

Assessment of Clinical Outcomes and Patient Response to Gingival Depigmentation Using Gingival Trimming Ceramic Bur and Conventional Scalpel Technique

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INTRODUCTION

Color of gingiva plays a critical part in esthetics primarily to consider as an ideal smile.¹ Various factors influencing gingival color including vascularity, thickness of epithelium, amount of keratinization, and pigments like melanin, melanoid, oxyhemoglobin, iron, carotene.²

Melanin which is a naturally occurring brown pigment, responsible for endogenous pigmentation of gingiva along with skin with strong association.^{3,4} Gingival melanin hyperpigmentation is one of the issues that determines smile of an individual associated with high smile line and this do not only become an esthetic problem but also has psychological effects.⁵ On the evolving treatment consideration for gingival depigmentation in order to make it less painful and considering patient's reliability, out of many options ceramic soft tissue trimming bur is also considered as minimally invasive treatment procedure.⁶

This report aims to compare renown and most acceptable conventional scalpel technique with ceramic bur on basis of clinical outcome and patient acceptability.

ABSTRACT

In this era, role of esthetic in dentistry has been an evolving concern. One of the major concern is the hyperpigmented gingiva in patients with high smile line or excessive gingival display. This varies in different individuals and is assumed to be dependent on cutaneous pigmentation. Therefore, there are various methods of depigmentation. Hereby, is a case report of depigmentation done on upper anterior gingival region and comparing the output and patient response where half of the segment was done by using scalpel and the other half by ceramic bur with a follow up of three months. And this report concludes that ceramic bur has more advantages over scalpel technique.

KEY WORDS

Depigmentation, Esthetics, Soft tissue trimming ceramic bur

CASE REPORT

A 22-year-old male visited Department of Periodontology and Oral Implantology with chief complaints of display of black gum while smiling/laughing. He had a non-contributory family and medical history. On extra-oral examination, he had high lip line and gingival display while smiling exposing premolars bilaterally (Fig. 1). Furthermore, the blackish discoloration of gingiva was present since birth suggestive of physiologic melanin pigmentation. On intraoral examination patient had Dummett-Gupta Oral Pigmentation Index (DOPI) score 2 and diagnosed with Clinically healthy gingiva (Fig. 2).^{7,8} Considering patients concern, gingival depigmentation procedure was planned. Patient was explained about all treatments related to gingival pigmentation and the possibility of re-pigmentation after a specific period. A detailed treatment procedure was thoroughly explained to the patient, and written informed consent was obtained prior to initiating the treatment.

In this case the labial gingival area right segment tooth number 4-8 (universal tooth numbering system) was done by soft tissue trimmer ceramic bur and left segment 9-13 was done by scalpel technique.



Figure 1. Patient having high lip line



Figure 2. Preoperative picture showing DOPI score 2

Following infiltration of local anesthesia with adrenaline (1:80,000) in upper anterior vestibular regions bilaterally, using soft tissue trimmer ceramic bur (NEXTTM Israel dental solution) was utilized without water coolant spray according to manufacturer's guideline and previous works to eliminate whole layers of epithelium and a part of connective tissue (Fig. 3).



Figure 3. Depigmentation performed by soft tissue trimming ceramic bur.

Now, on the other half using surgical scalpel blade No. 15, the whole epithelium and connective tissue was stripped off eliminating all the visible pigmented areas (Fig. 4). Gauze pressure pack was applied on bleeding areas. No periodontal dressing was applied on both sides.

Then following post operative parameters were assessed for further comparison:

1. Pain: assessed using Visual Analog Score (VAS), a 10 cm horizontal line where 1 denoting no pain and 10 denoting severe pain.⁹
2. Bleeding: measured during surgery where 0 – no bleeding, 1- oozing of blood, 2- active bleeding.¹⁰ Post operative picture presents bleeding score more on scalpel segment very evidently (Fig. 5).



Figure 4. Depigmentation performed by scalpel with blade number 15



Figure 5. Post operative presentation

including scalpel technique, cryotherapy, diamond burs, electrocautery and lasers.¹¹

Using conventional scalpel till date offers several advantages like uneventful healing, low cost and lesser armamentarium.^{12,13} But, similar to our case report scalpel shows more bleeding during and after treatment

Table 1. Comparison of parameters on basis of scalpel technique and soft tissue trimming ceramic bur.

Parameters	Techniques	
	Scalpel	Ceramic bur
1. Pain	Day of surgery: Score 6	Day of surgery: Score 3
	7 th day follow up: Score 3	7 th day follow up: Score 0
2. Bleeding	Score 1	Score 0
3. Duration of treatment	28 minutes	20 minutes

3. Duration of treatment: operating time was measured in minutes, starting at the initiation of procedure and finishing when no visible pigmentation was present.

These above parameters were recorded on the day of surgery and VAS score was assessed on 7th day follow up as well (Table 1).

So, following 7th day and 3 months follow up the clinical outcome was similar on both segment (Fig. 6 and 7).

DISCUSSION

Gingival depigmentation has been popular only for esthetic demand since none of these symptoms refers to medical problem. Many treatment modalities are available

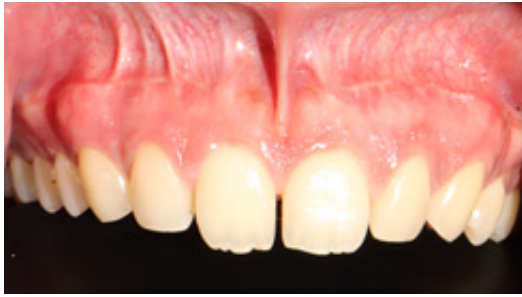


Figure 6. 7th day follow up

procedure comparing with other techniques as well due to uncontrollable penetration of surgical blade while excising.¹²

On the other side, emerging technique using soft tissue trimmer ceramic bur which has become popular for its cost effectiveness, easy availability and patient acceptance.¹⁴ Evidences has even shown that ceramic bur has comparable results and faster recovery compared with that of LASER techniques.^{14,15}

In accordance to our technique, Negi et al. has mentioned minimal bleeding as compared to scalpel technique due to heat produced by the bur due to friction resulting in an immediate tissue coagulation and minimal bleeding, therefore, the use of coolant (water) was avoided.¹⁴



Figure 7. 3 months follow up

Similar to our case report on a split mouth randomized control trial done by Nassar et al. also concludes ceramic bur being patient's choice compared to scalpel technique.⁶

With drawback being relapse of pigmentation within six months and there is no consensus showing any technique being superior to decrease relapse rate.¹⁶ Therefore, this procedure must be repeated on patients demand that is why technique that is reliable to both patient and operator is to be chosen.¹²

In conclusion, it is very evident that soft tissue trimmer ceramic bur is comfortable intraoperatively for operator and post operatively for patient with similar healing in three months follow up.

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