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*RESEARCH ARTICLE*

# ALTERED PASSIVE ERUPTION:A CASE REPORT

**Dr. Hira Ismail[1], Dr. Nand Lal[2], Dr. Shalini Kaushal[3], Dr. Anjani Kumar Pathak[4], Dr. Mohd. Aamir Khan[1] and Dr. Nehil Saran[1]**

1. Junior Resident, Department of Periodontology, Faculty of Dental Sciences, KGMU, Lucknow, U.P.
2. Professor and Head, Department of Periodontology, Faculty of Dental Sciences, KGMU, Lucknow, U.P.
3. Professor, Department of Periodontology, Faculty of Dental Sciences, KGMU, Lucknow, U.P.
4. Professor (Jr. Grade), Department of Periodontology, Faculty of Dental Sciences, KGMU, Lucknow, U.P.

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## Abstract

An esthetic smile is directly related to the alignment and contour of the gingiva. Excessive gingival exposure (gummy smile) may be the reason for an unaesthetic smile. It can be caused by various etiological factors, one such factor is altered passive eruption. We report a case of a 24-year-old female patient who came with the chief complaint of an unaesthetic smile, diagnosed with altered passive eruption along with its surgical management involving an internal bevel gingivectomy and osseous resective procedure.



## Introduction:-

A gummy smile or excessive display of gingiva while smiling and talking is one of the major esthetic concern for many patients. Allen[1] suggested a gingival display of 2 to3 mm on smiling was considered aesthetically pleasant by patients, whereas gingival exposure of more than 3 mm was discerned as unaesthetic.According to Robbins[8], five clinical situations can manifest as gingival smile/gummy smile that includes short upper lip, hypermobile upper lip, excessive upper jaw growth, dento-alveolar upper extrusion, and altered passive eruption (APE).

The altered passive eruption is also known as delayed passive eruption, retarded passive eruption, and incomplete passive eruption. According to Goldman and Cohen[6], APE is defined as the situation in which "the gingival margin in an adult tooth is located more coronal/ incisal to the cervical convexity of the crown and removed from the cemento-enamel junction (CEJ) of the tooth". It is more predominant in females (2:1)[11],occurring in an age group of 20-30 years[9].

Hereditary tendency is seen in patients with APE, another causative factor can be soft tissue inter-occlusal interference by thick and fibrotic gums during the eruptive phase. Clinical features include squarish crowns, gummy smile[10], and flattening of gingival festooning.

Based on morphology, Coslet et al. (1977)[2]classified APE, and Garber et al. (1976)[4]gave the treatment options for each type as described in Table-I.

**Table I:-** Classification and treatment of APE.

| TYPES | KERATINIZED TISSUE | CRESTAL BONE TO CEJ | TREATMENT |
|---|---|---|---|

**Corresponding Author:- Dr. Shalini Kaushal**
Address:- Professor, Department of Periodontology, Faculty of Dental Sciences, KGMU, Lucknow, U.P.

| | | | |
|---|---|---|---|
| TYPE I- A | A wide band of keratinized tissue (≥ 3 mm ) | >1.5mm | Gingivectomy |
| TYPE I- B | A wide band of keratinized tissue (≥3mm ) | <1.5mm | Gingivectomy + Bone resection **(clinical case below)** |
| TYPE II-A | A narrow band of keratinized tissue (≤2mm) | >1.5mm | Apically repositioned flap |
| TYPE II –B | A narrow band of keratinized tissue (≤2mm) | <1.5mm | Apically repositioned flap + Bone resection |

**Case Report**

A 24-year-old female patient reported with the chief complaint of an unpleasant smile and excessive display of gingiva while smiling and talking. There was no relevant dental and medical history. Clinical examination revealed fibrous, thick, bulbous, and asymmetrical contour of the gingiva with a short clinical crown height from#14 to #24 (Fig.1 and 7). On periodontal evaluation, a keratinized tissue of >5 mm and probing depth of> 4 mm was present, bone sounding revealed that the distance between the crestal bone and CEJ was <1.5 mm. Based on clinical examination a diagnosis ofCoslet Type IB was given.

Following a Non-surgical periodontal therapy (NSPT) which includes scaling and root planing and reinforcement of oral hygiene instructions, surgical intervention was planned which included an internal bevel gingivectomy (undisplaced flap) with osseous resection.Under surgical asepsis, a preprocedural rinse was performed with 0.2% Chlorhexidine Gluconate.Local anesthesia was achieved by giving a bilateral infraorbital block and a nasopalatine block.After marking the pockets with Crane-Kaplan pocket marker, an internal bevel incision was carried out apical to the bleeding points using a no.15 Bard Parker blade, extending from #14 to #24 followed by crevicular incision (Fig.2).An interdental incision was given with an Orban knife followed by removal of the gingival collar with curettes.Ultrasonic scaling was performed to remove any remaining calculus. Reflection of a full-thickness mucoperiosteal flap was done with a periosteal elevator (Fig.3). Location and the position of the CEJ with respect to the alveolar bone margin were verified. Osseous resection was done in those areas where the biological width was insufficient.Osseous resectioning and bulbous bone recontouring were performed using round carbide bur to create the new biologic width of 2 to 2.5 mm between the crest and CEJ (Fig.4). After bone recontouring the bone margin of central incisors and canine were at the same level and laterals were 1mm coronal to the level of centrals and canine (Fig.4).The flap was then sutured by vertical mattress suturing technique for better adaptation of papilla using #4-0 mersilk suture (Fig.5), followed by the placement of a periodontal Coe-pack (De Trey/ Dentsply, Konstanz, Germany).The patient was prescribed Amoxicillin 500mg + Clavulanic acid 125mg after meals thrice a day, Ibuprofen 400mg after meals twice a day, Pantoprazole 10mg before breakfast once daily for 5 days. Coe-pack and sutures were removed after 10 days. The postoperative healing was uneventful. A follow-up of the patient after one month showed healthy gingiva, teeth with increased tooth height, and a reduction in the height of the gingival exposure on smiling (Fig.6 and 7).

## Discussion:-

Altered Passive Eruption is a condition caused when the gingiva fails to move apical to the CEJ. This results in clinically short and squarish crowns, which results in an excessive display of the gums, often producing a gummy smile. Its rate of occurrence is 12%. As per recent data APE not only causes esthetic problems but is also a risk to periodontal health[5].

Coslet APE 2A, 1B and especially 2B are risk factors for periodontal health, particularly before dental treatment because of the narrow band of keratinized tissue and the absence of connective tissue insertion to the root. A statistically significant relationship between the presence of APE and acute necrotizing ulcerative gingivitis was

reported by Volchansky and Cleaton-Jones[11], arguing that a deep gingival sulcus creates the necessary anaerobic conditions for the development of this infection.Some authors reported that the excessive gingival growth impedes oral hygiene and can cause periodontal disease in individuals who already are predisposed to periodontitis.

The first step in the treatment of any disease is a correct diagnosis which involves both extra and intra-oral examination. The evaluation of the lip height, smile line, and mobility of lip is part of the extra-oral examination. If the etiology of a gummy smile is insufficient length or hypermobility of the lip, no periodontal treatment is required [3,7].The intra-oral examination involves measurement of probing depth, the width of keratinized gingiva, bone sounding. APE Type I is characterized by a wider zone of keratinized gingiva and Type II has a narrower zone of keratinized gingiva. If on bone sounding the crest to CEJ distance is more than 1.5 mm the subgroup A APE is diagnosed, if it is less than 1.5 mm subgroup B APE is diagnosed [3,7].

When the difference between the clinical and radiographic crown height is $\geq$ 3 mm the diagnosis of APE is confirmed. Also, radiographic examination helps in subgrouping of APE based on the level of alveolar bone and CEJ [7].

APE can be treated with periodontal plastic surgery, it sometimes involves prosthetic therapy and some cases may require forced orthodontic tooth eruption. According to Garber et.al.[4], periodontal plastic surgery can be performed by two therapeutic approaches including gingivectomy (with or without osteotomy) and an apically repositioned flap (with or without osteotomy). Gingivectomy is performed in Type- I cases where the keratinized gingiva is adequate and the apically repositioned flap is indicated in Type-II cases where the keratinized gingival height is insufficient. Bone resection may also be performed to maintain the biologic width where needed[4].

## Conclusion:-

Successful management of gummy smile is based on the correct diagnosis of the etiologic factors and treating it. If the etiology is periodontal that is APE, the treatment options discussed above can be used to eliminate the disease. Careful diagnosis and treatment planning enhances the surgical outcomes and can fulfill the esthetic desires of the patients.

**Figures:**

**Figure 1:-** Pre-operative photos.

**Figure 2:-** Internal bevel incision followed by crevicular incision.

**Figure 3:-** Flap reflection.

**Figure 4:-** Osseous resection.

**Figure 5:-** Vertical mattress suturing.

**Figure 6:-** Post-op 1 month.


**Figure-7:-** Pre-op and post-op measurements.

## References:-


1. Allen, E.P. (1988). Use of mucogingival surgical procedures to enhance esthetics. Dental clinics of North America, 32 2, 307-30.
2. Coslet, J. G., Vanarsdall, R., &Weisgold, A. (1977). Diagnosis and classification of delayed passive eruption of the dentogingival junction in the adult. The Alpha omegan, 70(3), 24–28.
3. Dolt, A. H., 3rd, & Robbins, J. W. (1997). Altered passive eruption: an etiology of short clinical crowns. Quintessence international (Berlin, Germany : 1985), 28(6), 363–372.
4. Garber, D. A., &Salama, M. A. (1996). The aesthetic smile: diagnosis and treatment. Periodontology 2000, 11, 18–28.https://doi.org/10.1111/j.1600-0757.1996.tb00179.x
5. Gisele Fernandes Dias et al. (2019), Gingival Overgrowth and Altered Passive Eruption in Adolescents: Literature Review and Case Report.Int J Dent & Oral Heal. 5:1, 09-12
6. Goldman, H.M. and Cohen, W. (1968) Periodontal Therapy. The CV Mosby Company, St. Louis, 80-82
7. Mele, M., Felice, P., Sharma, P., Mazzotti, C., Bellone, P., &Zucchelli, G. (2018). Esthetic treatment of altered passive eruption. Periodontology 2000, 77(1), 65–83. https://doi.org/10.1111/prd.12206
8. Robbins J. W. (1999). Differential diagnosis and treatment of excess gingival display. Practical periodontics and aesthetic dentistry: PPAD, 11(2), 265–273.
9. Silberberg, N., Goldstein, M., &Smidt, A. (2009). Excessive gingival display--etiology, diagnosis, and treatment modalities. Quintessence international (Berlin, Germany : 1985), 40(10), 809–818.
10. Vig, R. G., &Brundo, G. C. (1978). The kinetics of anterior tooth display. The Journal of prosthetic dentistry, 39(5), 502–504. https://doi.org/10.1016/s0022-3913(78)80179-6
11. Volchansky, A., &Cleaton-jones, P. (1974). Delayed passive eruption - A predisposing factor to Vincent's Infection?