ABSTRACT
Aesthetics is an inseparable part of today’s dental treatment and has influenced the management of dental maladies in varying degrees for many years. Patient awareness and expectations have increased recently to the point that less than optimal aesthetics are no longer an acceptable outcome. Achieving an appealing and aesthetic smile is no longer a dream. In this article an attempt has been made to review the guidelines for treating a patient with excessive gingival display along with gingival pigmentation and its treatment modalities with illustrations from two case reports.

KEY WORDS: Aesthetics, Crown lengthening, Depigmentation.

INTRODUCTION
“A charming smile can open doors and knock down barriers that stand between you and successful life.”

We all agree that a thing of beauty is a joy forever. If that thing happens to be a beautiful aka aesthetic smile, there are no bounds to that joy.

Did you know…
- 50% of the people consider smile their first facial feature.
- Today smile enhancement procedures out beat eye surgeries 5 to 1, done 7 times more than facial lifts.

All of us strive to look and feel our very best. A critical part of our overall appearance is our smile – It mirrors our personality, it is our own unique calling card.

Aesthetics is an inseparable part of today’s dental treatment and has influenced the management of dental maladies in varying degrees for many years. Patient awareness and expectations have increased recently to the point that less than optimal aesthetics are no longer an acceptable outcome. Achieving an appealing and aesthetic smile is no longer a dream. Periodontal plastic procedures can help “knock the socks off” of anyone by giving a perfect smile and boosting patient’s confidence.

This article gives a brief overview of treatment guidelines for treating a gummy smile with illustration from two case reports.

Pre-operative treatment and pre-evaluation in the crown lengthening procedure:

1. Aesthetic periodontal treatment is based on the patients’ chief complaints such as:
   - Exposed Roots
   - Dark, Pigmented Gingiva
   - “Black holes” between teeth, crowns, bridges, or implants etc
   - Gummy smile or uneven gum line

The presence of these conditions not only cause cosmetic concerns but also dental health concerns, like progressive gingival irritation, bone loss, root sensitivity, caries, eventually tooth loss.

A gummy smile can occur due to: a short upper lip, excessive wear of the teeth due to grinding, vertical maxillary excess or altered passive eruption.

2. Next, the medical status of the patient must be reviewed and vital signs recorded. This will determine the patient’s suitability for dental treatment and identify any special precautions that must be taken.

3. The Periodontist should then correlate—
4. Next, a thorough intra-oral examination is conducted, combining clinical and radiographic observations. The condition and dimensions of the teeth should be determined, including caries, fractures and pulpal pathoses. The height of the anatomic crown/crowns is measured from the cemento-enamel junction to the incisal edge, while the height of the clinical crown is measured from the gingival margin to the incisal edge.

A comparison of these two measurements will determine whether short clinical crowns are a result of incisal wear or a coronal position of the gingival margin.

The width and thickness of keratinized gingiva must be measured as well as probing depths, clinical attachment levels and the level of the alveolar crest with respect to the cemento-enamel junction. Interproximal bone levels can be estimated using radiographs taken parallel to the long axis of the teeth.

**Treatment planning:**

Following the formulation of a complete and accurate diagnosis of a “gummy smile”, a comprehensive plan for treatment is developed.

- Single discipline – (Periodontics)
- Multi disciplinary approach - (Periodontics-Orthodontics)

**Objectives of clinical crown lengthening:**

1. Removal of sub gingival caries.
2. Increase and preservation of maintenance of restorations.
3. Cosmetic improvement.
4. Enabling restorative treatment without impinging on biologic width.
5. Correction of occlusal plane.
6. Facilitation for improved oral hygiene.

**Contra-indications and limiting factors:**

1. Inadequate crown to root ratio.
2. Non-restorability of caries or root fracture.
3. Inadequate predictability or Tooth arch relationship inadequacy.
4. Compromise of adjacent Periodontium or aesthetics.
5. Non-maintainability.

Orthodontic intrusion or extrusion may be able to overcome some of these factors.

**Sequence of treatment:**

2. Caries control.
   - Control of inflammation.
   - Better assessment of crown lengthening required.
   - Enhanced predictability of margin placement post surgically.
5. Endodontic therapy
   - Precedes surgery.
   - If not possible the completion is 4 to 6 weeks post surgery.

6. Control of gingival inflammation
   - Plaque control via Scaling and root planing.
8. Surgical Therapy
   - Gingivectomy.
   - Flap surgery.
   - Flap with osseous surgery.

Orthodontic extrusion: Useful when amount of surgical bone reduction around affected and adjacent teeth would be excessive.

Successful treatment is always dependant upon accurate diagnosis and well-drafted treatment plan involving other disciplines of dentistry.

**Case Report 1:** (Fig.1 to Fig.4)

A female patient aged 29 years reported to the Department of Periodontics and Oral Implantology, GITAM Dental College and hospital, Visakhapatnam with chief complaint of excessive gum display in the upper front tooth region.

History revealed that excessive gum display was present from the childhood. There was no significant family history on physical examination. The patient was normal with no systemic abnormality. Extra orally face is bilaterally symmetric with concave profile, and smile line is high. Intra-orally gingiva is pink in color with thick gingival biotype and leathery consistency and coronally positioned marginal gingiva.
Mucosal, periodontal, occlusal and other dental examination was found to be normal. Mild stains and calculus present.

Case 1

Fig.1. Preoperative view

Fig.2. Template in place

Fig.3. Immediate post operative view

Fig.4. Six months after treatment

Maxillary and mandibular impressions were made with alginate and study models prepared. Model analysis was done to determine the ideal clinical crown lengths, and template was prepared accordingly with tooth colored acrylic. Radiographic examination revealed no underlying bony pathology.

Treatment Plan:
- Full mouth oral prophylaxis.
- Crown lengthening by Gingivectomy along with Gingivoplasty.

Treatment Procedure:
- Under sterile conditions local anesthesia was given, surgical template was placed in position and markings were made with surgical B.P. Blade from premolar to premolar and template was removed.
- Reverse bevel incision was given over the markings followed by sulcular incision, and the excised mass was removed.
- 1 mm of sulcular depth was maintained gingivoplasty was done to reduce the thickness of the gingival and for proper scalloping / festooning.
- Hemostasis was achieved by application of pressure with wet cotton. Periodontal pack was placed for 7 days.
- Post operative antibiotic, analgesics were prescribed and post operative instructions were given.
- After one week periodontal pack was removed and the area was irrigated with saline, and cleaned with wet gauge.
- Healing was satisfactory. Patient was recalled after 15 days, one month, and 6 months for review. No recurrence was found.
- Good aesthetics was achieved with increased and ideal crown length with Patient satisfying results.

Case report 2: (Fig. 5 to Fig. 8)

Crown lengthening with depigmentation:
Presence of excess melanin pigmentation in the gingiva leads to dark Gums and is of aesthetic concern in anterior region more in patients with “Gummy Smile”.

Treatment Modalities:
- Chemical Cauterization
- Scraping Technique
- Electro Surgery
- Cryosurgery
- Gingival Abrasion
- Lasers

A male patient aged 23 years reported to the Department of Periodontics and Oral Implantology, GITAM Dental College and hospital, Visakhapatnam with chief complaint of “dark Gums” in the upper
front tooth region. History revealed that the patient is student in nursing college and is more often involved in interaction with lot of patients and people as his work demands it. He was under a lot of psychological trauma and has become shy personality when he speaks or when ever he is interacting with people. On examination it was found that the apart from increased melanin pigmentation the important reason for display of “dark gums” is excessive gum display, which was present from the childhood.

No significant family history was present. On physical examination the patient was normal with no systemic abnormality. Extra orally face is bilaterally symmetric with straight profile and the smile line was high. Intra orally, gingiva is dark brown in color with thick gingival biotype, with firm and resilient consistency. The marginal gingiva was coronally placed with no gingival recession.

Mucosal, periodontal, occlusal and other dental examination was found to be normal. No stains and calculus were present.

Treatment Plan:
- Full mouth oral prophylaxis
- Crown lengthening by Gingivectomy along with surgical depigmentation.

Treatment Procedure:

Ginwalla et al in 1966 used following surgical techniques for depigmentation. They are
- Slicing technique.
- Abrasion.

Slicing done with surgical blade or by electrosurgery and require skillful hand to manage. Abrasion done using large round diamond bur with high speed hand piece, which needs copious amount of irrigation.

Many authors have (Hirschfeld & Hirschfeld, Dummett and Bolden) used ‘scraping technique’ to remove heavy continuous bands of gingival pigments.

Drawbacks

It is difficult to control the depth of depigmentation or de-epithelization and to obtain adequate access by using these techniques.

Surgical procedure: A similar surgical procedure used for case report 1 mentioned above was
followed along with a scraping technique for achieving gingival depigmentation. However there is a chance of reappearance of gingival pigmentation but the patient was satisfied with the results achieved.

CONCLUSION:

“If eyes are the windows to your soul, a smile is the window to your heart.”

Today, we live in a beauty-centric society. Restoring naturally beautiful, confident smiles means more than just restoring teeth, it means restoring and improving your quality of life. Taking steps to enhance one’s physical appearance is now seen as an investment in one’s health and well being. Optimal periodontal health is the foundation upon which aesthetic reconstruction of an individual is based…..

Thus, Perio Aesthetics is a comprehensive approach that improves the appearance of one’s smile while preserving long-term dental health. Obtaining a desired esthetic result is both challenging and rewarding

References