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CASE REPORT

REDUCING THE PINK WHITE RATIO FOR BETTER ESTHETICS: A TREATMENT APPROACH IN MANAGING OF GUMMY SMILE WITH GINGIVECTOMY

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ABSTRACT:
Framing the teeth, within the confines of the gingival architecture, has a tremendous impact on the aesthetics of the smile. A gummy smile is as unaesthetic as a patient with severe recession. The impact on the beauty of a smile from an uneven gingival contour height can be dramatic and although the position of the gingival tissue zenith seems like a small detail, it can greatly influence the axial inclination and emergence profile of the teeth. The present article reports a case of gummy smile managed by crown lengthening procedure.
Key Words: Altered passive eruption; crown lengthening procedure; gingivectomy; gummy smile.

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INTRODUCTION

A pleasant smile is considered a symbol of beauty and well being in the modern society. A variety of factors including teeth form/position, gingival tissue levels, dental midline, smile line, incisal embrasures, tooth width to length crown ratio, symmetry of contralateral gingival margins, and gingival display may influence the overall smile aesthetics.[1-4] Along with gingival recessions, the excessive gingival display during smiling is a frequent condition impairing smile esthetics.[2],[4]

Gummy smile is a common challenge in patients requiring aesthetic treatment. [2],[4] There can be numerous etiologies for the excessive gingival display, which include extra-oral etiology such as vertical maxillary excess, hypermobile upper lip, or a short upper lip. In these patients, orthognathic surgery is a valid option, but there are some disadvantages associated with Orthognathic surgeries such as hospitalization and thus significant discomfort. On the other hand when gummy smile is due to intraoral reasons, it can be resolved by simply removing the gingiva via precisely planned incisions, which often produces satisfactory esthetic results. The exposure of clinical crown by excision of gingival tissues is known as crown lengthening. This was traditionally utilized as an adjunct to restorative dentistry. Also, in cases where the prosthetic crown margins lie subgingivally, gingivectomy of a localized tooth or few involved teeth is planned.[5]

Also in cases where altered passive eruption is present, crown lengthening techniques such as gingivectomy and flap surgeries with bone remodeling are a valid option. These critical procedures improve smile esthetics by reducing excessive gingival display, exposing anatomical crowns, and reestablishing the appropriate biologic width to facilitate restorative procedure.[3]

CASE REPORT

An eighteen year-old female reported to the Department of Periodontics, Manubhai Patel Dental College with the chief complaint of excessive display of her gums when she smiles. Medical history of the

patient was non-contributory. Extra-oral examination of the patient revealed no abnormality and her face was symmetrical. On intra-oral examination it was observed that both maxillary central incisors were placed in an inclined manner and also anterior deep bite was present [Figure 1].

On periodontal examination it was observed that patient had maintained a relatively good oral hygiene. Very minimal amounts of plaque and calculus deposits were seen. The gingiva was firm and pink in color. However, when probing was done in the region of maxillary central incisors, 5 mm periodontal pockets were found to be present (Figure 2). Also, orthopantogram (OPG) revealed interdental bone loss [Figure 3].

Based on the clinical and radiological findings, a diagnosis of altered passive eruption was made. Considering the diagnosis, periodontal treatment was planned for the patient. The treatment plan comprised of phase I therapy followed by gingivectomy. Patient was given local anaesthesia (2% lignocaine HCl with adrenaline 1:80,000). Following local anesthesia bleeding points were marked. The tissue biotype was thick, thus external bevel incision was placed using Kirkland knife at 4 mm from margin following scalloping from maxillary right canine to maxillary left canine region [Figure 4].

Periodontal dressing was placed after tissue excision, post-operative instructions were given and prophylactic antibiotics and analgesics were prescribed. Patient was called for follow up after one week. One week follow up revealed uneventful healing [Figure 5]. One month follow up revealed better esthetics [Figure 6].

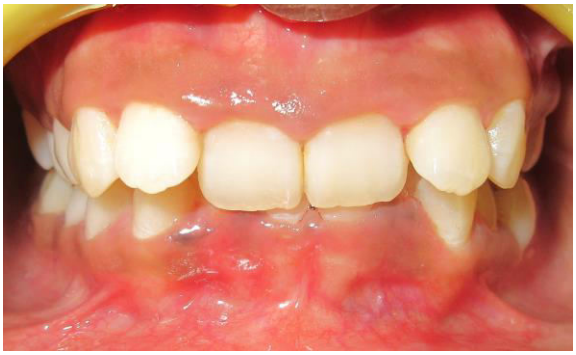

Figure 1: Intra-oral photograph showing inclined maxillary central incisors and anterior deep bite

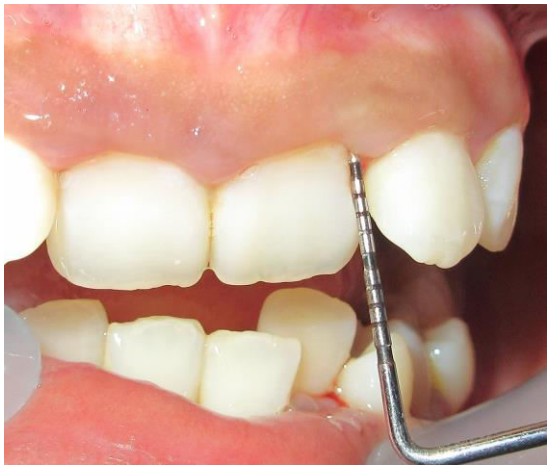

Figure 2: Periodontal probing showing the presence of periodontal pockets

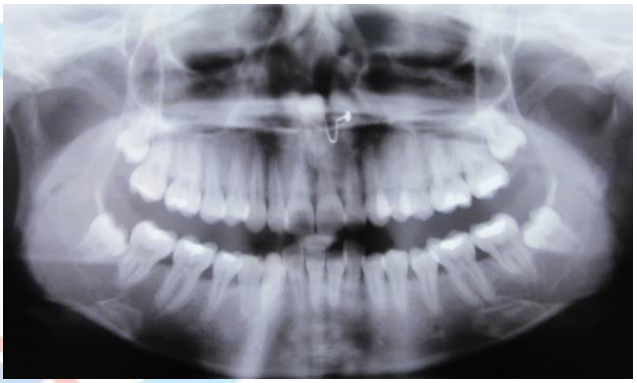

Figure 3: OPG showing interdental bone loss w.r.t. maxillary central incisors

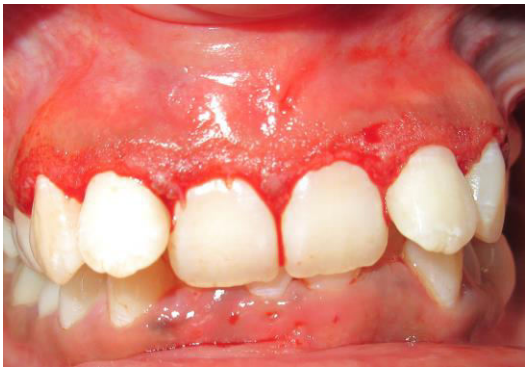

Figure 4: Intra-operative photograph

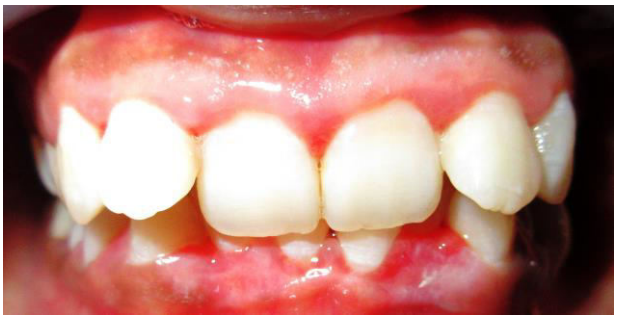

Figure 5: One week follow-up photograph

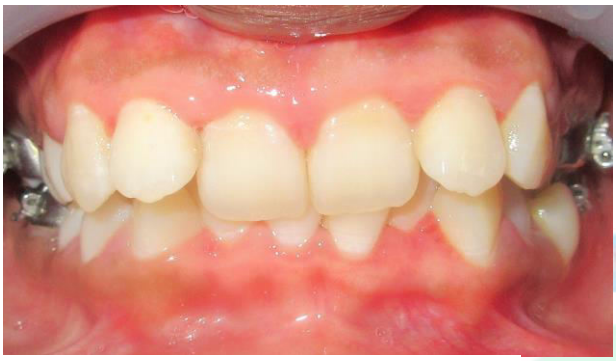

Figure 6: One month follow-up photograph

DISCUSSION

Although esthetics form an integral component of dentistry, however, esthetic dentistry is not a separate specialty subject by itself rather; every procedure in dentistry needs to satisfy this aspect, to call itself a success.[6-9] An increasing stringent demand for improvement of esthetics is part of the current periodontal practice.[4] Apart from fulfilling the functional demands of restorative dentistry, periodontal procedures do aid in aesthetic applications of dental restorative procedures. Also, the swift growth in patients seeking complete oral rehabilitation[10],[11] rather than a discrete treatment approach upon its need, multidisciplinary clinical approaches would become a necessity in managing them.[9]

Esthetic treatment of a smile line is often a multifaceted scenario where teeth, periodontal tissues, and lip position interact. Some attempts are reported in literature to define the factor influencing smile esthetics. The average smile exhibits approximately the full length of the maxillary anterior teeth, with an incisal curve of the teeth parallel to the inner curvature of the lower lip.[4],[12]

The present case report described the successful management of delayed passive eruption via crown lengthening resulting in an esthetically pleasing smile. One of the important parameters to achieve a pleasant smile is toot eruption. Tooth eruption is divided into two phases: active and passive eruption. Active eruption ceases when the teeth come into contact with the opposing dentition. The additional step involved in the normal eruption pattern of teeth involves passive eruption, which is the migration of the epithelial attachment apically to expose the anatomic crown of the tooth. A delay or failure of this to occur can result in the appearance of short clinical crowns and excessive gingival display.[3]

Crown lengthening procedure is an effective management strategy for gummy smile. There are two aspects to the crown lengthening procedure: aesthetic and functional. In both cases, the surgical procedure is aimed at re-establishing the biological width, apically, while exposing more tooth structure. To have a harmonious and successful long-term restoration, a 3 mm sound supracrestal tooth structure between bone and prosthetic margins, which allows for the reformation of the biological width plus sulcus depth is advocated.[13],[14] This can be achieved surgically (crown lengthening), orthodontically (forced eruption), or by a combination of both. Crown lengthening can be limited to the soft tissues when there is enough gingiva coronal to the alveolar bone, allowing for surgical modification of the gingival margins, without the need for osseous recontouring (that is, pseudopockets in cases of gingival hyperplasia).[15]

CONCLUSION

To conclude we can say that gingival topography is a complex interplay of the underlying bony architecture and the size, form and position of teeth. To achieve acceptable esthetics we have to maintain a balance of the “White” and “Pink” components.[15]

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