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RESEARCH ARTICLE

AESTHETIC MANAGEMENT OF GINGIVAL HYPERPIGMENTATION USING SCALPEL AND ELECTROSURGERY: A CASE REPORT

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ABSTRACT

Modern era is the period of aesthetics with the increased awareness and enhanced desire to look good. The demand for cosmetic therapy of gingival hyperpigmentation is common. Various methods have been used for depigmentation; each method has its own advantages and limitations. The selection of a technique for depigmentation of the gingiva should be based on clinician's expertise, patient's affordability and individual preferences. The present case report is an attempt to compare and discuss the effectiveness of different techniques for gingival depigmentation.

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INTRODUCTION

Smile of an individual is the reflection of one's personality and self-confidence. One of the most important factor that impacts the beauty of smile is the colour of the gingiva (Verma, 2013). The colour of gingiva is due to the presence of melanin, which is a natural brown pigment, produced by melanocytes that residing in the basal layer of the epithelium (Cicek, 2003). Factors that govern the colour of gingiva include-increase or decrease in blood vessels, thickness of the epithelium, extent of keratinization, and endogenous & exogenous pigmentation (Kauzman, 2004). Within the oral cavity, the melanin is found in the gingiva, hard palate, mucosa and tongue. The gingivae are the most frequently pigmented intraoral tissues (Dummett, 1960). Gingival hyperpigmentation manifests as triangular/ linear/diffuse patches of dark brown to black or light brown to yellow colour. Gingival hyperpigmentation is considered to be multifactorial and can have multiple etiology. It can be categorized as endogenous or exogenous; physiological or pathological; and may be due to local or systemic causes on the basis of nature and etiology (Prasad, 2005). Gingival hyperpigmentation is the major aesthetic concern among the people in modern era, especially females. Despite the fact that it is not problematic, many people complain of dark gums as unaesthetic.

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Gingival depigmentation is a periodontal plastic surgical procedure, wherein the hyperpigmented tissue is eliminated or reduced by various techniques (Almas, 2002). Literature supports various treatment modalities like scalpel, cryosurgery, electrosurgery, lasers, abrasion using diamond burs etc. for the gingival depigmentation procedure. Here in the present case, the authors attempt to compare the effectiveness of scalpel and electrosurgery depigmentation technique in terms of pain & discomfort, bleeding, healing response, and patient satisfaction.

Case Report

A 24-year-old female patient reported to the department of periodontology, with chief complaint of hyper pigmented gums. Detailed history revealed that the hyperpigmentation was present since childhood (which is indicative of physiological hyperpigmentation). Patient had no history of personal habits (smoking, gutka chewing etc). Past dental history revealed that subject had undergone full mouth rehabilitation for the aesthetic reasons and now she was concerned about her dark gums. Patient had no medical and drug history. On clinical examination, the melanin pigmentation was found to be generalized and diffused; the DOPI score was 3 for the gingiva, (Dummet, 1971). Dummett-Gupta Oral Pigmentation Index (DOPI) scoring criteria given by Dummett in 1964 are as follows: 0: No

clinical pigmentation (pink gingiva) 1: Mild clinical pigmentation (mild light brown colour) 2: Moderate clinical pigmentation (medium brown or mixed pink and brown colour) 3: Heavy clinical pigmentation (deep brown or bluish black colour). When the patient was asked to smile, the gingiva was noticeable from first premolar to first premolar due to high smile line. Patient was highly worried and anxious about the hyperpigmentation.

Figure 1. Pre-operative view showing hyperpigmentation of labial gingival

Figure 2. Markings delineating hyperpigmentation

Figure 3. Immediate post-operative view using electrosurgery (Maxillary arch)

Figure 4. Immediate post-operative view using scalpel (Mandibular arch)

Figure 5. Six months post-operative view showing healthy gingiva with no recurrent pigmentation

Looking at the concern of the patient, the depigmentation procedure and its various treatment modalities were comprehensively explained to the patient along with its advantages and limitations. After the patient agreed for the treatment, a signed written consent was taken. Thorough oral prophylaxis was performed. Instructions for strict plaque control measures were explained to the patient and the patient was motivated to follow them. Routine investigations were performed prior to the surgery. The results were within normal limits, so the surgery was scheduled. Two different methods for performing gingival depigmentation were planned, upper arch using electrosurgery unit and the lower arch by conventional/ scalpel method.

Before the start of depigmentation procedure, the hyper pigmented area was marked using an indelible marking pencil to demarcate the uninvolved area. The marking is essential to know the defined extension of hyperpigmented area. Also, the marking should always be performed by asking the patient to smile, so as to ensure exact extension for which surgery is to be performed. The local anaesthesia 2% lignocaine (1:80,000 adrenaline) was infiltrated from first premolar to first premolar of contralateral side. After the adequate anaesthesia was achieved, the electrosurgery unit was installed and the power settings were customized. Needle electrode was used for de-epithelisation, the procedure was supplemented by the use of ovoid loop or diamond-shaped electrodes for festooning. A blended cutting & coagulating fully rectified current was used throughout the procedure. A loop electrode was used for depigmentation in swiping or light brushing strokes. While moving the tip, care was taken not to damage the lip or other surrounding tissues. Precaution was taken to keep the tip in motion, so as to avoid thermal build up and undue damage to surrounding or underlying tissues. High speed suction and saline soaked gauze pieces were also used to ensure proper cleaning and thermal relaxation of the tissues.

For lower arch, conventional/ scalpel technique was advocated. A 15-C bald parker blade was used for the same. Using 15-C blade, slicing of the hyperpigmented epithelium from underlying connective tissue was made. The surgically removed peel consisted of hyperpigmented epithelium along with partial split connective tissue. The slicing was uniform to avoid any nicks, ragged tissue or denudation of bone. After the slicing of hyperpigmented tissue, the residual patches were eliminated by scrapping motion of the scalpel till the entire melanin patches were removed. Special care should be taken while operating marginal area, because any deep/ non uniform incision would have led to excision of marginal tissue and there by leading to inadvertent recession. After thorough

removal of melanin patches, the area was then cleaned using saline soaked gauze and periodontal pack was placed. The patient was recalled at 01, 03, and 07 days after the surgery. The patient was prescribed analgesics if there was any pain and was advised to use 0.12% chlorhexidine gluconate mouthwash for 2 weeks postoperatively. Pain & discomfort was calibrated using visual analog scale by the patient. Healing was evaluated using hydrogen peroxide test. The wound healing was uneventful, satisfactory, and without any discomfort during the postoperative follow up period. Six months postoperative examination revealed well healed gingiva which can be defined as epithelialized tissue, which was pink in colour and pleasant, but with few leftovers of pigmented patches.

DISCUSSION

Physiologic pigmentation of gingiva is a genetic trait, it varies with race & ethnicity and may vary in different individuals within same race. But the intensity of pigmentation is influenced in response to mechanical, physical, and chemical stimulus to the tissues (Cicek, 2003). Gingival pigmentation is observed in every individual. Screening the cause of hyperpigmentation is mandatory and should be the integral part of treatment process. In the present case the intra-operative bleeding and the time of procedure was found more for scalpel treated areas than the electrosurgical technique. Whereas the ease of operation was felt with electrosurgical technique as it provided bloodless field during the operation. Patient discomfort was slightly more in electrosurgery treated areas till 24 hours, but the comfort level was almost same by both the techniques in further follow-ups. Both scalpel and electrosurgery resulted in uneventful healing post-operatively. Case series documented by Katharia R and Pradeep AR have concluded the effectiveness of scalpel over electrosurgery for gingival depigmentation (Kathariya, 2011). Other group of researchers have mentioned that depigmentation with electrosurgery demands more precision and technique sensitive due to the possible risk of thermal damage to the adjacent tissues (Chandna, 2015). Use of electrosurgery unit requires certain precautions to be taken care such as- tip should always be used in brushing motion to avoid excess heat build-up and thermal damage of the tissues, saline soaked gauze should be used to remove burnt tissue and provide thermal relaxation.

Conclusion

Thus, it can be stated that no significant clinical difference was observed in terms of aesthetic outcome and post-operative healing between scalpel & electrosurgical depigmentation techniques. However, the pain and discomfort associated with the electrosurgical depigmentation was more for 24 hours after the surgery. In both the techniques patients was completely satisfied with aesthetic outcome. However, a comparative study on a large number of patients should be carried out for effective establishment of results in literature.

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