

Gummy Smile Correction in Altered Passive Eruption Through Gingivectomy: A Report of Esthetic Crown Lengthening in Two-Cases

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Abstract

Case Report

Altered passive eruption (APE) is a developmental condition characterized by excessive gingival coverage of the anatomical crowns, resulting in short clinical crowns and compromised smile esthetics. Smile design aims to establish harmony between the teeth, gingiva, lips, and facial structures through individualized treatment planning. This case series describes the management of two female patients diagnosed with altered passive eruption. The first patient presented with bleeding gums, short clinical crowns, and an unaesthetic smile and was treated with phase I periodontal therapy followed by esthetic crown lengthening. The second patient presented with excessive gingival display associated with altered passive eruption and was managed with a combination of esthetic crown lengthening and lip repositioning surgery. Comprehensive smile analysis was performed in both cases to identify etiologic factors and formulate appropriate treatment plans. Both patients exhibited satisfactory healing, improved gingival architecture, enhanced crown proportions, and significant improvement in smile esthetics. These cases highlight the importance of accurate diagnosis, smile analysis, and individualized treatment planning in achieving predictable esthetic outcomes in patients with altered passive eruption.

Keywords: Altered passive eruption, esthetic crown lengthening, gingivectomy, lip repositioning, gummy smile, esthetic dentistry.

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INTRODUCTION

An attractive smile is an important component of facial esthetics and significantly influences an individual's self-confidence and social interactions. The appearance of a smile depends on a harmonious relationship between the teeth, gingival tissues, lips, and surrounding facial structures. Excessive gingival display and short clinical crowns are among the most common esthetic concerns encountered in contemporary dental practice [1].

The treatment of excessive gingival display should be directed toward the underlying etiology. Garber and Salama [1] proposed an etiology-based approach for the management of gummy smile, emphasizing the importance of differentiating altered passive eruption from other contributing factors such as vertical maxillary excess, dentoalveolar extrusion, hyperactive upper lip, and short upper lip. Depending on the underlying cause and severity, treatment may involve esthetic crown lengthening, orthodontic therapy, orthognathic surgery, lip repositioning, or a combination of these approaches [3-5].

Table 1: Etiology-Based Treatment Options for Excessive Gingival Display According to Garber and Salama

Etiology	Clinical Features	Treatment Option
Altered Passive Eruption	Short clinical crowns with excessive gingival coverage	Esthetic crown lengthening
Dentoalveolar Extrusion	Extruded teeth and gingival tissues	Orthodontic intrusion with or without restorative therapy
Vertical Maxillary Excess	Excessive lower facial height and severe gingival display	Orthognathic surgery (Le Fort I osteotomy)

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Hyperactive Upper Lip	Excessive lip mobility during smiling	Lip repositioning surgery or botulinum toxin injection
Short Upper Lip	Inadequate lip coverage of maxillary teeth	Lip augmentation procedures
Combination of Factors	Multiple etiologic contributors	Multidisciplinary treatment approach

Altered passive eruption (APE) is a developmental condition in which the gingival margin fails to migrate apically to its normal position following tooth eruption. As a result, excessive gingival tissue

covers a portion of the anatomical crown, leading to the appearance of short clinical crowns and compromised smile esthetics [2].

Table 2: Coslet Classification of Altered Passive Eruption and Recommended Treatment

Type	Clinical Features	Alveolar Crest Position	Recommended Treatment
Type 1A	Excessive gingival tissue, wide zone of keratinized gingiva, short clinical crowns	Alveolar crest located 1.5–2 mm apical to CEJ	Gingivectomy or soft tissue crown lengthening
Type 1B	Excessive gingival tissue, wide zone of keratinized gingiva, short clinical crowns	Alveolar crest at or near CEJ	Crown lengthening with osseous recontouring
Type 2A	Normal gingival dimension, mucogingival junction located near CEJ	Alveolar crest located 1.5–2 mm apical to CEJ	Apically positioned flap
Type 2B	Normal gingival dimension, mucogingival junction located near CEJ	Alveolar crest at or near CEJ	Apically positioned flap with osseous recontouring

Successful management of altered passive eruption requires comprehensive clinical evaluation, including assessment of tooth proportions, gingival architecture, smile line, lip dynamics, and facial esthetic characteristics. Coslet *et al.*, [2] classified altered passive eruption into four subtypes based on gingival morphology and the relationship of the alveolar crest to the cemento-enamel junction, thereby providing a framework for diagnosis and treatment planning.

The present case series describes the management of two female patients diagnosed with altered passive eruption using different treatment approaches. While the first patient was successfully treated with esthetic crown lengthening alone, the second required a combination of crown lengthening and lip repositioning surgery to achieve optimal esthetic outcomes. These cases highlight the importance of accurate diagnosis and individualized treatment planning in the management of excessive gingival display.

CASE REPORT

Written informed consent was obtained from both patients before treatment and publication of clinical photographs.

Case 1

A 28-year-old female patient presented to the Department of Periodontology with a chief complaint of



Fig a: Pre operative View



Fig b: Bleeding points marked

bleeding gums during tooth brushing for the past two years and dissatisfaction with her gummy smile. Clinical examination revealed generalized plaque-induced gingivitis, short clinical crowns, and approximately 6 mm of gingival display on smiling. short clinical crowns, and excessive gingival coverage of the maxillary anterior teeth and also short hypertonic lip. Study models, clinical photographs, and smile analysis were performed. The patient exhibited a high smile line with a consonant smile arc, where the curvature of the maxillary incisal edges followed the contour of the lower lip. Etiologic assessment based on the approach described by Garber and Salama identified altered passive eruption as the primary cause of the gummy smile. Radiographic examination revealed adequate alveolar bone support, with the alveolar crest positioned approximately 1.5–2 mm apical to the CEJ, consistent with Coslet Type IA altered passive eruption.

Following initial periodontal therapy, esthetic crown lengthening by gingivectomy was performed to expose the anatomical crowns and improve tooth proportions. To further reduce gingival display, lip repositioning surgery using the technique described by Rosenblatt and Simon⁵ was subsequently performed. Healing was satisfactory, with improved smile harmony, reduced gingival exposure, and a favorable esthetic outcome.



Fig c: External bevel gingivectomy done



Fig d: Excised gingival tissue



Fig. e: Incision was performed keeping underlying connective tissue intact



Fig. f: Excised Mucosal tissue



Fig. g: Simple continuous locking sutures placed



Fig. h: Post operative view

Case 2

A 23-year-old female patient presented with a chief complaint of excessive gingival display during smiling since childhood. Clinical examination revealed approximately 3 mm of gingival display, Study models, intraoral photographs, and smile analysis were performed. The patient exhibited a high smile line according to Tjan's classification⁷, with excessive gingival coverage of the maxillary anterior teeth and unfavorable crown proportions. Radiographic evaluation demonstrated adequate periodontal support with the

alveolar crest located approximately 1.5–2 mm apical to the CEJ, consistent with Coslet Type IA altered passive eruption.

Following phase I periodontal therapy, esthetic crown lengthening by gingivectomy was performed under local anesthesia to increase clinical crown length and establish harmonious gingival contours. Postoperative healing was uneventful, with improved crown proportions, reduced gingival display, and enhanced smile esthetics.



Fig. a: Pre operative View



Fig. b: Intra-oral Pre operative View



Fig. c: Marking done



Fig. d: Immediate Post operative view



Fig. e: Post operative view



Fig. f: Extra-oral Pre operative View

DISCUSSION

Altered passive eruption is a developmental condition characterized by excessive gingival coverage of the anatomical crowns, resulting in short clinical crowns and compromised smile esthetics [1]. Successful management depends on accurate diagnosis and identification of the underlying etiologic factors contributing to excessive gingival display [1].

In the first case, altered passive eruption was associated with increased upper lip mobility, contributing to excessive gingival display. Esthetic crown lengthening by gingivectomy successfully exposed the anatomical crowns, improved gingival contours, and established a more harmonious dentogingival relationship. To address the lip-related component of the gummy smile, lip repositioning surgery was subsequently performed. Similar favorable outcomes following crown lengthening procedures have been reported by Allen [3], who emphasized their effectiveness in improving smile esthetics and dentogingival harmony.

Rosenblatt and Simon [5] described lip repositioning as a minimally invasive surgical procedure that limits excessive superior displacement of the upper lip during smiling, thereby reducing gingival display. Subsequent studies have demonstrated favorable esthetic outcomes and high levels of patient satisfaction following this procedure [6].

The second case exhibited altered passive eruption as the primary etiologic factor. Esthetic crown lengthening alone was sufficient to improve crown proportions, establish symmetrical gingival architecture, and reduce excessive gingival display. The favorable outcome observed in this patient supports previous findings regarding the predictability of crown

lengthening procedures in the management of altered passive eruption [3].

Although both patients were diagnosed with altered passive eruption, the contributing factors and treatment requirements differed. Both patients demonstrated satisfactory healing, improved smile esthetics, and favorable clinical outcomes, supporting the effectiveness of etiology-based treatment planning in the management of excessive gingival display [1,3].

CONCLUSION

Altered passive eruption is a common cause of short clinical crowns and compromised smile esthetics. Accurate diagnosis through comprehensive smile analysis is essential for identifying contributing factors and selecting an appropriate treatment modality. Esthetic crown lengthening can effectively improve smile esthetics in patients with altered passive eruption, while adjunctive procedures such as lip repositioning may be required when excessive gingival display is associated with additional etiologic factors. Individualized smile designing provides predictable esthetic outcomes and contributes significantly to patient satisfaction.

Conflict of Interest: The authors declare no conflict of interest.

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Patient Consent

Written informed consent was obtained from both patients for treatment and publication of clinical information and photographs.

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