
ESTHETIC CROWN LENGTHENING SURGERY: A CASE REPORT

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ABSTRACT:

To establishing the smile line, anterior and posterior gingival contours with harmony of occlusal planes is important to achieve optimal results. Restoration and relocation of the gingival margin and the alveolar crest both in esthetically pleasing appearance and periodontal health is gained by crown-lengthening surgical procedures. Excessive gingival display with short clinical crowns in the maxillary arch significantly compromised the aesthetic outcome. In this presentation, a case report of surgical crown lengthening with apical repositioned flap and bone resection performed in the maxillary arch.

Key words: apically repositioned flap surgery, crown lengthening, gingival biological width



INTRODUCTION:

Natural dentition necessitates healthy and harmonious relationship of lip, tooth and gingival tissue. Esthetics of the maxillary region depends on the appearance of the gingival tissues surrounding the teeth in symmetry of the osseous architecture and anatomy of the tooth structure. Modification of the over exuberant gingiva instead of tooth structure, often resolves cosmetic deformities. Now a day's choice of treatment plan is influenced by the patients who have a greater desire for more esthetic results. This presentation is based on crown-lengthening procedures with particular

attention to aesthetic achievement with harmonious relationship of teeth, gingival tissue and occlusion. The following case report illustrates these concepts.

CASE DETAIL:

A healthy 27 year old female patient reported to the department of Periodontics, K.G.M.C. Lucknow, presented with a chief complaint of broken tooth margin and unpleasant appearance of gums. The fractured incisal edge of protruded maxillary anteriors and uneven gummy smile compromised her esthetics. The patient was unhappy with the appearance of her maxillary anterior

teeth and strongly concerned for esthetics correction. No intraoral pathology has noted clinically or radiologically. Patient was systemically healthy and extraoral examination revealed no specific findings.

A comparison of clinical crown and anatomic crown determine in this case that short clinical crowns are a result of coronal position of the gingival margin with a thick biotype of periodontium. Clinical examination revealed moderately deep probing depths in anterior as well as in posterior region. Adequate amounts of keratinized attached gingiva present and protruded and malpositioned central incisors with spacing between the anterior teeth without the presence of any mobility. Her smiling displayed approximately 4 mm of gingival tissues with uneven margins and smile line extended to the first molar on right and left side (Figure 1, 2). A wax-up of the anterior maxillary teeth was done to determine the incisogingival length, the mesiodistal width and the contour of the teeth.



Figure: 1 Preoperative, upper right quadrant



Figure: 2 Preoperative, upper left quadrant

The initial inverse bevel incision was performed so as to achieve the ideal contour on the anterior teeth (Figure 3). Gingival recontouring was guided by the stent.



Figure: 3 Incision line upper right quadrant

A full thickness flap was elevated followed by a partial thickness flap beyond the mucogingival junction. Osseous resection was then performed (blending and gradualization of bone) along with removal of crestal bone using specific osseous contouring surgical burs on affected teeth (Figure 4, 5).



Figure: 4 Intraoperative, upper right quadrant



Figure: 6 Suture placement, upper right quadrant



Figure: 5 Intraoperative, upper left quadrant



Figure: 7 Postoperative after 1 week

Suturing performed at apically positioned level (Figure 6) and periodontal pack was given to avoid its movement in a coronal direction. The patient received appropriate analgesic and antibiotic treatment and was advised to avoid trauma or brushing her teeth for two weeks at the surgical site, Chlorhexidine mouthwash was prescribed twice daily. Sutures were removed after 7 days and uneventful healing was observed. After restoration of central incisors and periodontal resective surgery, a satisfactory appearance achieved. (Figure 7)

DISCUSSION:

Crown lengthening is a surgical procedure aimed at removal of periodontal tissue to increase the clinical crown height. A crown lengthening encompasses one or a combination of the three procedures that involve gingival repositioning (i.e., apically positioned flap); gingival resection; and/or osseous resection. Two major factors govern the surgical design: width of the attached gingiva and the level of the alveolar crest in relation to the CEJ. The most suitable crown-lengthening approach for this patient necessitates the removal of soft tissue to increase the height of the clinical crown; and osseous recontouring as well as preservation of

gingival biological width ^[1]. A flap approach may produce more satisfactory results in terms of healing and comfort. Unaesthetic gingival heights as well as inadequate clinical crown length with bulbous bony architecture required an inflammation free healthy periodontium and that is achieved by means of apically repositioned flap along with osseous recontouring. ^[2]

Several factors, responsible for “gummy smile” including gingival enlargement, altered or delayed passive eruption ^[3], insufficient clinical crown length, vertical maxillary excess and a short upper lip. Marked discrepancies in the height of the gingiva around teeth also found in malpositioning of the teeth. Orthodontic movement corrects gummy smiles caused by malpositioned teeth. Orthodontic intrusion with restoration of the incisal edges alone of the maxillary incisors moves the gingival margins apically. Presence of deep probing depths required additional gingival resection as in present case. Ideally the dentogingival complex moves apically by orthodontic intrusion, but use of more forceful mechanics leaves the attachment apparatus at its original position, which results in a short clinical crown, a low crown-to-root ratio, and an even "gummier" appearance. ^[4, 5] It is not necessary to evaluate the gingival biologic

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width (GBW) ^[6] because of presence of excess of gingiva. In case of thick periodontium gingival retraction is rarer and bone loss is slower; however, bone defects and unfavorable bone contour form more often. This clinical situation easily managed with gingival and osseous resection.

In this case report, the position of the free gingival margin, attachment and bone levels remained stable by surgical crown lengthening using osseous resection with apically positioned flap procedure without the violation of biologic width. This is the case of “gummy smile” with uneven margins and bulbous bony tissues, (presence of thick biotype of periodontium), anatomical tooth crown is opened partially but gingival biological width is not altered.

CONCLUSION:

Now a days, patients are more demanding in terms of attractive smiles. To achieve the ideal incisogingival length and mesiodistal width of the anterior maxillary teeth and recontouring and relocation of the gingival margin and the alveolar crest both are necessary for esthetically pleasing appearance as well as maintenance of periodontal health.

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