



A clinical study on gingival depigmentation with scalpel method

KEYWORDS

scalpel technique, depigmentation, physiological pigmentation.

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ABSTRACT The present study aims to evaluating the effectiveness of the surgical method of depigmentation in physiological gingival melanin pigmentation. Four patients presenting bilateral gingival pigmentation were selected for the study. The pigmented part of gingiva was treated with the scalpel technique. Healing process was evaluated at 1 and 2 weeks and at 1, 3, 6, 9 and 12 months. After 12months minimal repigmentation was seen this was as equivalent as 2weeks post-operative stage. Thus to conclude surgical method of depigmentation is effective, safe and easily applicable therapy.

Introduction: -

Healthy oral mucous membrane are normally various shades of red or coral pink this is produced by the vascular supply, the thickness and degree of keratinization of the epithelium and the presence of the pigment containing cells. It is lighter in blond individuals with fair complexion than in swarthy, dark-haired individual. Pigmentation is both the normal and abnormal discoloration of oral mucous membrane. Pigmentation has multifactorial etiology. Most of the pigmentation is physiologic but sometimes it can be a precursor of severe diseases¹.

Oral pigmentation has been associated with a variety of endogenous and exogenous etiologic factors. Most pigmentation is caused by melanin, melanoid, oxyhemoglobin, reduced haemoglobin, and carotene. Others are caused by bilirubin and iron. The pigmentation may be a harmless or a malignant one in either case the color of it is most distressing to a young patient.²

Melanin, non-hemoglobin derived brown pigment, is the most common of the endogenous pigments and is produced by melanocytes present in the basal layer of the epithelium. The most common location was the attached gingiva (27.5%) followed in decreasing order by the papillary gingiva, the marginal gingiva, and the alveolar mucosa. The total number of melanophores in the attached gingiva was approximately 16 times greater than in the free gingival.³

Physiologic pigmentation is genetically determined, but as Dummett suggested, the degree of pigmentation is partially related to mechanical, chemical, and physical stimulation. In darker skinned people oral pigmentation increases but there is no difference in the number of melanocytes the ratio between melanocytes and keratinocytes is 1:36 cells, however the variation is said to be because of the genetically determined variation in their pigment producing capacity between fair-skinned and dark-skinned individuals.⁴

Melanin hyperpigmentation usually does not present as a medical problem, but patients may complain their black gums are unaesthetic. This problem is aggravated in patients with a "gummy smile" or excessive gingival display while smiling. Gingival depigmentation is a periodontal plastic surgical procedure whereby the gingival hyperpigmentation is removed or reduced by various techniques.

The first and foremost indication for depigmentation is patient demand for improved aesthetics.⁵

Four patients aged between 19-28 years (two female and two male) visited our private clinic with chief complaint of "dark gums" with the feeling of embarrassment within the peer group, hence they requested to get the cosmetic treatment for the same. Patient's history revealed the presence of the pigmentation since birth. On clinically examination patients presented bilateral pigmentation associated with healthy periodontium suggestive of physiological melanin pigmentation and there medical history was non-contributory. All the patients were in good general health and there were no contraindication for surgeries. Depigmented areas were graded based on "weinman" scale.

Surgical procedure: -

After obtaining the ethical clearance, initial examination and treatment planning, patients were given detailed instructions in self performed plaque control measures and were subjected to phase I periodontal therapy. Preoperative photos were taken figure-1.

After phase I therapy the patients were subjected to surgical procedure. The patients were made to rinse with 0.2% Chlorhexidine digluconate mouthrinse for 30 seconds prior to the surgery. Local anaesthesia was obtained with 2% lidocaine with epinephrine 1:80,000. The area to be treated was demarcated with two vertical lines with #15 scalpel blade. A split thickness flap was raised and excised maintaining the normal architecture of the gingiva. Bleeding was controlled using pressure packs and area was irrigated well with saline to remove the debris.

The surgical areas were protected with a non-eugenol dressing (Coe-pak). Patients were prescribed with systemic Amoxicillin 500mg thrice a day for 5 days along with Paracetamol 500 mg thrice daily for three days. Post operative instructions were given to patients. One week after the surgery, dressing was removed. Symptoms regarding discomfort, swelling, pain and sensitivity were asked to the patient. Any sign of swelling, infection, and necrosis was noted and if needed the dressing was again replaced for another one week.

Supportive periodontal therapy was provided till the end of study period. Patients were re-examined again at the

end of 3rd, 6th, 9th and 12th month post operatively and postoperative photos were taken figure-2.



Fig-1



Fig-2

Results: -

All patients showed good compliance. The healing period was uneventful. All the four patients showed excellent result i.e. there was no repigmentation at the end 12th month.

Discussion: -

Esthetic demand in the dental profession continues to increase as patients become more educated about the options available to improve their smile. It is the responsibility of the dental team to understand optimal esthetics, the indications for treatment and to be able to effectively communicate with the patient. The therapeutic end points are difficult to evaluate by evidence based studies because esthetics is subjective.

Various methods that been mentioned in the literature for gingival depigmentation are -Chemical peel, Gingivectomy, scalpel method, electrosurgery, laser peel, soft tissue grafts, diamond burs and cryosurgery.

In scalpel method the superficial epithelial layer along with some of the underlying connective tissue is also taken away, successful removal of the pigment layer ensure minimal recurrence of pigmentation. By this method the wound heals by secondary intention as with this method there is raw wound left, it should be covered with periodontal dressing. Scalpel method is relatively simple, easy to perform, does not require sophisticated armamentarium, requires minimum time and effort⁶.

Tamizi M, Taheri M, 1996 used free gingival graft for the treatment of gingival pigmentation. In all 10 areas in which the recipient site received full thickness bed preparation, no evidence of repigmentation was found after 4.5 yrs. Of the 10 cases which received partial thickness bed preparation, only 1 exhibited repigmentation after 1 year ⁷.

In a comparative study for 12 months by Ana et al acellular dermal matrix showed greater reduction in pigmentation than by using diamond burs, which showed recurrence in all the cases ⁸.

Laser have said to have the advantage of scalpel method that is rapid healing and electrosurgery that is blood less field for working. However lasers have disadvantage such as delayed type of inflammatory reaction with mild post-operative discomfort lasting up to 1-2 weeks. Add to this is the expensive and sophisticated equipment makes treatment expensive. In a study by Yukio and Ken ⁹ which was carried out using CO₂ there was recurrence in 7 cases of 10 cases at 24 months.

Recurrence of pigmentation in gingiva is a nagging problem. The results of depigmentation are visually so appealing that the patient and the clinician can get very

euphoric. The recurrence parameters like intensity, area of pigmentation, time elapsed before re-pigmentation is all to be considered, so that a predictable line of treatment can be encountered.

Hence keeping mind the advantages of scalpel method and with the disadvantages of other techniques scalpel method would recommended in country like India considering equipment constraints and patient affordability ¹⁰.

Thus to conclude scalpel technique is effective and safe applicable method for the removal of gingival pigmentation.

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