

CASE REPORT

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## Gingival Depigmentation: Comparison of Two Techniques

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### ABSTRACT:

Gingival pigmentation is the discoloration of the oral mucosa or gingiva due to the wide variety of lesions and conditions. Clinical melanin pigmentation does neither present itself as a medical problem nor a disease entity, but only as a major esthetic concern for people. Most of the oral pigmentation is physiologic and caused by melanin deposition. Esthetic gingival depigmentation can be carried out by using various surgical procedures. The present case series was undertaken to test the efficacy of conventional scalpel and diode laser in de epithelializing the melanin pigmented areas.

*Key words: Pigmentation, depigmentation and melanin.*

### INTRODUCTION

Esthetics has become an important aspect of dentistry and clinician has to face the challenge of achieving acceptable gingival esthetics, along with addressing the biological and functional problems. Pigmentation is a discoloration of the oral mucosa due to a wide variety of lesions and conditions. Oral pigmentation has been associated with a variety of exogenous and endogenous etiologic factors.<sup>1</sup>

Most pigmentation is caused by five primary pigments. These include: Melanin, Melanoid, Oxyhemoglobin, Reduced haemoglobin, and carotene.<sup>2</sup> Physiological pigmentation of the oral mucosa is clinically manifested as multifocal or diffuse melanin pigmentation with variable amounts in different ethnic groups worldwide and it occurs in

all races.<sup>3</sup> Brown or dark pigmentation or discoloration of the gingival tissue is however considered as multifactorial, including genetic factors, tobacco use, systemic disorders (endocrine disturbance, Albright's syndrome, malignant melanoma, Peutz-jeghers syndrome, hemochromatosis, Addison's syndrome and von Recklinghausen's disease), antimalarial drugs, heavy metals (silver, bismuth, mercury, lead), zidovudine, amalgam tattoo, nevus, melanoacanthoma, kaposi sarcoma.<sup>4</sup>

Melanin is the most common non haemoglobin derived endogenous pigment produced by melanocytes present in the basal layer of the epithelium.<sup>5</sup> Melanocytes have a round nucleus with a double nucleus membrane and clear cytoplasm lacking desmosomes and attachment plates.<sup>6</sup> The number of melanocytes in the mucosa corresponds

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numerically to that of skin, however in the mucosa their activity is reduced. Various stimuli can increase the production of melanin including trauma, radiation, and medications.<sup>7</sup> Clinical melanin pigmentation does not present as a medical problem, even though the complaint of dark gums may present an esthetic concern for the individuals.<sup>8</sup>

### Case presentations

Two patients with a chief complaint of dark pigmented gums since childhood and consented for esthetic cosmetic therapy to enhance their smile were selected. On examination they were periodontally as well as systemically healthy. Considering the patient's concern surgical deepithelization with scalpel, blade and diode laser was performed and compared.

#### Case report 1.

A 27 year male patient who reported to the department of periodontology, kamineni institute of dental sciences with a chief complaint of dark appeared gums while smiling. On examination the patient had diffuse melanin pigmentation (Hedin score 2) and with good oral hygiene. And The treatment modality chosen for this particular case was conventional scalpel method of depigmentation-(slicing technique) .



**Fig 1a:** (Pre-operative)

**Procedure:** After anesthetizing the area, a horizontal incision was given to demark attached gingiva from the oral mucosa at the mucogingival junction and a split thickness flap was raised and excised, maintaining the normal architecture of the gingiva (fig 1b). The exposed depigmented surface was covered with barricaid-pack periodontal dressing for 1 week (fig 1c) and prescribed aceclofenac –paracetamol combination BID for 3 days and post operative instruction were given.



**Fig 1b:** (Slicing Technique)



**Fig 1c:** (Periodontal Dressing placed)

#### Case report 2

A 29 years male patient who reported to the department of periodontology, kamineni institute of

dental sciences with a chief complaints of dark appearance of gums (fig 2a) while smiling. On examination the patient had diffuse melanin pigmentation (Hedin score 2) and with good oral hygiene. And the treatment modality chosen for this particular case was deepithelization using diode laser at 810nm wavelength and 4.0 wt power in continuous mode.



**Fig 2a:** (Pre Operative)



**Fig 2b:** (Laser De epithelisation)

**Procedure:** After anesthetizing the area (for the patient comfort) deepithelization was done using with Denlase diode laser (fig 2b) and was aceclofenac –paracetamol combination SOS and post operative instructions were given.

#### Results:

##### Scalpel technique

No postoperative haemorrhage, infection or scarring was observed and healing was uneventful

with good patient's satisfaction for the outcome. However though milder, repigmentation was noticed at the marginal gingival after 6 month follow up.(fig 1d)



**Fig 1d:** (Post Op 6 months)

##### Laser technique

The discomfort during and after the procedure was minimal and healing was uneventful. The results were similar compared to scalpel technique except that there was minimal or no repigmentation noticed even after 6 months



**Fig 2c:** (Post Op 6 Months)

##### Discussion:

Depigmentation is treated by using numerous techniques like deepithelization with scalpel, laser, gingival abrasion with diamond bur, Gingivectomy, Gingivectomy with free gingival graft, Electrosurgery, Cryosurgery, and with Chemical agents.<sup>9</sup> The

depigmentation procedure involves scalpel and blade surgical technique to remove or peel off the gingival epithelium layer and new epithelium layer is allowed to form by secondary healing which was devoid of pigmentation<sup>10</sup> Scalpel deepithelization is simple and inexpensive and does not require any sophisticated armamentarium and is easy to perform. However it might result in unpleasant haemorrhage and discomfort during or after surgery, and necessitates use of periodontal dressing for 1 week post operatively.<sup>11</sup>

While using with laser surgery bleeding is minimised and surgical duration is shortened. Laser technique has additional advantages viz. sterilization effects and excellent coagulation. Incidence of repigmentation was minimal as compared to scalpel technique but epithelial regeneration is delayed (lack of wound contraction) and need a expensive armamentarium.<sup>12</sup>

### Conclusion

Gingival melanin pigmentation occurs as consequence of local, systemic, environmental or genetic factors. Growing cosmetic demand necessitates removal of gingival pigmentation for sthetic purposes. This can be easily achieved by deepithelization of pigmented areas by using scalpel, blade and diode lasers.

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