Case Report

JRAD Journal of Research and Advancement in Dentistry

J Res Adv Dent 2021;11:2s:338-341.

Lip Repositioning: A Simple Change in Smile

Jeyashree Jeyachandran[1*] Mancy Modi[2] Devanand Shetty[3] Poonam Rai[4] Vrushali Bhior[5]

[1]PG Student, Department of Periodontology and Implantology, D.Y. Patil School of Dentistry, Navi Mumbai, Maharashtra, India.
[2]Associate Professor, Department of Periodontology and Implantology, D.Y. Patil School of Dentistry, Navi Mumbai, Maharashtra, India.
[3]Professor and Head, Department of Periodontology and Implantology, D.Y. Patil School of Dentistry, Navi Mumbai, Maharashtra, India.
[4]Professor, Department of Periodontology and Implantology, D.Y. Patil School of Dentistry, Navi Mumbai, Maharashtra, India.
[5]Assistant Professor, Department of Periodontology and Implantology, D.Y. Patil School of Dentistry, Navi Mumbai, Maharashtra, India.

ABSTRACT

Background: Excessive gingival display, commonly referred to as 'gummy smile' is a major hurdle in overall personality of an individual. Gummy smile, secondary to altered passive eruption and tooth malpositioning, can be predictably treated with surgery and orthodontic therapy. Many techniques have been used to restore the dento-gingival relation for the management of gummy smile. Lip repositioning is a conservative surgical technique used to treat excess gingival display. This technique was designed to be shorter, less aggressive and to have fewer postoperative complications compared to orthognathic surgery. In the current case report presents a patient who was successfully managed with lip repositioning. The aim of this article is to describe the lip repositioning technique to decrease gummy smile by a simple surgical procedure.

Keywords: Lip repositioning, Esthetics, Gummy smile, periodontal surgery.

INTRODUCTION

A beautiful smile is due to the harmonious relationship between the components of the oral cavity such as (i) lips (ii) teeth, and (iii) gingiva. "Gummy smile" (GS) has been described as the visibility of excessive amount of gingiva during smiling.[1] Excessive gingival display (EGD), commonly termed gummy smile, is a condition characterized by an overexposure of the maxillary gingiva while smiling [2]. It is distinguished by showing more than 1.5-2 mm of the gingiva [3]. The amount of discrepancy considered unattractive varies between populations; however, an excess of more than 3 mm is agreed upon worldwide [4]. The objective of lip repositioning is to limit the retraction of elevator smile muscles. Lip repositioning results in shallow vestibule restricting the muscle pull thereby limiting the gingival display during smiling.[5] Lip repositioning procedure was first described in 1973 by Rubinstein and Kostianovsky as part of medical plastic surgery. Later on, it was introduced in dentistry, after being modified in 2006 by Rosenblatt and Simon. It is a conservative permanent surgical technique that offers a less invasive approach to EGD.[4]

The average length of the upper lip is about 20–22 mm in young females and 22–24 mm in young males, and GS has been associated with a short upper lip.[5] HUL also results in GS that is due to the hyperactivity of the elevator muscles of the lip.[6] The diagnosis of hypermobility of upper lip is usually made when there is normal upper-lip length and equal facial thirds. Some case reports have suggested that injection of botulinum toxin (botox) can be effective in the treatment of hypermobility of the upper lips. Another minimally invasive minor surgical technique for the correction of GS is lip repositioning. It can limit the retraction of the elevator muscles of the lip and results in a shallow vestibule, hampering the muscle pull, thereby obscuring the excessive gingival display during smiling.

Received: Nov. 21, 2020: **Accepted**: Feb. 3, 2021
*Correspondence Dr. Jeyashree Jeyachandran.
Department of Periodontology and Implantology, D.Y. Patil School of Dentistry, Navi Mumbai, Maharashtra, India.
Email: jeyashreemvm@gmail.com

pISSN 2278-0076
eISSN 2321-9270

CASE REPORT

A 20-year-old male patient reported to the Department of Periodontology and Implantology, D.Y.Patil School of Dentistry with the chief complaint of excessive display of gums while smiling. There were no significant medical or family history and the patient presented with no medical conditions that could contradict the surgical procedure On extra oral examination, the facial symmetrical. However, the high lip line was noted during smiling, which presented with a moderate gingival display. Intraorally, a moderate gingival display was seen during smiling, which extended from maxillary right first molar to maxillary left first molar.It was also observed that patient had deep bite for which orthodontic consultaion was done. Orthodontist advised to go for correction of deep bite which may also improve gummy smile. But the patient was unwilling for orthodontic therapy. So Lip Repositioning procedure was planned. Measurements such as gingival display, while forced smiling and the upper vermillion lip length were recorded with UNC calibrated probe. There was a 6 mm of gingival display on forced smiling and 7 mm of upper vermillion lip length. According to *Ackerman et al* smile index it was classified as type 3 smile line.

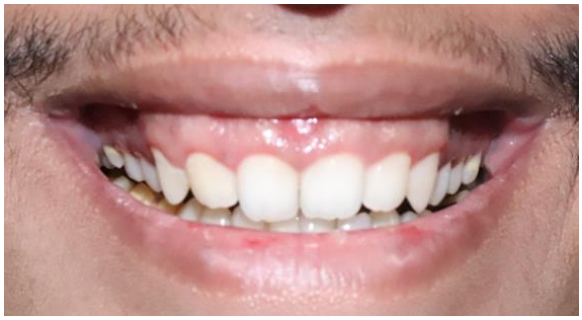

Fig 1: Pre-operative smile view.

Aim of the technique

Lip repositioning is a surgical method to correct gummy smile by limiting the retraction of the elevator smile muscles (e.g., zygomaticus minor, levator anguli oris, orbicularis oris, and levator labi superioris).

Surgical procedure

First, adequate local anesthesia (2% lidocaine with 1:200,000 epinephrine) was administered. As per the lip repositioning technique, an elliptical incision in the depth of the vestibule was given. An eosin pencil marker was used to outline the borders of the elliptical incision. The 1st incision (inferior border) of the elliptical design was placed at the mucogingival junction and was extended from the mesial aspect of the maxillary right first premolar to maxillary left first premolar. At a vertical distance of 8-10mm, 2nd incision (superior border) was given in a similar way. As a general rule, it has been suggested that the distance between the superior and inferior borders must be twice the length of repositioning desired in the smile. Partial-thickness incisions were made using a scalpel across the superior and then the inferior border. The outlined mucosa is removed by partial thickness dissection, exposing the underlying connective tissue. The frenum was also completely removed. The area was approximated with a continuous interrupted suture to ensure symmetry and proper midline placement. Care was taken to avoid any tension on the upper lip while suturing. The remaining closure bilaterally was completed with interrupted sutures to stabilize the new mucosal margin to the gingiva. Resorbable (chromic gut) sutures were used (4-0).

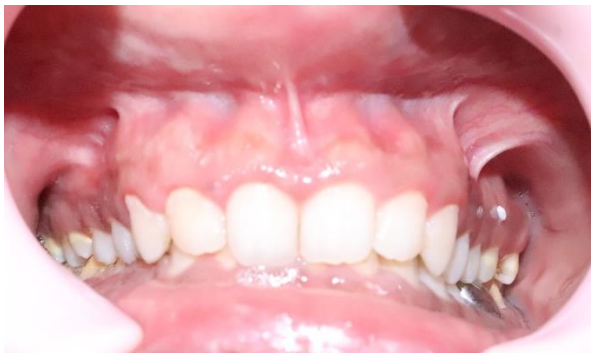

Fig 2: Pre-operative picture

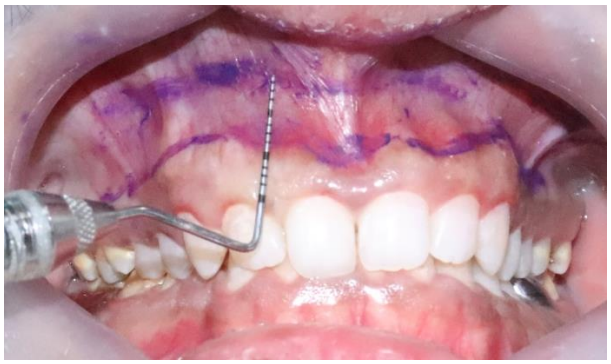

Fig 3: Markings with eosin for incision line.

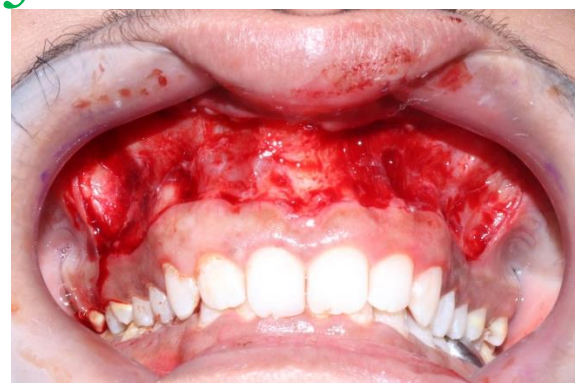

Fig 4: Superficial incision and frenectomy.

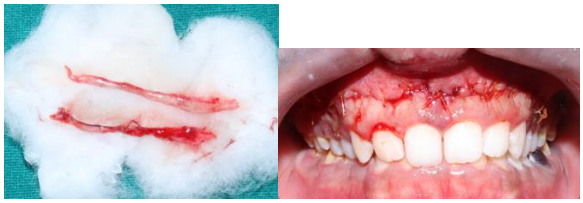

Fig 5: Incision closed using continuous sutures.

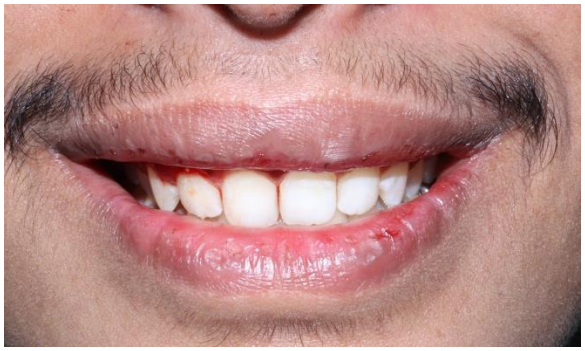

Fig 6: Immediate post-operative smile view .

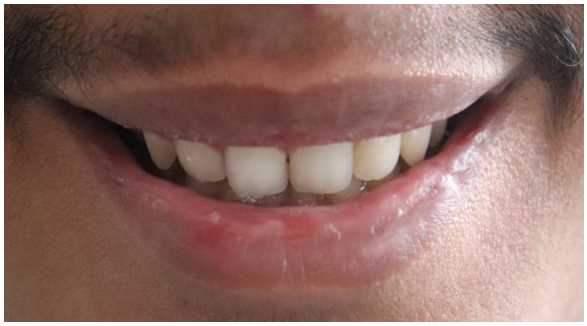

Fig 7: 2 Months post operative smile view.

Postoperative instructions

Prescriptions for analgesics and chlorhexidine gluconate 0.12% twice daily for 2 weeks was given. Patient was instructed to apply ice packs at 20 minute intervals for 24 hours and soft diet during the first postoperative week. Oral hygiene can be reinstated after 48 hours. Additional instructions include avoiding any manipulation or mechanical trauma to the surgery and minimizing lip movements when smiling or talking the first 2 weeks postoperatively.

RESULTS

Following are the observations from the evaluation of the patient's postoperative discomfort using a visual analog scale (VAS), ranging from 1 for 'no pain' to 10 for 'pain as bad as could possibly be' :

DAYS	SCORE
1st day	8
3rd day	5
10th day	2
14th day	0

The smile line was again measured and it was found that there was an improvement of 3-4 mm of reduction of gummy smile from the surgery.

DISCUSSION

Lip repositioning has gained a lot of impetus over the recent years after its inception in 1983 by *Miskinyar* who treated patients with myectomy and partial resection of one or both of the levator labii superioris muscles. This has become a chosen treatment modality because of the shorter, less aggressive approach, and it is shown to have lesser postoperative complications when compared to orthognathic surgery. A systematic review by *Tawfiq et al*. on the use of lip repositioning for the treatment of excessive gingival display collated evidence from 22 articles which were mostly case reports, and it observed that there was a mean improvement of 3.4 mm with the use of lip-repositioning technique.[4]

Jacobs and Jacobs in 2013 observed the results in seven patients who underwent lip repositioning and found that there was a mean reduction of gingival display of 6.4 ± 1.5 mm in those patients.[8] Similarly, *Ribeiro-Júnior et al*. in 2013 also reported a significant improvement in the gingival exposure in two patients following modified lip-repositioning surgery and a satisfactory esthetic outcome in the 6-month follow-up[8]*Farista et al*. observed that a combination of laser-assisted crown lengthening with lip-

repositioning surgery where gingival contouring was done to correct the gingival asymmetry showed satisfactory esthetic outcome only at 6-month follow-up, but there was a mild recurrence at the 1-year follow-up.[9]

Lip repositioning has gained a lot of impetus over the recent years after its inception in 1983 by *Miskinyar* who treated patients with myectomy and partial resection of one or both of the levator labii superioris muscles.[6] This has become a chosen treatment modality because of the shorter, less aggressive approach, and it is shown to have lesser postoperative complications when compared to orthognathic surgery. A systematic review by *Tawfiq et al*. on the use of lip repositioning for the treatment of excessive gingival display collated evidence from 22 articles which were mostly case reports, and it observed that there was a mean improvement of 3.4 mm with the use of lip-repositioning technique.[9]

CONCLUSION

Lip repositioning has its unique approach to correct gummy smile. It favours clinicians and patients due to its less invasive approach and minimal postoperative complications. This case report shows the esthetically enhanced smile in a patient who underwent lip-repositioning surgery. With due consideration of these results, lip repositioning is a promising and patient-friendly approach to the correction of gummy smile.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

REFERENCES

1. Esthetic lip repositioning: A cosmetic approach for correction of gummy smile – A case series Ramesh Asha, Vellayappan Radha, Ravi Sheethalan, Gurumoorthy Kaarthikeyan
2. Gabrić Pandurić D, Blasković M, Brozović J, Sušić M. Surgical treatment of excessive gingival display using lip repositioning technique and laser gingivectomy as an alternative to orthognathic surgery. J Oral Maxillofac Surg. 2014;72:4041–4051.
3. Tawfik OK, El-Nahass HE, Shipman P, Looney SW, Cutler CW, Brunner M. Lip repositioning for the treatment of excess gingival display: A systematic review. J Esthet Restor Dent. 2018;30:101–112.
4. Ribeiro-Júnior NV, Campos TV, Rodrigues JG, Martins TM, Silva CO. Treatment of excessive gingival display using a modified lip repositioning technique. Int J Period Restorative Dent. 2013;33:309–314.
5. Dayakar MM, Gupta S, Shivananda H. Lip repositioning: An alternative cosmetic treatment for gummy smile. J Indian Soc Periodontol. 2014;18(4):520-523. doi:10.4103/0972-124X.138751
6. Singh H, Srivastava D, Sharma P, Kapoor P, Roy P. Redefining treatment of gummy smile with botox – A report of three cases. Int J Orthod Milwaukee 2014;25:63-6.
7. Mostafa D. A successful management of sever gummy smile using gingivectomy and botulinum toxin injection: A case report. Int J Surg Case Rep 2018;42:169-74.
8. Jacobs PJ, Jacobs BP. Lip repositioning with reversible trial for the management of excessive gingival display: A case series. Int J Periodontics Restorative Dent 2013;33:169-75.
9. Ribeiro-Júnior NV, Campos TV, Rodrigues JG, Martins TM, Silva CO. Treatment of excessive gingival display using a modified lip repositioning technique. Int J Periodontics Restorative Dent 2013;33:309-14.