INTRODUCTION

Perfect smile is an immaculate harmony of the white and pink. Normal gingival display is 1-2 mm. Greater than 4mm display is esthetically not pleasing for most of the patients. The prevalence of excessive gingival display (EGD) ranges from 10.5 to 29% worldwide. The condition is more common in women than men. EGD has multifactorial etiology including altered passive eruption, enlarged gingiva, vertical maxillary excess, short upper lip, and hypermobile upper lip. Its management varies according to the cause and degree of gingival display during smile. Lip training exercises, gingivectomy, esthetic crown lengthening, lip repositioning, and orthognathic surgery are done to address the condition.

The objective of this case series is to show the utility of lip repositioning to treat mild to moderate gummy smile.

CASE REPORT

Case 1: An 18-year female patient reported to the outpatient department with the presenting complaint of excessive gingival display while smiling. Extraoral examination revealed increased lower thirds of the face in comparison to the other thirds. Intraoral examination showed normal crown length and width, healthy gingiva, and satisfactory oral hygiene. An EGD of 6 mm extending from left second maxillary premolar to right second maxillary premolar was observed (Figure 1). Patient was referred to the orthodontics department for further evaluation. Lateral cephalometric analysis, study model evaluation, and photographs revealed vertical maxillary excess (VME). Patient was given two options: orthognathic surgery and lip repositioning. She was explained surgical procedures, their perceived benefits, associated complications, and cost. She opted for lip repositioning of the upper lip. Informed consent was taken and basic laboratory investigations like complete blood count (CBC) was done. Complete extraoral and intraoral disinfection was carried out and area was demarcated with the help of methylene blue (Figure 2). Local anesthesia (2% lidocaine with 1:100,000 epinephrine) was administered. First incision was made at the mucogingival line, extending from left 1st molar to right 1st molar with No.15 blade. The lateral extension of the incision was based on the horizontal extent of the dynamic smile. Lip training exercises, gingivectomy, esthetic crown lengthening, lip repositioning, and orthognathic surgery are done to address the condition.

The objective of this case series is to show the utility of lip repositioning to treat mild to moderate gummy smile.

Case 2: A 23-year lady presented to our institute with the major complaint of unaesthetic smile due to EGD. In combined orthosurgery conference based on all the investigations, a diagnosis of EGD due to a vertical bony maxillary excess degree 2 (6 mm) was made (Figure 5). Patient was prescribed antibiotics and pain-killer for 5 days. Patient complained of mild pain and feeling of tension on upper lip, which improved in one week’s time. At 6 months follow-up, there was no complaint and the patient was satisfied.

Rapid and Promising Technique to Treat Gummy Smile – Lip Repositioning

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ABSTRACT

Beautiful smile is a booster to person’s confidence. Gummy smile is a term used for excessive gingival display (EGD). Its etiology is multifactorial. Bone vertical maxillary excess (VME) is one of the cause of EGD. In this case series, lip repositioning was performed to treat mild to moderate degree of gingival display (2 to 8 mm) due to VME. Lip repositioning is simple, promising, meticulous and comparatively cheap alternative technique for treating gummy smile.


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procedure as she was getting married in a month. Technique, as described above, was performed after informed consent (Figure 6).

Case 3: A 35-year female was referred to surgery department from the orthodontics department with the presenting complaint of EGD (4mm) while smiling. Her clinical and orthodontics records were suggestive of EGD due to VME. She was already undergoing orthodontics treatment since last two years. After obtaining informed consent, lip repositioning was performed.

DISCUSSION
Harmony and symmetry is the essence of nature’s beauty and any element that violates it, should be rectified timely. The modern day technique of lip repositioning was described by Monish Bhola et al. The relationship between the lower border of the upper lip and the gingival margin of the maxillary incisors have been used to categorize smile as low, medium or high. Kokich et al. reported 4mm gingiva to lip distance as unattractive by laypersons and 2mm by orthodontists. Bony VME short upper lip and hypermobile upper lip are common extraoral causes. Delayed (passive) eruption of teeth and any condition causing excessive gingival enlargement are included in intraoral etiology. Treatment modalities vary according to the cause. Gingivectomy, apically repositioned flap, and osseous reduction are done for altered passive eruption. Likewise for gingival enlargement, oral hygiene measures, gingivectomy, gingivoplasty and alteration in medication regimen are suggested. Lip training exercises are done for deficient upper lip length while in cases of hypermobile upper lip, lip repositioning, botulinum toxin type A injections are given. In this case series, the utility of lip repositioning technique to treat one of the causes of EGD, i.e. vertical bony maxillary excess is discussed. VME is diagnosed when the lower thirds of the face is longer than the remaining thirds. Garber and Salama proposed a classification system based on degree of gingival display. For degree 1 (2 to 4mm display) lip repositioning, esthetic crown lengthening, and botox were suggested; while for moderate display degree 2 (4 to 8 mm) lip stabilization or orthognathic surgery and for severe EGD degree 3 (> 8mm) only orthognathic surgery, is recommended. Lip repositioning reduces the mild to moderate gingival display by removing a partial thickness strip of mucosa from the maxillary buccal vestibule and suturing the lip mucosa to the mucogingival line. This limits the pull of the elevator smile muscles (zygomaticus minor, levator anguli oris, orbicularis oris and levator labii superioris), resulting in a narrow vestibule.

The merits of this technique are its simplicity, effectiveness, minimal armamentarium, less time consuming, less invasive, economical, not requiring hospitalization, easy to perform with excellent results and patient’s satisfaction. The most severe reported complication is mucocele formation which did not occur in any of our
cases at three months follow-up. Contraindications include inadequate width of keratinized gingiva in maxillary anterior segment and patients with severe VME (< 8 mm).

A technique similar to lip repositioning was originally coined by Rubinstein and Kostianovsky in 1973 to address the gummy smile. Later, many modifications were done by different researchers. Silva et al. in 2012 reported successful management of EGD in his study of 13 patients with a modified lip repositioning technique. Subjects were satisfied with their postoperative smile (92%).

Similar results were obtained in previous case reports by Rosenbaltt, Simon, and Humayun et al. who achieved approximately 4 mm of reduction in gummy smile. Jacobs et al. in 2013 reported a case series where 7 patients were successfully managed with trial, and then definitive procedure, likewise. Results of all these studies are in accordance with our study. The main limitation of our study was its small sample size. Further studies are required in this respect.

Lip repositioning procedure is an effective, rapid and less aggressive treatment for mild to moderate degree of excessive gingival display, in comparison to other procedures performed; but its long-term stability is still the topic of debate.

REFERENCES