

## Gingival Depigmentation Using A New Abrasion Technique- Gingival Ceramic Trimmer: A Case Report

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### Abstract

**Background:** Cosmetic desires have improved with time and current trends speak volumes about gingival esthetics and smile designing. Gingival hyperpigmentation plays a negative role in an otherwise acceptable 'smile window'. Several techniques have been employed such as scalpel, electrosurgery, cryosurgery, chemical agents, abrasion, and laser method for the removal of melanin hyperpigmentation. The present case report was aimed to assess the efficacy of gingival soft tissue ceramic trimmer in the treatment of gingival hyperpigmentation.

**Result:** Gingival ceramic trimmer showed good patient compliance, easy to use, less time consuming, a uniform architecture of soft tissue was achieved, less pain experienced by the participating subject with readily fast and uneventful healing was observed.

**Conclusion:** Thus, it can be concluded that ceramic trimmer might prove to be a boon in achieving aesthetic satisfaction and could be used for depigmentation as it is very cost effective, readily available and acceptable to the

### Introduction:

The beauty of smile is reflected not only by the shape, position and contour of the teeth but also by the gingival tissue<sup>1</sup>. Hyperpigmented gingiva is not a medical complication but some patients complain of 'black gums'. The gingiva is most frequently pigmented intraoral tissues (Syed WaliPeeran et al 2014).<sup>2</sup>

Hyperpigmentation is mostly associated with attached gingiva (27.5%) followed by papillary gingiva, the marginal gingiva and the alveolar mucosa (Murthy BM et al 2012). Attached gingiva contains approx. 16 times more melanophores than marginal gingiva (Murthy BM et al 2012).<sup>3</sup>

Surgical bur abrasion technique is a simple method that does not require any sophisticated equipment.

Initially, ceramic trimming burs have been introduced for gingivoplasty but recently, it is used for gingival depigmentation as well. These trimmers are made up of mixed ceramic composed of Zircon dioxide partly stabilized by Yttrium and Aluminium ceramic.

It secures a nice and gentle cut while the heat development creates a good hemostasis, minimal bleeding and the risk of necrosis is virtually eliminated. The present case report describes the effectiveness of gingival ceramic trimmer on gingival hyperpigmentation.

## Case Report:

A 25 years old male patient reported to the department of Periodontology with a chief complaint of blackish unesthetic gums on his upper and lower front region of the jaw while smiling since many years and wanted the treatment for the same.

Patient was apparently alright until he noticed blackish unesthetic gingiva on maxillary and mandibular anteriors while smiling which was consistent in nature. He was encouraged by his colleagues to go for the treatment.

There were no contributory family and habit history. Periodontal examination revealed good oral hygiene with minimal plaque and calculus deposits. On extra-oral examination, the face appeared bilaterally symmetrical, with competent lips and the lymph nodes were not palpable.

Intra-oral examination revealed a healthy pale pink gingiva with melanin pigmentation in marginal and attached gingiva and interdental papilla. (Score 2, acc to Takashi et al 2005).<sup>4</sup> Marginal gingiva was scalloped and knife edged & Interdental papilla was pyramidal in shape. Stippling was present with firm and resilient consistency, located 1mm above the CEJ.

The haematological investigation revealed that all the blood parameters were within the normal range. After complete clinical and haematological investigations and analysis the diagnosis was made as gingival hyperpigmentation in anterior regions of maxillary and mandibular region.

## Treatment Procedure:

Informed consent was taken from the patient and after a successful phase 1 therapy comprising of thorough ultrasonic scaling and proper oral hygiene instructions with bass method technique was advised to the patient. Extra oral (by 10% Betadine solution) and intra oral (by 0.2% Chlorhexidine mouthwash, 10ml for 1 minute) antiseptics were performed. The procedure was done under local anesthesia with 2% lignocaine hydrochloride and 1:1,00,000 adrenaline. After adequate anesthesia the depigmentation procedure was performed. The ceramic trimmer was used on the pigmented gingiva using high speed rotary instrument.

The instrument was operated at 3,00,000-4,50,000 rpm, gently in intermittent mode. It was used without water coolant so that the heat generated during rotation will lead to thermal coagulation. Pressure applied was minimum with feather light brushing strokes without holding the bur in one place for too long to avoid laceration of the gingival surface or to remove too much tissues. Gingival remnants were removed at regular basis with moist gauze piece. After completion of the surgical procedure, the exposed site was washed well with normal saline and thereafter Coe Pak was applied on it. Oral hygiene was maintained by using 0.2% chlorhexidine mouthwash.

## Discussion:

Not only in teenagers but also among elderly people there is a constant complain of unesthetic 'black gingiva' & a gummy smile or high lip line cases highlights this complication<sup>5</sup>. Depigmentation is a periodontal plastic surgical procedure whereby the gingival hyperpigmentation is removed or reduced by various techniques.<sup>6</sup>

Fig: 1. A) showing Pre-operative, B) Intra-operative, C) Immediate post-



Several factors govern the contour of gingiva (a) number and size of blood vessels, (b) epithelial thickness, (c) quantity of keratinization and pigments within the gingival epithelium. Melanin, a brown physiologic pigment contributes enormously to the endogenous pigmentation of gingiva. Melanin is deposited by melanocytes, mainly located intertwined between the basal and the spinous cell layers of epithelium, and most commonly in maxillary and mandibular anteriors.

Various treatment modalities have been used for this aim as Scalpel surgical technique such as Slicing, or partial thickness flap technique, Abrasion, Scraping, Gingivectomy, Cryosurgery, Electrosurgery, Lasers (Nd:YAG, Er : YAG, CO<sub>2</sub> lasers) and Chemical method of depigmentation using caustic chemicals such as 90% phenol & 95% alcohol.

Surgical bur abrasion technique is a simple method that does not require any sophisticated equipment. Initially, the burs have been introduced for gingivoplasty but recently, it is used for gingival depigmentation as well. These trimmers are made up of mixed ceramic composed of Zircon-dioxide partly stabilized

by Yttrium and Aluminium ceramic. It secures a nice and gentle cut while the heat development creates a good hemostasis minimal bleeding and the risk of necrosis is virtually eliminated. It can be sterilized by any method (max 135 degree C). In the present case series, less bleeding and immediate tissue coagulation was observed.

The present case report shows that ceramic trimmer has a low pain index compared to other procedures which are not in accordance with the study conducted by Negi R et al (2019)<sup>7</sup> and Lagvide et al (2009)<sup>8</sup>. Similarly, ceramic trimmer has a better healing index compared to other procedures. Same results are also seen in the study conducted by Negi R et al (2019). The timing of early signs of repigmentation varies among studies. *Dummet and Bolden and Ginwalla et. al.* showed repigmentation to take place between 1-4 months.

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The timing of early signs of repigmentation varies among studies. *Dummet and Bolden and Ginwalla et. al.* showed repigmentation to take place between 1-4 months. It took 6 months to observe for Oswaldo et al, and more than 2 years for *Perlmutter and Tal* to observe the early signs of repigmentation in one patient. *Tal et al* reported repigmentation on two patients treated with cryosurgery. Clinical repigmentation was observed after only 20 months, which is comparable with the results obtained by *Ginwalla et al* when a bone denudation technique was performed.

This large variation in time found in different studies may be related to the technique performed and the patient's race. However, more studies are required with long time follow up with other treatment procedures to state that ceramic trimmer is the best alternative to all other treatment modalities for gingival depigmentation.

### Conclusion:

Several techniques have been tested for the treatment of melanin hyperpigmentation and among them laser has proven to be the best. This new device, ceramic trimmer found to be cheap, have less pain index and faster healing and most importantly highly convenient to the patients and this can be considered as an alternate device for the treatment of melanin hyperpigmentation.

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**How to cite this article:** Chaudhary P, Goldar K, Dhruva kumar D. Gingival Depigmentation Using A New Abrasion Technique- Gingival Ceramic Trimmer: A Case Report. TMU J Dent 2022;9(2):10-13.