

A Case Series Of Gingival Melanin Pigmentation (GMP) Treated By Surgical Excision Technique: An Esthetic Approach

Abstract

Esthetics has become a significant aspect of dentistry and clinicians are faced with achieving acceptable gingival esthetics and functional problems. The harmony of smile not only depends upon the shape, the position and the color of the teeth but also on gingival colour & health which play important role for an attractive smile. Gingival melanin pigmentation (GMP) hampers the gingival esthetic of patients with gummy smile or excessive gingival display that cause physiological disturbances & embarrassment, so patients demand cosmetic therapy for the same. Four case of gingival melanin pigmentation treated by surgical excision technique especially for esthetic purposes. The technique is relatively simple and versatile and requires minimum time and effort. If repigmentation occurs, the procedure can be done repeatedly in the same area without limitation or causing any permanent damage. After 4 month follow up none of the cases showed reoccurrence of GMP.

Key Words

Gingiva, Melanin, GMP, Excision, Depigmentation, Aesthetics.

Introduction

Gingival pigmentation is mostly caused by the physiologic deposition of melanin by melanocytes mainly located in basal & suprabasal cell layer of epithelium.^{[1],[2]} Gingival hyper pigmentation is seen as a genetic trait in some populations irrespective of the age and gender hence termed physiologic or racial gingival pigmentation.^{[3],[4]} The degree of Gingival Melanin Pigmentation varies from individual to individual but directly related to the Melanoblastic activity,^[5] High level of oral melanin pigmentation usually is encountered among African, East Asian or Hispanic Ethnicity^{[6],[7]}, as well as in certain medical diseases like Addison's disease, Peutz-jegher's syndrome, Neurofibromatosis, Antimalarial therapy, Heama chromatosis, chronic pulmonary diseases etc.^[8] In dark skinned individuals, increased melanin production in skin, gingiva & oral mucosa occur as a result of genetically determined hyperactivity of melanocytes as compared to light skinned individuals. Past studies have shown that no significant difference exists in the density of melanocytes between light and dark skinned individuals. However, melanocytes of dark skinned individuals are uniformly

highly reactive than the light skinned individuals.^[9]

Melanin pigmentation of gingiva most often is physiological rather than pathological. Although patient complains of "black gums" which may pose aesthetic problems & embarrassment, especially in patients who are smile conscious, with a "gummy smile" or with excessive gingival display.^{[10],[11]} Gingival depigmentation is a periodontal plastic surgical procedure where by the gingival hyper pigmentation is removed by various techniques but the results of these techniques are almost similar. One of the earliest & still most accepted techniques is surgical removal of undesired gingival pigmentation with scalpel.^[12]

The case series presented here employed surgical (scalpel) excision technique for the management of gingival melanin pigmentation exclusively for esthetic purpose. Technique is simple, versatile & cost effective and does not require sophisticated instrument or apparatus but still providing satisfactory outcome.

Case Report 1

A young female patient age 17 years reported in the department of

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Periodontics & Oral Implantology, with a chief complaint of "Brownish black gums" that esthetically interfered with her smile (**Fig.1**). Patient requested for a Cosmetic therapy which will improve the esthetics on smiling. In general, skin pigmentation correlates with gingival melanin pigmentation^[13], but in this specific patient gingival melanin pigmentation was observed on the anterior labial surface that moderately predominated over the skin



Fig.1. Patient With "Brownish Black Gums"

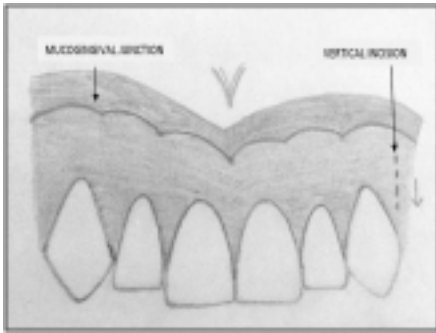


Fig.2. Vertical Split Thickness Incision

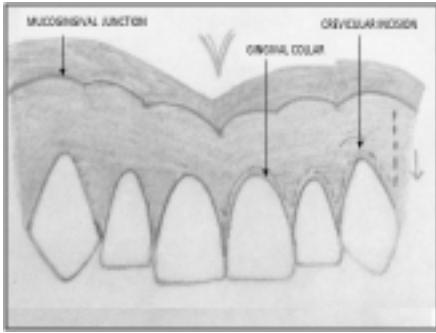


Fig.3. Horizontal Split Thickness Incision

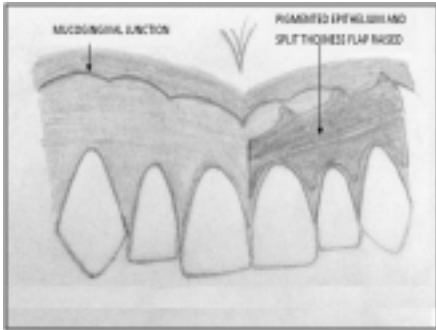


Fig.4. Periodontal Flap Raised To Remove Epithelium And Part Of Underlying Connective Tissue



Fig.5. Healing After 1 Week



Fig.6. Healing After 4 Weeks

pigmentation. Patient's clinical & medical history confirmed that the pigmentation was Physiological. On clinical examination, gingiva was found healthy state & free of any visible clinical inflammation. Thus, bearing in mind patient's chief complaint, a surgical gingival depigmentation procedure with the help of scalpel was planned. The procedure was explained verbally to the patient in clear and simple language, after which the patient signed the informed consent form.

Surgical Procedure:- Thorough medical history was taken & routine investigations were carried out to rule out any surgical contraindication. Following the administration of local anesthetic solution (2 ml of Lignocaine with adrenaline in the ratio 1:100000 by weight) the following surgical steps were carried out.

Step.1 A Vertical split thickness incision was given from the most apical area of gingival pigmentation i.e 1-2mm coronal to mucogingival junction & directed coronally towards the marginal gingiva 0.5-1mm short of base of gingival sulcus **(Fig.2)**

Step.2 A Horizontal split thickness incision was given from .5 - 1mm apical to the base of gingival sulcus following the gingival scalloping meeting the first incision. **(Fig.3)**

Step.3 A split thickness flap was raised to remove entire pigmented gingival epithelium along with a thin part of underlying sub epithelial connective tissue with the help of no. 11 & 12 scalpel blades. This removed the all the remnants of the melanin pigment in the connective tissue to prevent possible relapse of the problem. **(Fig.4)**

Step.4 Gingival Shaving was carried out around the Preserved gingival colar with the help of Kirkland knife.

Step.5 Periodontal pack was applied over the surgical site to prevent post operative discomfort as well as excessive granulation tissue formation during healing.

Post operative instruction, including analgesics, antibiotic were prescribed to



Fig.7. No Recurrence After 5 Months



Fig.8. Patient With Dark Colored Gums



Fig.9. Healing After 1 Week Of Surgery

the patient (Ibuprofen, Amoxicillin 500mg × thrice day for 3 days) . Chlorhexidine mouth rinse (0.2%) was advised to the patients for 2 weeks immediate post operative phase to aid in plaque control.

The surgical site healed well and uneventfully in 1 week without any post operative complication.

(Fig.5) The gingiva appeared pink, firm & healthy after 4 weeks **(Fig.6)**. On follow up at 5 month gingiva represent no reoccurrence of gingival melanin pigmentation. **(Fig.7)** The Patient was very impressed with pleasing esthetic outcome.

Case Report 2

A young male patient aged 20 years complained of dark colour gums. **(Fig.8)**

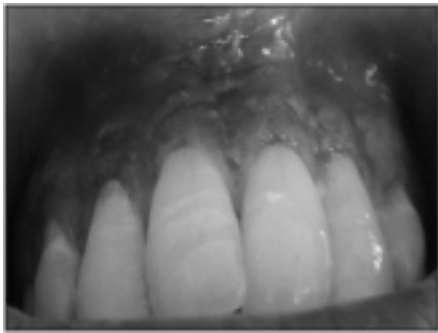


Fig.10. Healing After 2 Weeks Of Surgery

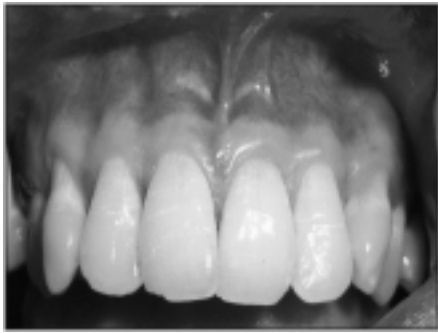


Fig.11. No Recurrence After 5 Months



Fig.12. Patient With Unaesthetic Gingiva



Fig.13. Esthetic Outcome After 5 Months Of Surgery

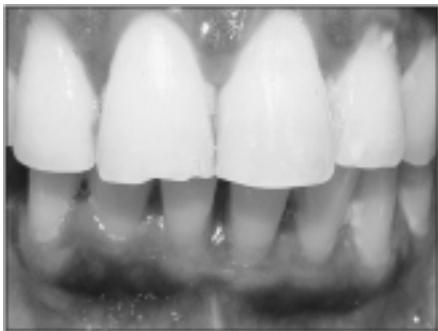


Fig.14. Patient With Dark Anterior Gums

On clinical examination periodontium was healthy with high frenal attachment. So, after phase I therapy same surgical procedure was carried out initially, followed by a frenectomy. Instructions & medical prescription were given to the patient. Healing was uneventful after 1 week (Fig. 9). Patient was recalled after 2 weeks (Fig.10) and followed upto 5 months with no evidence of Gingival repigmentation. (Fig.11)

Case Report 3

A 22 years young female patient had a chief complaint of unaesthetic gingiva. (Fig.12) Patient's history was non contributory same surgical depigmentation treatment carried out in this patient. At 5 months follow up patient had a pleasing esthetic outcome without any clinical melanin repigmentation (Fig.13).

Case Report 4

A Young female patient age 30 years reported to the department with complaint about dark lower & upper gums (Fig.14). Same surgical technique described was carried out in mandibular anterior segment in this patient (Fig.15). Gingival healing was good at 1week post operatively.(Fig.16)

The patient was followed up to 5 months with no evidence of reoccurrence. (Fig.17)

Discussion

Different gingival depigmentation techniques have been tried in the past but all provide an almost similar outcome. Selection of depigmentation procedure should based on clinical experience & clinician preference. One of the earliest & most popular depigmentation procedure that is still widely used is Scalpel surgery, however it causes unpleasant bleeding during and after procedure. Therefore, it is necessary to apply periodontal dressing for 7-10 days.

Scalpel Gingival Depigmentation procedure not only involve the surgical removal of gingival epithelium but also the part of underlying connective tissue & leave exposed connective tissue for healing by secondary intention. The new epithelium that forms is devoid of melanin pigmentation.

Electrosurgeryhas its own limitations. Repeated & prolong use induces heat accumulation and undesired tissue

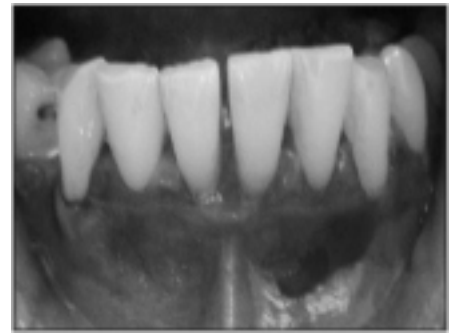


Fig.15. Surgical Site In Mandibular Anterior



Fig.16. 1 Week Post Operative Healing



Fig.17. Healing After 5 Months

destruction. Cryo surgery & Chemical cauterization is followed by considerable swelling and it is also accompanied by increased soft tissue destruction as the depth of penetration cannot be controlled.

Free gingival graftcan also be used for elimination of gingival pigmented area.However, it requires an additional surgical site (donor site) and color matching. Furthermore, the presence of a demarcated line commonly observed around the graft in the recipient site may itself pose an esthetic problem.

Nowadays LASER is widely used in Contact & Defocused mode respectively for gingival depigmentation procedure with documented advantages including less bleeding, reduced post operative pain & no requirement of periodontal dressing. Due to this reason LASER is being preferred by some clinician over

the scalpel surgery but it is highly expensive, sophisticated equipment & technical expertise is required. No scientific evidence of early wound healing is documented till date with laser.

Among the above mention techniques, we found Scalpel excision technique relatively simple, versatile which required minimum time & effort.

Conclusion

The present Case Series concluded that Surgical (scalpel) excision technique for the treatment of moderate Gingival melanin pigmentation provide excellent results in term of improving esthetic & cosmetic appearance. Patients were satisfied with the outcome, which is the ultimate goal of the any therapy that is carried out. Further, at 5 month follow up no evidence of repigmentation of gingiva observed.

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