

## Gingival Depigmentation And Lip Repositioning-A Perio-Plastic Surgery:( Case Report)

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### Abstract:

**Introduction:** In Excessive gingival display (EGD) an overexposure of the maxillary gingiva (>3 mm) is seen during smiling. The proper diagnosis and treatment planning are essential for the successful treatment outcome. Different techniques can be used in cases of hyperactive upper lip. Gingival pigmentation is a physiological sign which usually appears on keratinized tissue. It may/may not be associated with any systemic conditions/diseases. However, a normal person is conscious of 'overexposed black gums'. This case report had tried to manage excessive pigmented gingival display with scalpel gingival depigmentation and conventional lip repositioning procedures.

**Material and method:** A 22 years old female patient reported with a complaint of black gums and excessive gingival display. Hyper pigmentation excessive gingival display on smiling was noticed. Gingival depigmentation was perform with scalpel technique and Lip repositioning is fulfilled by removing a strip of mucosa from the maxillary buccal vestibule, creating a partial-thickness flap between mucogingival junction and upper lip musculature, and suturing the lip mucosa with mucogingival junction, resulting in a narrow vestibule and restricted muscle pull, thereby reducing gingival display.

**Results:** Good esthetic results with postsurgical uneventful healing were observed. The patient's desire was fulfilled with satisfactory outcome of both the treatment .Follow up had been done after 1 month and 6 month.

**Conclusion:** This case report highlights the treatment of hyperpigmented gummy smile with gingival depigmentation and lip repositioning procedure with enormous patient's motivation and satisfaction with the surgery till date.

**Keywords:** hyperpigmented gummy smile, lip repositioning, hypermobile upper lip.

### I. Introduction

Make someone smile whenever you can, you never know how much of a difference you could be making in their life at that moment. A beautiful smile is a perfect balance between white and pink. Excessive gingival display commonly referred to as "gummy smile. At least 50% of patients exhibit some form of gingival display in a normal smile<sup>1</sup>. In contrast, gingival to lip distance of 4 mm or more is classified as unattractive by lay people and general dentist <sup>2</sup>. In our esthetic conscious society people are now demanding all types of treatment to have a pleasant and attractive personality. During patient examination, it is important to establish the etiology responsible for the excessive gingival display. There are various etiologies for excessive gingival display; Delayed eruption, Vertical maxillary excess, Movement of upper lip in apical direction when the patient smile. A normal gingival display between the inferior border of the upper lip and the gingival margin of the anterior central incisor during a normal smile is 1-2 mm.<sup>2</sup>classification of smile line <sup>3</sup>

Score	Type description	Evaluation
SCORE 0	LOW SMILE LINE	IDG: <25% VISIBLE :NOT VISIBLE, TEETH MASKED
SCORE 1	AVERAGE/IDEAL SMILE LINE	IDG:25-75% VISIBLE : VISIBLE ON INDIVIDUAL TEETH
SCORE 2	HIGH SMILE LINE	IDG:>75% VISIBLE <3MM, VISIBLE (OVERALL)
SCORE 3	VERY HIGH SMILE LINE	IDG: COMPLETELY VISIBLE >3MM VISIBLE MAXILLARY BAND OF GINGIVA VISIBLE BEYOND THE MUCOGINGIVAL LINE "GUMMY SMILE"

This technique is also termed as Mucosal coronally positioned flap. The objective of gummy smile are to minimize gingival display by limiting the retraction of the elevator smile muscle (eg;zygomaticus minor, levator anguli oris, orbicularis oris and levator labii superioris) <sup>4</sup>There are various etiologies for excessive gingival display and we can treat them with various treatment modalities like orthognanthic surgery as in

vertical maxillary excess, crown lengthening in case of delayed eruption, injecting Botox in case of short upper lip etc, as per requirement and patient's convenience. For above all etiologies we can perform lip Repositioning procedure which can be less invasive, cheaper and more convenient than other procedures respectively. After evaluating the case, it is noticed as a class; score 2 i.e,high smile line<sup>3</sup>.the melanin ,non hemoglobin –derived brown pigment, is responsible for the normal pigmentation of skin gingival and remainder of the oral mucous membrane, it is present in all normal individual and absent in albinose.

Melanin pigment in the oral cavity is prominent in black individuals. According to Dummet's the distributions, of oral pigmentation in black individual is as follow gingival 60%,hard palate 61%,mucous membrane,22%,and tongue 15%.<sup>6</sup>The saturation of melanin pigments can cause unaesthetic dark gingival display more so in people with high lip line since people with high lip line expose broader zone of gingival tissue.

Gingival pigmentation index<sup>7</sup>

Score 0: Absence of pigmentation

Score 1: Spots of brown to black color or pigments.

Score 2: Brown to black patches but not diffuse pigmentation

Score 3: Diffuse brown to black pigmentation, marginal, and attached

This current case report demonstrates the successful management of pigmented excessive gingival display with scalpel de pigmentation technique followed by periodontal plastic surgery i.e, lip repositioning procedure.

### **Procedure:**

A 19 year old female patient came to the department of periodontology in dr. d.y.patil dental college with the chief complaint of "black gums". Patient had already undergone orthodontic treatment for gummy smile for two year but she was not satisfied after the orthodontic treatment. On intraoral examination noticed class I angles relationship with moderate maxillary skeletal proclination,teeth had normal dimensions, and the width-to- height ratio was also normal in relation with the face profile. A diagnosis of moderate vertical maxillary excess was made. An alternate treatment option of orthognathic surgery by an oral and maxillofacial surgeon was already discussed with the patient. Patient was not ready for orthognathic surgery. She preferred a less invasive procedure to address her chief complaint and informed consent for a lip repositioning procedure was obtained. Pigmented (gummy) high smile line<sup>3</sup> was observed. Occlusion was class I with vertical maxillary anterior proclination.

Patient was wearing retention plate after orthodontic treatment. Full mouth scaling done, thorough medical examination and necessary blood investigation was taken.

On examination score 3 gingival pigment index score<sup>7</sup> was noticed. After inform consent, decided to plan depigmentation with scalpel technique. Field block was given in the anterior maxillary region from 2<sup>nd</sup> premolar to 2<sup>nd</sup> premolar where the smile lines appear with local anesthetic solution 2% lignocaine & 1:8,0000 adrenaline. After anaesthetizing the area, No.15 or 15 c blade was used to scrape the epithelium with underlying pigmented layer carefully. The raw surface is irrigated, cleaned and dressing is given for 1 week. Follow up of the patient was done for two weeks.

After two weeks again inform consent was taken and patient had treated for 'gummy smile'. The field block was given in anterior maxillary region. Marking is done with sterile pencil on dried tissue, the horizontal line is drawn at the mucogingival junction and another marking above parallel to the first one, then drawn the elliptical outline joining the two parallel outline. The amount of tissue excision should be double the amount of gingival display that needs to be reduced, with a maximum of 10-12 mm of tissue excision.<sup>5</sup>The epithelium is removed in the incision outline, split thickness incision is given leaving the underlying sub mucosa exposed (Fig11). The two incision lines are approximated with resorbable Ethicon suture. First in the midline interrupted suture is given then complete suturing done with continuous interlocking suture.

Antibiotics and Analgesics are prescribed and post surgical instructions were given. Patient had recalled after 7 days, 1 month and 6 month for follow up.

## **II. Results**

This current case report highlights the treatment of " pigmented gummy smile" with depigmentation and lip repositioning recently called as mucosal coronally advanced technique with enormous patient motivation and satisfaction by sudden improvement of esthetics. The patient's desire was fulfilled with satisfactory outcome of both the treatment after 1 month and 6 month follow up.

## **III. Discussion**

Excessive gingival display commonly referred to as a "gummy smile". The above case presents the successful clinical outcome of a lip repositioning technique and de pigmentation. A gummy smile has many

different etiologies. Passive eruption where gingiva does not complete its apical migration<sup>4</sup>. In these patients, the problem can be solved through crown lengthening, which is a very simple and effective procedure involving hard and soft tissue resection. Dentoalveolar extrusion<sup>4</sup>. Patients with a dentoalveolar extrusion must be treated by an orthodontist or through orthognathic surgery. Vertical maxillary excess; for these patients<sup>4</sup>, orthognathic surgery is the inevitable treatment choice. Hyperactive upper lip<sup>4</sup>; these patients have different treatment choices available with variable outcomes reported for each, including a myectomy, botulinum toxin injection, lip elongation (associated with rhinoplasty), detachment of lip muscles, and lip repositioning.<sup>5</sup>In this case, 10 mm of mucosa was removed as the other investigators suggested without any prediction on the amount of reduction in gingival display. The procedure restricts the muscle pull of the elevator lip muscles by shortening the vestibule, thus reducing the gingival display when smiling. There are various treatment options for excessive gingival display depending on accurate diagnosis .In our experience this procedure is safe, predictable with minimal risk or side effects, less invasive and is a good alternative treatment modality in esthetic treatment. Oral pigmentation may be physiological or pathological in nature.<sup>6</sup>Although clinically melanin pigmentation of the gingiva does not present any medical problems it can be an esthetic concern for the patient. Demand for cosmetic therapy is made, especially by fair skinned people with moderate or severe gingival pigmentation. Gingival depigmentation is a periodontal plastic surgical procedure whereby the gingival hyperpigmentation is removed or reduced by various techniques. The first indication for depigmentation is patient demand for improved esthetics.<sup>10</sup> various depigmentation techniques have been employed with similar results. These treatment modalities, however, are not widely accepted or popularly used. Scalpel surgical technique is highly recommended in consideration of the equipment constraints that may not be frequently available in clinics<sup>10</sup>.Scalpel techniques show faster healing than other techniques .Patients with minimally attached gingiva and severe skeletal deformities may not be ideal candidates for this procedure due to potential difficulties in flap approximation and suturing.

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### De Pigmentation:



**Fig.1** Before Surgery



**Fig.2** De Pigmentation with Scalpel



**Fig.3** 1 Month after Surgery

### Lip Repositioning:



**Fig.4** 10-12 mm from Mucogingival Junction



**Fig.5** Split Thickness Flap Raise



**Fig.6** Split Thickness Mucoperiosteal Flap



**Fig.7** Continuous Interlocking Suture



Preoperative



1 Month after De Pigmentation



1 Month after Surgery



6 Month Postoperatively