

Correction Of Gummy Smile Due To Altered Passive Eruption: Lip Repositioning And Internal Bevel Gingivectomy - A Case Report

Dr. Aakriti Sharma*, Dr. Sanjeev Sharma**

*MDS, Department Of Periodontics & Implantology, ITS Dental College, Greater Noida, Uttar Pradesh,

**Senior Lecturer, Department Of Orthodontics, Inderprastha Dental College, Uttar Pradesh

Abstract: A gummy smile can occur due to: a short upper lip, excessive wear of the teeth due to grinding, vertical maxillary excess or altered passive eruption. Altered passive eruption results in a large portion of the anatomic crown remains covered by the gingiva resulting in a squarish tooth shape. **Aim & Objectives:** The case report aims to demonstrate the use of perioplastic surgical modalities like lip repositioning along with gingivectomy to treat gummy smile due to altered passive eruption. **Inference:** These perioplastic procedures lead to predictable outcomes in the treatment of altered passive eruption /gummy smile. **Clinical Significance:** A careful preoperative planning is required for the postsurgical stability of gingival margins. [Sharma A Natl J Integr Res Med, 2020; 11(4):84-87]

Key Words: Altered passive eruption, Gummy smile, Internal bevel gingivectomy, Lip repositioning.

Author for correspondence: Dr. Aakriti Sharma, MDS, Department Of Periodontics & Implantology, I.T.S. Dental College, Hospital And Research Centre, Knowledge Park III ; Greater Noida, Uttar Pradesh- 201308 E-Mail: aakriti8911@gmail.com Mobile:9811533651

Introduction: A pleasant smile has always been considered a symbol of beauty and wellbeing. A gingival display of 2-3 mm is considered acceptable, but more than 3 mm is referred to as “gummy smile”¹. A gummy smile can occur due to: a short upper lip, excessive wear of the teeth due to grinding, vertical maxillary excess or altered passive eruption. The correlation of facial Symmetry, lip length, profile, smile line should be necessarily evaluated². A thorough dento-gingival analysis of the area framed by lips needs to be done during smile design. When possible, a harmony needs to be achieved between the amount of teeth and gingiva visible, to avoid the over-dominance of one element.

Next, an intra-oral examination should be conducted, combining clinical and radiographic observations. The condition and dimensions of the teeth should be determined, including caries, fractures and pulpal pathoses.

During the correction of marginal gingiva for the management of gummy smile, by altering the incisogingival length and mesiodistal width of the periodontal tissues in the anterior maxillary region, the crown-lengthening procedure may build a harmonious appearance and improve the symmetry of the tissues.³ however, care should be taken not to violate the biological width^{1,4}.

Methods of lengthening the crown include gingivectomy; apically positioned flap; apically positioned flap with bone reduction⁵.

It is the biotype of periodontium which dictates the treatment of choice⁴: In case of thin

periodontium with sufficient width of attached gingiva, gingivectomy is warranted while short width of attached gingiva is present, apically positioned flap is recommended and apically positioned flap with osteoplasty is requisited in case of thick periodontium.

Altered passive eruption results in a large portion of the anatomic crown remains covered by the gingiva resulting in a tooth shape that is square instead of the more attractive ovoid form. The excess soft tissue tends to be displayed below the inferior border of the upper lip, complicating the desired relationship in that it makes a potentially medium lip line into a high lip line⁶. Altered passive eruption has been classified into two distinct types⁶.

In type I, there is typically an excessive amount of gingiva, as measured from the free gingival margin to the mucogingival junction.

In type II, there is a normal dimension of gingiva when measured from the free gingival margin to the mucogingival junction. Although these might appear to be clinically similar in that there is tissue extended over the coronal portion of the tooth, therapeutically the diagnosis between the two types is essential to determine the appropriate treatment modality.

Type I can be further subdivided on an anatomical histological basis into sub-categories A and B depending on the relationship of the osseous crest to the cemento-enamel junction of the tooth. In subcategory A, the dimension between the level of the cemento-enamel

junction and the osseous crest is greater than 1 mm, which is sufficient for the insertion of the connective tissue fibrous attachment component of the biological width.

In subcategory B, detected by the process of bone sounding via the sulcus, the osseous crest occurs in close proximity to the cemento enamel junction, thereby diminishing the space for the insertion of the connective tissue of the biological width.

Case Report: A 23-year-old female reported to the Department of Periodontics ITS Dental College with the chief complaint of disproportionate display of teeth and complained of a gummy smile after the cessation of her orthodontic treatment (Figure 1).

Fig.1 Pretreatment Close Up Of Smile With Excessive Gingival Display



On examination, it was found that the patient had an Angles class II div 2 occlusion with a short upper lip, maxillary prominence and a gummy smile before orthodontic treatment. Also the teeth were found to be hypo plastic. She had got 22 extracted (peg laterals) prior to orthodontic treatment while 12 was reported to be congenitally missing.

Patient underwent orthodontic treatment for alignment of teeth with space closure. Patient was wearing lingually bonded retainers in anteriors of both the arches. It was observed that the resultant profile had a Type I altered passive eruption in relation to the maxillary anterior teeth giving it the “gummy smile” appearance.

Interpupillary line and commissural line were taken up as key horizontal lines for esthetic evaluation. Parallelism of these horizontal lines was paramount for achieving pleasing esthetics and to rule out occlusal canting. The philtrum of lip referenced as the facial midline and interdental papilla between the central incisors determined the true dental midline. Lip repositioning was done in apical direction with Diode laser (Zolar Diode) (Figure 2 & 3).

Fig.2 Lip Repositioning Done With Diode Laser



Fig.3 Altered Position Of Muscle Attachments On Lips After 3 Months With Increased Non Keratinized Attached Gingiva



The patient was subsequently recalled after 4 months and a triad stent of polyvinylchloride sheet (1 mm thickness) was made. Keeping the apex of the gingival height of contour on the anterior teeth as follows: central incisor: at distal third, and (laterals missing) cuspids –at centre were marked on the photograph and diagnostic cast, the markings were transferred onto the PVC stent and mock up was done (Figure 4).

Fig.4 Mock Up With PV Sheet Stent



Internal bevel gingivectomy was carried out to decrease the gingival display & increase the length of the tooth keeping the width to length ratio at 4:5 while no alteration in the biological width was made (Figure 5, 6&7). Ceramic laminates were planned to improve the color and texture of the hypo plastic teeth.

Fig.5 Internal Bevel Gingivectomy



Fig 6. Crown Exposure After Gingivectomy



Fig 7. Pre Treatment Smile



Fig 7. Post-Treatment Smile



Discussion: The essentials of a smile involve the relationships between the three primary components: teeth, lip framework and the gingival scaffold⁷.

This clinical report describes the use of lip repositioning for the reduction of excessive gingival display. The objective was to minimize the gingival display by limiting the retraction of the elevator smile muscles (eg. zygomaticus minor, levator anguli, orbicularis oris and levator labii superioris). This was accomplished by removing a strip of mucosa from the maxillary buccal vestibule and creating a partial thickness flap between the mucogingival junction and the upper lip musculature⁸.

However, an irregular gingival arrangement still persisted; which despite being healthy, struck a discordant note, and it became desirable to establish a certain harmony and continuity of form to the free gingival margin. The gingival architecture of the two central incisors needed to mimic one another, for lateral incisors, gingival margins should be somewhat more incisally placed and in cuspids, it should be at the same level of the central incisors and symmetrical

bilaterally^{9,10}. Periodontic Plastic procedures, such as the basic gingivectomy, soft tissue grafting or the apically positioned flap, may be used to change the silhouette form of teeth and relocate the gingival margins.

The present case depicted an altered passive eruption type I- A exhibiting short, square-looking teeth and a vast expanse of gingiva below the inferior border of the upper lip. The tissue was removed cervically in order not to compromise the interdental papillae with the help of internal bevel gingivectomy with scalpel.

Conclusion: This case report showed that perioplastic procedures like lip repositioning along with gingivectomy leads to predictable outcomes in the treatment of altered passive eruption /gummy smile..

Clinical Significance: The gingiva acts as the frame for the teeth; thus, the esthetic success is greatly affected by the gingival health and it is of paramount importance to establish the correct gingival levels for each individual tooth and a careful preoperative planning is required for the postsurgical stability of gingival margins.

References:

1. Narayan S, Narayan TV, Jacob PC. Correction of gummy smile: A report of two cases. J Indian Soc Periodontol 15:421-4, 2011.
2. Vellayappan R, Varghese SS. Periodontal approach to improve Aesthetics : A Case Report. J Med Biomed Appl Sciences 2017;5(3): 111-113.
3. Wennstrom JL, Pini Prato GP. Mucogingival therapy-periodontal plastic surgery. Clinical Periodontology and Implant Dentistry. 4th ed. Munksgaard Intl. Pub.; 2003. Chap. 27. p. 625-628.
4. Garguilo AW. Dimensions and relationships of the dentogingival junction in humans. J Periodontol 1961; 32:261-7.
5. Planciunas L, Puriene A, Mackeviciene G. Surgical lengthening of the clinical tooth crown. Stomatologija. 2006;8(3):88-95.
6. Coslet JG, Vanarsdall RL, Weisgold A. Diagnosis and classification of delayed passive eruption of the dento- gingival junction in the adult. Alpha Omegan 1977: 70 ;(3)24-28.
7. D.A.Garber & Salama M A, —The aesthetic smile:diagnosis and treatment, Periodontology 2000, vol. 11, no. 1, pp. 18–28, 1996.

8. Rubinstein A M , Kostianovsky A S. Cirugia estetica de la malformacio`n de la sonrisa. Pren Med Argent 1973;60:952.
9. Allen E P. Use of mucogingival surgical procedures to enhance esthetics. Dent Clin North Am 1988: 32: 307-330.
- 11.Lombardi RE. The principles of visual perception and their clinical application to denture esthetics. J Prosthet Dent 1973: 29: 358-382.

Conflict of interest: None
Funding: None
Cite this Article as: Sharma A, Sharma S. Correction Of Gummy Smile Due To Altered Passive Eruption: Lip Repositioning And Internal Bevel Gingivectomy - A Case Report. Natl J Integr Res Med 2020; Vol.11(4): 84-87