

Gingival Depigmentation along with Frenectomy and Diastema Closure - A Case Report

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ABSTRACT

Introduction: Dental aesthetic plays an important role in overall facial representation of a person. A smile enhances expression of a person. A perfect harmony of size, form, and position of the teeth and their relation with alveolar bone and gingival tissue have important role in creating a pleasing smile. Excessive gingival melanin pigmentation can give brownish to blackish colour to gingiva.

Case report: This case report highlights a case of hyperpigmentation gingiva with midline diastema which was treated by gingival depigmentation using the scalpel technique with frenectomy and cosmetic filling.

Conclusion: The appearance of 'black gum' especially in high smile line person gives unaesthetic smile. The demand for cosmetic therapy is commonly in people with pigmented gingiva.

Keywords: Gingival, Hyperpigmentation, Unaesthetic, Cosmetic

INTRODUCTION

Dental aesthetic plays an important role in overall facial representation of a person. A smile enhances expression of a person. A perfect harmony of size, form, and position of the teeth and their relation with alveolar bone and gingival tissue have important role in creating a pleasing smile.¹ Smile line according to the visibility of dental and gingival tissue was classified as follows:²

1. Excessive smile or gummy smile: more than 2 mm of marginal gingiva is visible or more than 2 mm apical to the cemento-enamel junction is visible
2. High smile line: between 0 to 2 mm of marginal gingiva is visible or between 0 to 2 mm apical to the cement-enamel junction is visible for the reduced periodontium,
3. Average smile line: only gingival embrasure is visible,
4. Low smile line: gingival embrasure and cement-enamel junction are not visible

Gingival architecture like colour, size, shape and proper display is necessary for an ideal smile. There are various factors which can affect the colour of gingiva like number and size of the blood vessels, epithelial thickness, quantity of keratinization and pigments within the gingival epithelium. According to Dummett: Gupta Oral Pigmentation Index (DOPI): (1964)³

- 0 — no clinical pigmentation (pink gingiva).
- 1 — mild clinical pigmentation (mild light brown colour).
- 2 — moderate clinical pigmentation (medium brown or mixed pink and brown color).
- 3 — heavy clinical pigmentation (deep brown or bluish

black colour).

Excessive gingival melanin pigmentation can give brownish to blackish colour to gingival. The appearance of 'black gum' especially in high smile line person gives unaesthetic smile. Gingival hyper pigmentation varies in different races and populations and can be attributed to genetic traits. Melanoblasts are non-keratinocytes, which are responsible for gingival pigmentation.⁴ This pigmentation may be prevalent across all the races, at any age and is devoid of any gender predilection.^{5,6} Unpleasant smile often leads the person to consult the dentist for adequate treatment for it. The various surgical treatment modalities available for gingival hyper-pigmentation are Scalpel surgical technique, Cryosurgery, Electrosurgery, Laser.⁷ Other treatments which aim to mask the pigmented gingiva are free gingival grafts, Acellular dermal matrix allografts. Selections of treatment technique should be based on case selected, patient demand clinician skill and experience and available armamentarium.⁸ Presence of mid line diastema also gives a sense of embarrassment to some persons. Etiological factor for midline diastema can be presence of high frenum attachment, presence of mesiodens, and migration due to periodontal disease.

CASE REPORT

A female patient aged 18 years reported to the Department of Periodontology and Oral Implantology, Dental Institute, RIMS, Ranchi with a chief complaint of blackish colour of gum in upper and lower anterior tooth region since 2-3 years. She also said that colour of gums is becoming darker day by day. No related medical history was reported as contributory factor for suggestive of physiological melanin hyper-pigmentation of gingiva. She also complained of a gap between two front teeth in upper anterior tooth

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Figure-1:



Figure-2:



Figure-3:

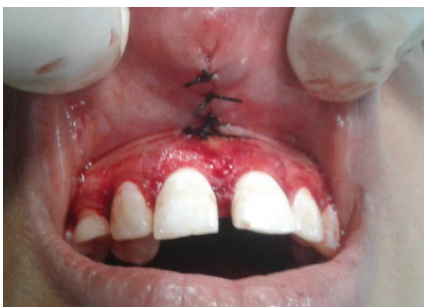


Figure-4:

region. The dark colour of gums and space between front teeth was causing psychological stress to the patient. On oral examination brown to blackish colour of gingiva due to melanin pigmentation was noted in the labial side on attached gingiva in both upper and lower arch. High frenum attachment extending to the palatal side of the ridge was recorded which was the cause of midline diastema (Fig. 1). The black gum was also visible while she smiles (Fig. 2).

Surgical Technique

Prior to surgery a complete dental and medical history was recorded. Blood investigations were carried out and orthopantomogram was taken to rule out any dental and



Figure-5:



Figure-6:



Figure-7:



Figure-8:

medical problems. Considering the patient's demand and available armamentarium, scalpel method of depigmentation was planned. A written consent from the patient was taken after explaining the entire Procedure. Prior to surgery, oral prophylaxis was done and oral hygiene instructions were given to the patient. A pre-surgical rinse with chlorhexidine was prescribed.

Local anesthesia 2% lignocaine containing adrenaline at a concentration of 1:80,000 was given from premolar to premolar area in maxillary arch. B.P Blade no. 11 and 12 with Bard Parker handle was used. The entire pigmented epithelium was removed with the scalpel the bleeding was

controlled with the pressure pack (Fig 3). Frenectomy was performed according to the conventional approach.⁹ The frenum was engaged with a hemostat which was inserted into the depth of vestibule and incision were placed on the upper and under surface of the hemostat. A blunt dissection was done on the bone to relieve the fibrous attachment. (Fig 4) The edges of diamond-shaped wound were sutured with interrupted sutures (nonresorbable 4-0 braided silk. A noneugenol periodontal dressing was placed over the surgical area. Patient was advice antibiotic and analgesic postoperatively for 5 days was prescribed. The patient was reviewed at the end of 1 week. Similarly, depigmentation procedure with surgical scalpel was performed in lower arch buccal side from first premolar to first premolar. Healing was uneventful without any postsurgical complication. The gingiva appears pink healthy and firm (Fig 5). The patient was highly satisfied over the new changed color of the gingival. At the end of 1 month, reepithelialization was complete (Fig 6)

After healing, midline diastema was closed by tooth color composite to enhance the esthetic look of the patient (Fig.7). It is noticed that combination of simple conventional procedures like scalpel depigmentation along with frenectomy and composite restoration to close midline diastema can create a beautiful and confident smile on the patient's face. (fig 8)

DISCUSSION

Melanin pigmentation is basically caused by melanin deposition by active melanocytes located mainly in the basal layer of the oral epithelium. Hyperpigmented gingiva, many at times forces the patients to seek cosmetic treatment. The choice of technique for depigmentation of the gingiva should be based on operator experience, patient's economic conditions and individual preferences. The various surgical treatment modalities available for gingival hyperpigmentation are Scalpel surgical technique, Cryosurgery, Electrosurgery, Laser. Scalpel surgical technique is much beneficial in thought of the instrumentality constraints that will not be accessible in clinics but it requires dexterity and more surgical time. However, surgical knife surgery could cause unpleasant trauma throughout and once the procedure and it's necessary to cover the exposed tissue with periodontal dressing for 7-10 days.¹⁰ An aberrant frenum can jeopardize the gingival health by causing difficulty in oral hygiene maintenance when they are attached too closely to the gingival margin. In addition to this, the maxillary frenum may present aesthetic problems by creating midline diastema. The management of such an aberrant frenum is accomplished by performing a frenectomy by various frenectomy techniques, like Miller's technique, V-Y plasty, Z-plasty and frenectomy by using electrocautery. *Frenectomy* is the complete removal of the frenum, including its attachment to the underlying bone.¹¹ In conventional technique excision of the frenum is done by using a scalpel. Maxillary midline diastema can be an esthetic concern in mixed and permanent dentition. Midline diastema can be genetic, physiological (ugly

duckly stage), Supernumerary teeth, abnormal frenum, tooth material – arch length discrepancy (microdontia, peg shaped laterals etc), habits (thumb sucking or tongue thrusting) or midline pathology (cysts, tumors and odontomes). Before the practitioner can determine the optimal treatment, the contributing factors must be considered. Patient demand for correct and aesthetic smile with minimally invasive procedures has resulted in the extensive utilization of composite resin to anterior teeth. Composite resin is an ideal material for diastema closure because it is highly polishable, long lasting and match natural tooth structure. It is a conservative alternative to an indirect restoration.

CONCLUSION

As demand of aesthetic is continuously increasing gingival hyper-pigmentation became concern for many patients which requires the removal to create a confident smile. Various depigmentation procedures available to a clinician to help the patient to give proper treatment for it. A major limitation of depigmentation procedures is recurrence. So, future research should focus on prevention of recurrence of pigmentation of gingiva.

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