Periodontal approach to improve Aesthetics : A Case Report

**Radha Vellayappan**¹, **Sheeja.S.Varghese**²

Saveetha Dental College, Masilamani nagar, Bypass Road, Poonamalle, Chennai, Tamil Nadu – 600077

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**Corresponding Author:**

**Radha Vellayappan**¹

Saveetha Dental College, Department of Periodontics, Chennai.

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**ABSTRACT**

A variety of factors including teeth form/position and gingival tissue levels may influence the overall smile aesthetics [1, 2]. In the last decade a great interest was focused on plastic periodontal surgery as a reliable tool to enhance esthetics. Along with gingival recessions, the excessive gingival display during smiling is a frequent condition impairing smile and esthetics [2].

**INTRODUCTION:**

A variety of factors including teeth form/position and gingival tissue levels may influence the overall smile aesthetics [1, 2]. In the last decade a great interest was focused on plastic periodontal surgery as a reliable tool to enhance esthetics. Along with gingival recessions, the excessive gingival display during smiling is a frequent condition impairing smile and esthetics [2].

The appearance of the gingival tissues surrounding the teeth plays an important role in the esthetics of the anterior maxillary region of the mouth. Abnormalities in symmetry and contour can significantly affect the harmonious appearance of the natural or prosthetic dentition. Garguilo described various components of the periodontium, giving mean dimensions of 1.07 mm for the connective tissue, 0.97 mm for the epithelial attachment and 0.69 mm for the sulcus depth. These measurements are known today as the biologic width [3].

Ingber and others observed that the presence of caries or restorations in close proximity to the alveolar crest may lead to inflammation and bone loss due to violation of the biologic width [4]. It is generally accepted that crown-lengthening surgery helps to relocate the alveolar crest at a sufficient apical distance to allow room for adequate crown preparation and reattachment of the epithelium and connective tissue [5]. The methods of surgical clinical tooth crown restorations are [6]:

1. Gingivectomy;
2. Apically positioned flap;
3. Apically positioned flap with bone reduction.

It is chosen according biotype of periodontium [7]:

1. In case of thin periodontium with sufficient width of attached gingiva, gingivectomy is recommended;
2. In case of thin periodontium with short width of attached gingiva, apically positioned flap is recommended
3. In case of thick periodontium, apically positioned flap with osteoplasty is recommended.

Furthermore, by altering the incisogingival length and mesiodistal width of the periodontal tissues in the anterior maxillary region, the crown-lengthening procedure can build a harmonious appearance and improve the symmetry of the tissues. Pre-operative treatment and pre-evaluation in the crown lengthening procedure:

1. Aesthetic periodontal treatment is based on the patients’ chief complaints such as
   i. ExposedRoots
   ii. Dark, Pigmented Gingiva
   iii. “Black holes" between teeth, crowns, bridges, or implants etc
   iv. 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 – Facial Symmetry, lip length, profile, smile line.

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.

The periodontal plastic surgery can recontour and relocate the gingival margin and the alveolar crest to achieve both an esthetically pleasing appearance and periodontal health. The following case report illustrates these concepts.

**Case Report 1:**

A 38 year old female patient complaining of ugly smile visited the department of Periodontics, Saveetha Dental College and Hospital, Chennai. On examination, the patient had a Deep bite with high smile line which displayed almost 4 mm of gingival tissue (Fig. 1). Periodontal examination revealed mild gingivitis with plaque and calculus, Shallow probing depth, no evidence of mobility, adequate amount of keratinized gingiva, favorable Crown root ratio and Crestal bone levels were within limits.

The patient was given oral hygiene instructions and underwent scaling as a phase I treatment. After 2 weeks of time, surgical crown lengthening was done in relation to 13 to 23. Firstly, Internal bevel incision was given 2 mm away from gingival margin with 15 size BPblade (Fig. 2,3). Flap was then elevated, osseous resection was done for about 1-1.5 mm (Fig.4). Debridement was performed and then flaps were approximated and interrupted sling sutures were given (Fig.5).

1 week post surgery, healing was assessed and sutures were removed. Preliminary review was done 2 weeks post surgery (Fig. 6).

All ceramic crowns were inserted 6 months after periodontal surgery in relation to 13 to 23.

**CASE 1 :**

**Fig.1. Pre-operative photograph**

**Fig. 2. Internal bevel incision given**

**Fig.3. Marginal gingiva stripped**

**Fig.4. Flap raised**

**Fig. 5. Sutures placed**

**Fig. 6. 2 weeks post operative**
CONCLUSION

Crown-lengthening surgery can be a viable option for facilitating restorative therapy or improving esthetic appearance. When planning a crown-lengthening procedure, the dentist should evaluate the patient’s complete periodontal condition and disclose all possible treatment options to the patient. In cases involving the possibility of a negative esthetic outcome, compromise to the support of the dentition involved in the surgical procedure or both, extraction and implant therapy or conventional prosthetic therapy may be a more compelling solution.

REFERENCES: