Case Report

Lip Repositioning: A Boon in Smile Enhancement

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Abstract

This clinical report describes the successful use of lip repositioning technique for the reduction of excessive gingival display. The lip repositioning technique was performed with the main objective of reducing gummy smile by limiting the retraction of elevator muscles (e.g., zygomaticus minor, levator anguli, orbicularis oris, and levator labii superioris). This technique includes removing a strip of mucosa from the maxillary buccal vestibule, creating a partial-thickness flap between mucogingival junction and upper lip musculature, and suturing the lip mucosa with mucogingival junction, resulting in a narrow vestibule and restricted muscle pull, thereby reducing gingival display.

Keywords: Elevator muscles, gingival display, gummy smile, mucogingival junction

Background

Currently, a growing concern for beauty and physical appearance has motivated the clinician to evaluate the essentials of patient's smile and consider the dynamic relationship between the dentition, gingivae, and lips while smiling, with greater demands regarding esthetic dentistry.[1] Management of gingival and skeletal deformities is most challenging and of esthetic concern to the patient in day-to-day life. With the advent of modern cosmetic dentistry, new materials, and techniques, it is possible to achieve the desired esthetic outcome. A beautiful smile comprises three components, i.e., lip, teeth, and gingiva, all of which should be in harmony with each other.[2]

A pleasant smile usually depends on the extent of gingival exposure, the upper and lower lip line, gingival health, correct anatomy, and teeth proportion. The normal gingival display is between inferior border of upper lip and gingival margin of anterior central incisors during smile, which accounts for the entire crown of maxillary central incisors and 1 mm of pink attached gingiva.[3]

An exposed gingiva of 2–3 mm is cosmetically acceptable; however, more than this is considered to be unattractive and commonly known as "gummy smile."[4]

Various surgical modalities have been documented to eliminate the excessive gingival display including gingivectomy, flap surgery with osseous contouring, apically displaced flaps, myectomies, use of alloplastic or autogenous separators, and orthodontic therapy.[5]

The present report aims to demonstrate the use of a less invasive surgical procedure for the management of excessive gingival display, i.e., the lip repositioning technique by conventional method.

Case Presentation

A 32-year-old woman reported to the Department of Periodontology with the chief complaint of excessive gingival display during smile [Figure 1]. The patient's medical history was noncontributory with no contraindication for surgery. Clinical examination revealed a good amount of attached gingiva and the patient was diagnosed with a case of "gummy smile." However, when the patient was asked to smile, her teeth were visible from maxillary right first premolar to maxillary left first premolar molar with 8–9 mm gingival display. Maxillary anterior teeth had normal crown height and width/length ratio. Lip repositioning as a treatment option was

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discussed with the patient and a written informed consent was obtained prior to the procedure.

Case Management

Adequate local infiltration was administered in the buccal vestibule between the first maxillary premolars. The incision outline was marked with an indelible pencil on the dried tissue using mucogingival junction and base of the vestibule as reference lines connected at mesial line angles of the right and left maxillary premolars to create an elliptical outline[6] as shown in Figure 2. A partial thickness incision was made between these two lines, and epithelial band approximately 10–12 mm wide was excised leaving underlying connective tissue exposed [Figures 3–5].[7]

The mucosal flap was then advanced and sutured with interrupted stabilization sutures at the midline and other locations along the borders of the incision mucogingival junction using 5-0 Vicryl sutures first at the midline [Figure 6] and then complete suturing was performed [Figure 7]. No periodontal dressing was placed. Postoperative instructions included soft diet, limited facial movements, no brushing around the surgical site for 14 days, and placing ice packs over the upper lip. The patient was instructed to rinse gently with 0.2% chlorhexidine gluconate twice daily for 2 weeks. Postoperative amoxicillin 500 mg three times a day (TDS) and ibuprofen 400 mg twice a day (BD) for 5 days were prescribed.

Clinical Outcome

Uneventful postoperative healing occurred and the patient reported minimal postoperative bruising, or extraoral swelling, and slight pain when smiling 1-week after surgery. Sutures were removed after 2 weeks, and a significant reduction in the amount of gingival display at the 1-month follow-up visit was seen, which was stable along with competent lips [Figure 8].

Discussion

Lip repositioning was first described in the literature of plastic surgery in 1973 by Rubinstein and Kostianovsky,[8] which was advocated again by Litton and Fournier[9] for correction of excessive gingival display in the presence of short upper lip.

Excessive gingival display, referred to as a "gummy smile," can be a source of embarrassment for some patients. Delayed eruption and tooth malpositioning can be predictably treated with respective surgery and orthodontics; orthognathic surgery can also be performed. The case presented here entails surgical technique to reduce gingival display.

In most patients, the lower edge of the upper lip assumes a "gum-wing" profile, which limits the amount of gingiva that is exposed when a person smiles. Patients who have a high lip line expose a broad zone of gingival tissue and may often express concern about their "gummy smile."

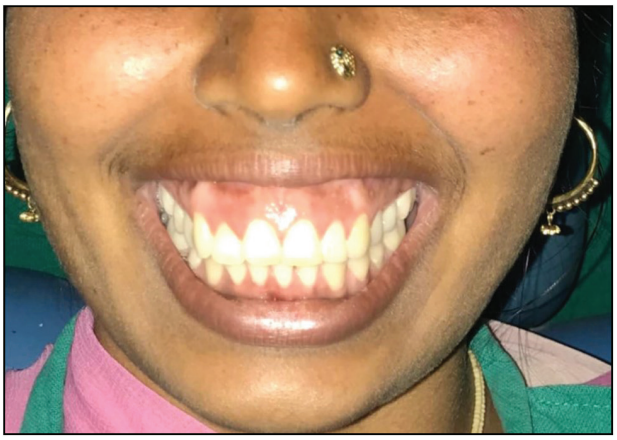

Figure 1: Preoperative photograph

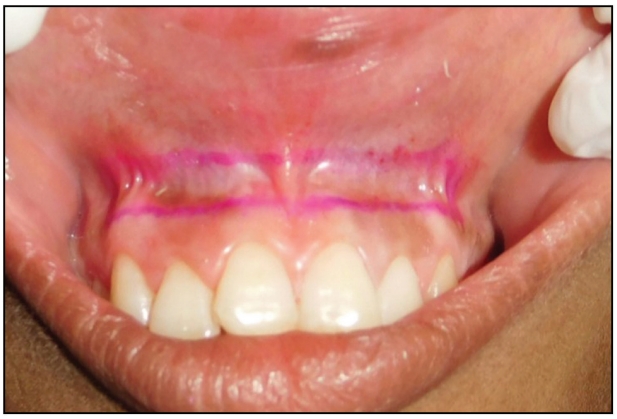

Figure 2: Surgical outline marked with the help of an indelible pencil

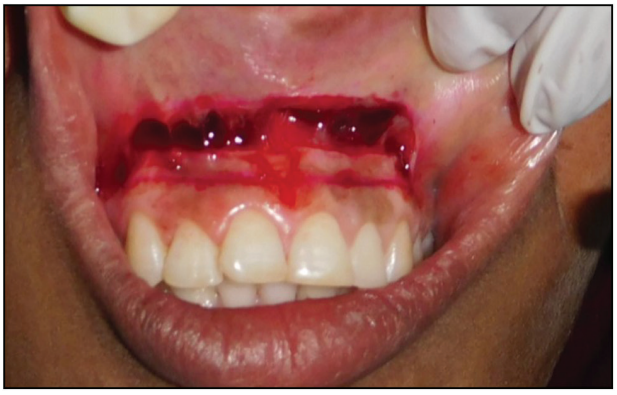

Figure 3: Partial thickness flap elevated

Therefore, the earlier-mentioned procedure is safe with minimal side effects as the patient did not complain of any postoperative complication.

By contrast, the use of botulinum toxin represents a simple, fast, and effective method for the esthetic correction of

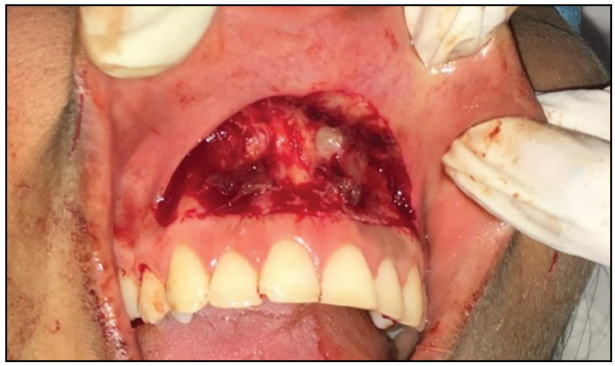

Figure 4: Connective tissue exposed

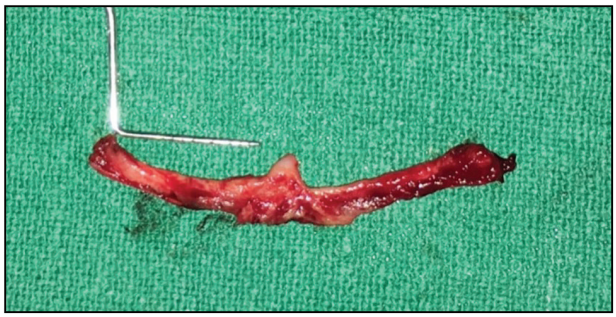

Figure 5: Excised epithelium

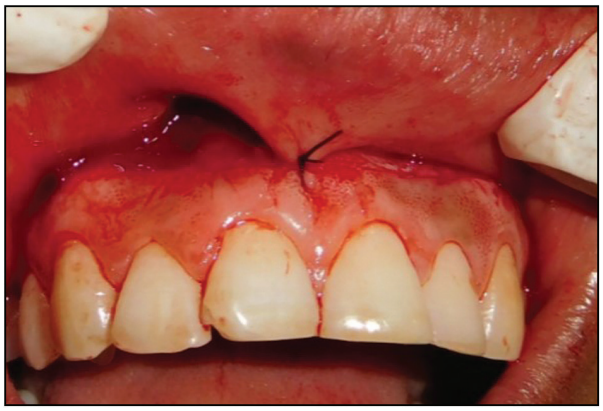

Figure 6: Interrupted sutures placed at midline

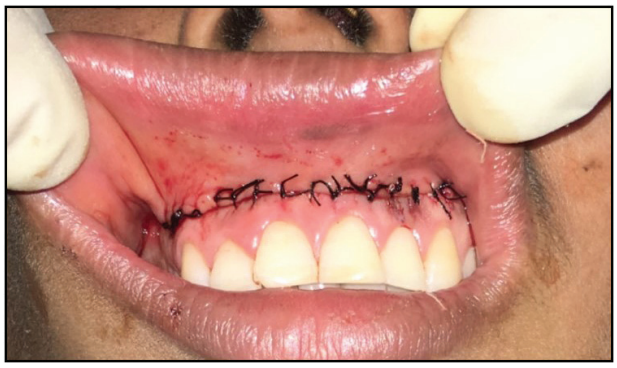

Figure 7: Sutures placed bilaterally

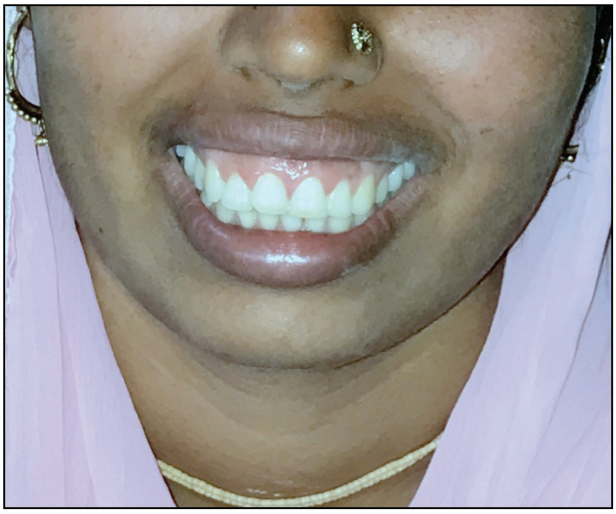

Figure 8: One-month postoperative photograph

a gummy smile; however, the results obtained by this nonsurgical approach remain questionable. Surgical intervention by lip repositioning stands as a permanent means of treating a gummy smile.

Silva *et al.* in 2012 reported successful management of excessive gingival display using a modified lip repositioning technique. Treatment comprised removal of two strips of mucosa, bilaterally to the maxillary labial frenum, and coronal repositioning of the new mucosal margin. Most of the subjects showed satisfied results in their smile after the surgery.[10]

Ideally, the smile should expose minimal gingiva, the gingival contour should be symmetrical and in harmony with the upper lip, the anterior segment should be in harmony with the posterior segment, and the teeth should have a normal anatomy.[2]

Conclusion

Surgical lip repositioning is an effective procedure to reduce gingival display by positioning the upper lip in a more coronal direction. This technique holds promise as an alternative treatment modality in esthetic rehabilitation.

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Conflicts of interest

None.

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