

Altered Passive Eruption: The gingivectomy Surgery as a Key to Esthetic Success

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Abstract

Altered passive eruption is a genetic or a developmental condition that affects teeth. It is characterized by short clinical crowns with gummy exposure in smiling consequential to coronal position of the gingival tissue over enamel.

In our periodontal practice, correcting gummy smile due to altered passive eruption is a prime assessment objective in agreement with patient expectations. The appropriate treatment is selected after clinical and radiographic examination. Gingivectomy is one of the optimal forms of therapeutic procedure to harmonize teeth shape and reconstruct the gingival aspect.

The present study aims to describe the clinical and radiographic diagnostic features of altered passive eruption in A 33-year-old woman patient along with the periodontal management looking for the good option leading to the most functionally attractive and well-balanced smile.

Keywords: Altered Passive Eruption, Gummy Smile, Gingivectomy, Cemento-Enamel Junction, Crown, Esthetics

Introduction

Tooth eruption is a physiologic process in which teeth move from their development site in alveolar bone to the oral cavity. This process consists of two phases, active and passive. During the passive eruption step, the gingival tissue migrates in the apical direction exposing gradually the crown of tooth [1]. Its disturbance causes the altered passive eruption (APE).

APE is a developmental deformity characterized by short clinical crowns with gummy exposure in smiling resulting from the coronal position of the gingival tissue over enamel, in relation to its final position on the Cemento-enamel junction (CEJ) [2]. Several factors have been incriminated such as interocclusal interference on the part of soft tissues during the eruptive phase, the presence of thick and fibrotic gums that tend to migrate more slowly during the passive phase than fine gingival tissue and even a certain hereditary tendency in families with individuals presenting APE [3, 4].

In This case, we highlight the gingivectomy procedure improving aesthetic in patient with APE classified Type IA according to the last revised classification reported by Evian et al [5].

Case description

A 33-year-old woman was presented at our periodontics consultation with the chief concerns of short tooth and gingival exposure in smiling. Excessive gingival display was observed on the maxillary anterior teeth which harmed dental aesthetics (Figure1).

On Clinical examination, we noted an adequate oral hygiene without any signs of gingival inflammation and an asymmetric gingival zenith in the central and lateral incisors of the maxillary arches was detected.

Tooth evaluation revealed discrete short clinical crowns in the maxillary anterior region (Figure 2). On probing, there were pseudo pockets involving maxillary anterior teeth. The Probe depth exceeded 3 mm without any sign of gingival inflammation.

Radiographic examination, showed no bone loss. The distance from the CEJ to the alveolar crest was approximately 1.5 mm. The clinical presentation associated to the radiographic findings allowed us to retain the diagnosis of altered passive eruption type 1A.

The approval of the treatment plan and informed consent for gingivectomy were obtained from the patient.

The initial periodontal therapy including oral hygiene instructions and scaling was performed.

A week later, the patient was ready to perform conventional gingivectomy from tooth #14 to # 24. Gingival pockets have been eliminated resolving aesthetic problems (Figure 3).

In order to create physiological gingival contours and to make gums look more natural, we completed with gingivoplasty (Figure 4). Then, periodontal dressing was applied on the operated area (Figure 5) and Chlorhexidine rinses were also prescribed.

The patient was seen at 2 weeks postoperatively. The surgical site healed completely without any post operative pain reported. We observed an increase of the clinical crowns and an acceptable decrease of the gingival exposed area (Figure 6). The patient was very satisfied and pleased to achieve these results.



Figure 1: Photo taken at the first consultation illustrating the gummy smile



Figure 2: Altered passive eruption type 1A as diagnosis



Figure 3: Immediately after gingivectomy



Figure 4: Gingivoplasty



Figure 5: Periodontal dressing implementation



Figure 5: Gingival architecture restored 2 weeks postoperatively

Discussion

Altered passive eruption is an unesthetic short clinical crowns with gummy smile which affects the subjects psychologically.

Studies that estimate the prevalence of APE in adults are poor to date, possibly because of the lack of standard diagnostic criteria. Based on a series of 1025 patients (mean age = 24.2 ± 6.2 years) Volchansky and Cleaton-Jones recorded a 12.1% incidence of APE [6]. The same authors reported a prevalence of 12% in 237 Caucasian children aged between 6 and 16 years, mentioning that clinical crown height in the permanent teeth increased with increasing age [7].

During the periodontal examination, the analysis of the gingival display while observing the patient in both smiling and reposing appears important to consider. The dento-gingival dimensions still the best guideline for the cosmetic treatment [8, 9].

Further, an explorer can be used to determine the location and abnormalities occurring at CEJ. When the CEJ is not located in the sulcus (normal position) a diagnosis of APE can be made. This is followed by bone probing which consists in recording the distance from the free gingival margin to the alveolar crest which is approximately 3 mm in healthy unaltered gingival. This distance determines whether ostectomy will be necessary or not.

Radiographic viewing of the CEJ position can also facilitates the diagnosis of APE [10].

Optional treatment according to the periodontal surgical procedures depends on number of factors. The gingival architecture, the level of crestal bone, gingival biotype and the amount of keratinized tissue should be characterized before the final decision.

A gingivectomy is indicated when more than 3 mm of keratinized supracrestal gingival is present [1]. An apical flap with ostectomy is performed when bone levels approach the CEJ. Osseous remodeling also becomes necessary in cases where an insufficient root is exposed for a proper biologic width [10-12]. The preservation of the biologic width, which is the summation of the junctional epithelium and supracrestal connective tissue attachment, must be considered in such procedure [13].

In our Case, a young female patient complained of gummy smile. The treatment was intended to meet the desired outcome of the patient. Only gingival margin contouring (external bevel incisions) was sufficient to restore gingival acceptable architecture and minimize the gummy smile. The presence of sufficient supracrestal tissue preserves the osseous crest levels.

Conclusion

Gingivectomy may be a very successful and predictable therapeutic option to achieve smile harmony in APE, as long as, their limitations are known when the reconstruction of biologic width by flap with or without ostectomy is necessary. However meticulous preoperative diagnosis should be considered to achieve success.

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