

Lip Repositioning: A Secret to Magnificent Smile

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Introduction

Aesthetics now a day became a demand for a fast growing population. Aesthetic dentistry provides fantastic solutions most of the times to enhance the way the people look, which in turn enhance self-confidence. A smile conveys a friendly nature, and reflects happiness and confidence. A smile is an important non-verbal method of communication and is an interaction between the teeth, the lip framework, and the gingival scaffold [1]. In the western world, a medium smile line with minimal gingival display (GD) is considered to be the most pleasing. When an excessive amount of gingiva is visible while smiling, this condition is commonly referred to as a “gummy smile” and it is found frequently in the general population. In a sample of over 450 adults, aged 20 to 30 years, 7% of men and 14% of women were found to have a gummy smile [2]. Excessive gingival display is associated with different etiologies, which must be identified before treatment. It is imperative, therefore, for the clinician to evaluate the essentials of the patient’s smile, and consider the dynamic relationship between the patient’s dentition, gingiva, and lips while smiling [1,3].

There has also been a steady rise in importance of the potential of plastic periodontal surgical procedures to enhance the smile line. For treatment of gummy smile due to hyperactive upper lip, variable outcomes have been reported with the use of different techniques, such as botulinum toxin injection, lip elongation associated with rhinoplasty, detachment of lip muscles, myectomy and partial removal, and lip repositioning. Excessive gingival display can be managed by a variety of treatment modalities, depending on the specific diagnosis. Lip repositioning surgery is a largely unknown and underutilized treatment modality for excessive gingival display. The aim of the present case report is to describe the surgical technique and outcome of lip repositioning in the treatment of excessive gingival display.

Case Report

The 20-year-old female patient presented with the chief complaints of a gummy smile and a thin upper lip when smiling (Figure 1). The patient’s medical history was non-significant, and there were no contraindications to surgical treatment. Clinical examination revealed moderate maxillary gingival display during forced smiling. With an exaggerated smile, the patient’s teeth were visible from the maxillary right first molar to the maxillary left first molar, with 5 to 6 mm of excessive gingival tissue display and a thin

upper lip. Informed consent was obtained after discussion of the benefits, possible complications, and alternatives to lip repositioning. Information concerning dietary status, mouth cleaning habits, systemic background, gingival and periodontal status along with other routine clinical details was recorded in a specially designed chart. Patients were examined under good illumination with the help of mouth mirror and William’s graduated periodontal probe.



Figure 1: Pre-operative frontal view with excessive gingival display

Surgical Procedure

Local anesthesia (2% lidocaine, epinephrine 1:100,000) was administered in the vestibular mucosa and lip from maxillary right to left first molar. A partial-thickness incision was made at the mucogingival junction from the mesial line angle of the right first molar to the mesial line angle of the left first molar. A second partial-thickness incision, parallel to the first, was made in the labial mucosa, 10 to 12 mm apical to the mucogingival junction. The incisions were connected at each first molar, creating an elliptical outline. The epithelium was removed within the outline of the incisions, leaving the underlying connective tissue exposed. Care was taken to avoid damage to any minor salivary glands in the sub mucosa. The parallel incision lines were approximated with interrupted stabilization sutures at the midline and other locations along the borders of the incision to ensure proper alignment of the lip midline with the midline of the teeth. Then, a continuous interlocking suture was used to approximate both flap ends.

Post-Operative Care

After surgery, a non-steroidal anti-inflammatory, IBUGESIC-Ibuprofen + Paracetamol, and antibiotic coverage consisting of Amoxicillin 500 mg three times a day were prescribed for 5 days. The patient was given instructions regarding the use of ice packs and was told to minimize lip movement when smiling and talking for 1 week. Patients were instructed not to brush the teeth in the treated area. All patients were placed on 0.12% chlorhexidine gluconate (Hexidine – ICPA) twice daily, for one minute, for one week. Two

weeks following surgery, sutures were removed, taking care that it did not traumatized the treated site. Patients were instructed to clean the treated site with cotton pellet saturated with 0.12% chlorhexidine gluconate for additional 4-5 weeks in an apico-coronal direction. No mechanical oral hygiene procedures or chewing was allowed for 6 weeks in the treated area. After this period, patients were re-instructed to resume mechanical oral hygiene measures, including careful brushing with soft toothbrush, interdental cleaning with an interdental brush and to discontinue chlorhexidine.

Results

Postoperative healing occurred with minimal ecchymosis and discomfort. Healing at 1 week was uneventful. The patient felt minimal tension in her upper lip during routine activities, though she had been instructed to restrict the lip movements while talking or smiling. Sutures were removed 2 weeks later. The suture line healed in the form of a scar, which was not visible when the patient smiled because it was concealed in the upper lip mucosa. At the end of day 15, the smile line was considerably improved, with the gingival display reduced to only interdental papillae (1 to 2 mm). The thickness of the upper lip was also increased in proportion to the smile line. These results were well maintained at the 6 months follow-up.

Discussion

This clinical report describes the use of lip repositioning for the reduction of excessive gingival display. Surgical lip repositioning is an effective procedure to reduce gingival display by positioning the upper lip in a more coronal location. This technique is an easy and less time consuming, cost effective way to give satisfactory results to the patient. The procedure originated as a plastic surgical treatment but has rarely been described in the dental literature. Variations in lip repositioning have been reported [4-6]. The original technique did not include severing of the muscle attachment after flap reflection [7,8]. Other authors advocated performing myectomies to detach the smile muscle attachment. The rationale for using myectomies was to allow for tension-free suturing and to prevent relapse. However, Ellenbogen reported that resection of the levator labii superioris was short lived, and the gummy smile returned within 6 months [9]. He also suggested placing either a nasal cartilage or prosthetic material as a spacer to prevent this reunion of the muscle fibers and reoccurrence of the gummy smile.

Another method to prevent reattachment of the smile muscles is to use an alloplastic or autogenous separator. This spacer is placed with a nasal approach between the elevator muscles of the lip and the anterior nasal spine and thus prevents superior displacement of the repositioned lip. Lip repositioning has also been performed in conjunction with rhinoplasty. The nasal approach allows both surgical procedures to be combined; the surgical site is extended only minimally. This should be done only if rhinoplasty is to be performed and if the patient desires a remedy for excessive gingival display. From a surgical design standpoint, the amount of epithelium to be excised has varied considerably. In two different case reports described by Rosenblatt and Simon, the amount of epithelium to be excised was not specified [10,11]. To achieve optimal results the flap was advanced a distance of two times gingival display as in these case reports. Lip repositioning is an excellent alternative to the more costly and time-consuming treatments available for excessive gingival display. The psychosocial benefits of lip repositioning, especially in light of the minimal risk, are enviable.



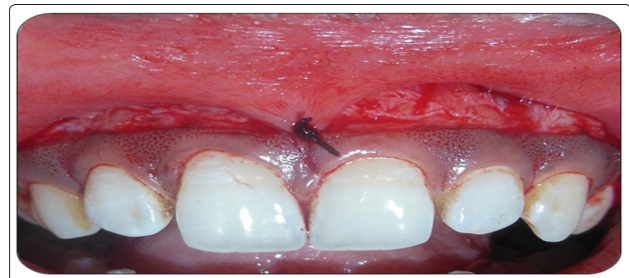
Pre operative measurements of surface marking



Surface marking followed by incision



Removal of mucosal strip and detachment of fibers



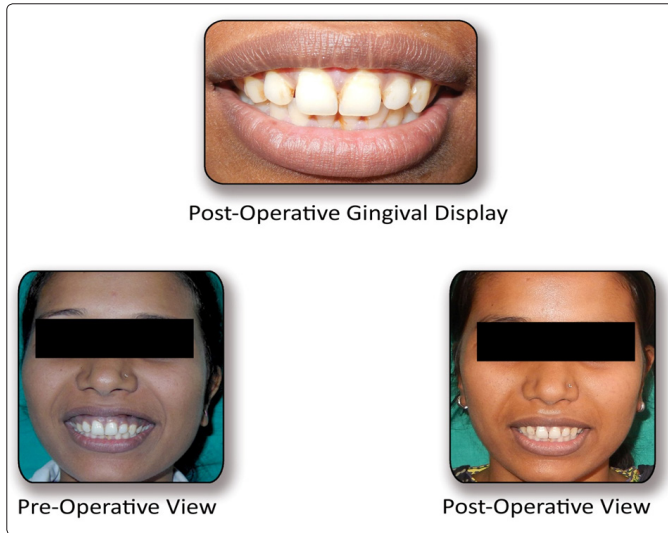
First suture given to stabilize the mid line



Initial closer of the incised area for stabilization



Complete closure by simple interrupted sutures



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