. Dummett CO. Barens G. Pigmentation of the oral tissue: a review of the literature. J Periodontol 1967;38:369-77.
2. Tal H, Oegiesser D, Tal M. Gingival depigmentation by Erbium: YAG laser: clinical observations and patients responses. J Peroiodontol 2003;74:1660-67.
3. Dutnmett CO. Oral tissue color changes. Ala J Med Sei 1979;16:274-83.
4. Dumraett CO. Overview of normal oral pigmentations. Ala J Med Sei 1979:16:262-73.
5. Krom JC, Waas AM, Oosterveld P et al. The oral pigmentation chart: a clinical adjunct for oral pigmentation in removable prostheses. Int J Prosthodont 2005;18:66-70.
6. Dummett CO, Gupta OP. Estimating the epidemiology of the oral pigmentation. J Natl Med Assoc 1964;56:419-20.
7. Bolden TE. Histology of Oral Pigmentation. In first symposium on oral pigmentation, Dummett CO, consulting editor. J Periodontol 1960;31:361-74.
8. Bergamaschi O, Kon S, Doine AI, et al. Melanin repigmentation after gingivectomy: a 5-year clinical and transmission electron microscopic study in humans. Int J Periodontics Restorative Dent 1993;13(1):85-92.
9. Tamizi M, Taheri M. Treatment of severe physiologic gingival pigmentation with free gingival autograft. Quintessence Int 1996;27:555-58.
10. Bishop K. Treatment of unsightly oral pigmentation: a case report. Dent Update 1994;21:236-37.
11. Pontes AE, Pontes CC, Souza SL, Novaes AB Jr, Grisi MF, Taba M Jr. Evaluation of the efficacy of the acellular dermal matrix allograft with partial thickness flap in elimination of the gingival melanin pigmentation — a comparative clinical study with 12 months of follow-up. J Esthetic Rest Dent 2006;18:135-43.
12. Yeh CJ. Cryosurgical management of melanin pigmented gingival. Oral Surg Oral Med Oral Pathol Oral Rad Endod 1998;86:660-63.
13. Gnanasekhar JD, Saleh Al-Duwairi Y. Electrosurgery in dentistry. Quintessence Int 2001;1:34-39.
14. Stabholz A, Zeltser R, Sela M, Peretz B, Moshonov J, Ziskind D et al. The use of lasers in dentistry: principles of operation and clinical applications. Compend Contin Educ Dent 2003;24:935-48.
15. Perlmutter S, Tal H, Repigmentation of the gingiva following iniury. J Periodontol 1986:57:48-50.
16. Dummett CO, Bolden TE. Postsurgical chnical repigmentation of the gingiva. Oral Surg Oral Med Oral Pathol 1963;16:353-65.
17. Hirschfeld I, Hirschfeid L. Oral pigmentalion and method of removing it. Oral Surg Oral Med Oral Palhol 1951;4:1012-16.
18. Mokeem SA. Management of gingival hyperpigmentation by surgical abrasion: Report of 3 cases. Saudi Dental Journal 2006;18:161-66.
19. Farnoosh AA. Treatment of gingival pigmentation and discoloration for esthetic purposes. Int J Periodont Rest Dent 1990:10:313-18.
20. Tal H, Landsberg J, Kozlovsky A. Cryosurgical depigmentation of the gingival. A case report. J Clin Periodontol 1987;14:614-17.
21. Glickman I, Imber I. Comparison of gingival resection with electrosurgery and periodontal knives: a biometric and histologic study. J Periodontol 1970;41:142-48.
22. Ishida CE, Ramose SM. Cryosurgery in oral lesions. Int J Dermatol 1998;37:283-85.
23. Atsawasuwan P, Greethong K, Nimmanon V. Treatment of gingival hyperpigmentation for esthetic purposes by Nd: YAG laser: Report of 4 cases. J Periodontol 2000;71:315-21.