

Case Report

Clinical Use of GingivalStat and Block-Out Resin in Esthetic Crown Lengthening: A Case Report

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Abstract

Smile aesthetics play a fundamental role in facial harmony and in the patient's emotional self-perception. In dentistry, discrepancies in the tooth-gingiva ratio represent both clinical and aesthetic challenges. One of the most frequent causes of a gummy smile is Altered Passive Eruption (APE), a condition characterized by the incisal positioning of the gingival margin in relation to the Cementoenamel Junction (CEJ), resulting in the appearance of short clinical crowns due to excessive gingival display. Several factors may contribute to this condition, including thick gingival biotype, developmental anomalies of the alveolar bone, genetic predisposition and certain systemic disorders. The treatment of choice is clinical crown lengthening, a surgical procedure that repositions the gingival margin apically through soft tissue resection and, in many cases, controlled osseous remodeling, while always respecting the biological width. Although this technique has proven effective, one of its main limitations is gingival rebound-coronal migration of the soft tissue during the postoperative period-which can compromise the aesthetic outcome. This phenomenon is more frequent in patients with thick periodontal biotypes. To improve the stability of the gingival contour during healing, adjunctive strategies have been proposed, such as the use of temporary gingival stabilizers made from flowable resin or block-out materials.

Clinical case: A 28-year-old healthy female patient (ASA I) with no relevant medical history. After a thorough periodontal evaluation and the exclusion of active periodontal disease, she was deemed suitable for an aesthetic crown lengthening procedure. The application of a temporary gingival barrier using block-out resin as an adjunct to anterior crown lengthening yielded clinically stable results. At the 12-month follow-up, the gingival margin maintained its position without evidence of rebound or relapse, preserving a favorable aesthetic outcome.

Conclusion: The combination of aesthetic crown lengthening with the application of a temporary resin stabilizer proved to be an effective technique for maintaining gingival margin stability during the first postoperative year. However, long-term follow-up is recommended to assess soft tissue stability over time and to confirm the predictability of this therapeutic strategy.

Keywords: Case Report; Aesthetic Crown Lengthening; Soft Tissue Rebound; Gingival Margin Stability

Introduction

Smile harmony is a key component of facial aesthetics and has a direct impact on the emotional well-being of patients. In dentistry, alterations that affect the appearance of teeth and gingival tissues pose not only clinical challenges but also potential sources of aesthetic and functional dissatisfaction [1]. One of the most significant causes of a gummy smile is Altered Passive Eruption (APE), a condition that compromises both dentogingival proportion and the functionality of the stomatognathic system

[1-3]. APE was first defined by Goldman and Cohen in 1968 as a condition in which, in adults, the gingival margin is located more incisally than the cervical convexity of the tooth, deviating from the CEJ [4]. This inadequate eruption results in excessive gingival display during smiling and the appearance of unusually short clinical crowns [5]. From an etiopathogenic standpoint, several contributing factors have been proposed, including mechanical interference of soft tissues during the eruptive phase, thick and fibrotic gingiva with slow migration, genetic factors affecting periodontal development, increased alveolar bone volume impeding apical displacement of the gingival tissue and endocrine disorders that may influence the eruption timeline [2,6,7]. The treatment of choice for APE is clinical crown lengthening, a surgical technique within the scope of periodontal flap surgery, aimed at apically repositioning the gingival margin and increasing clinical crown exposure. This procedure requires the removal of soft tissue and, in many cases, controlled osseous remodeling, always preserving the biological width [8-14]. Indications for this technique include removal of subgingival caries, improved retention for prosthetic restorations, correct placement of restorative margins and correction of aesthetic discrepancies such as irregular gingival margins or excessive gingival display [2,13,15-20]. Like any surgical intervention, clinical crown lengthening may present complications. In the immediate postoperative period, common issues include pain, edema and infection. However, a critical medium-term complication is soft tissue rebound, characterized by coronal migration of the gingival margin following surgery. This phenomenon typically occurs within the first three postoperative months and can compromise the achieved aesthetic outcome. Several studies have reported a close association between gingival rebound and the patient's periodontal biotype [21-24]. Thick phenotypes are more prone to rebound, whereas thin biotypes are associated with a higher risk of recession [25]. In addition to biotype, other factors influencing gingival margin stability include variability in biological width, extent of osseous resection, bone response to surgical remodeling and the operative technique used the multitude of variables involved makes long-term outcome prediction complex and justifies the use of adjunctive strategies to promote stable and aesthetic healing. To this end, auxiliary techniques such as temporary parabolic gingival stabilizers made from flowable resins or block-out materials have been proposed. One such technique, suggested by García involves shaping the gingival contour immediately after surgery to replicate the anatomy of the CEJ, thereby guiding soft tissue healing and minimizing the risk of rebound [26]. Flap adaptation during suturing is optimized, facilitating the development of a more natural and harmonious emergence profile [26]. The present clinical case aims to document the outcomes of using the Gingistat technique as an adjunct to aesthetic crown lengthening, evaluating its impact on gingival margin stability in a patient diagnosed with altered passive eruption.

Clinical Case

A 28-year-old female patient presented to the Periodontics and Implantology Postgraduate Program at the School of Dentistry of the Universidad Juárez del Estado de Durango, seeking to improve her smile due to the perception that her teeth appeared short. The patient reported no relevant medical or familial history and was not taking any medications. Clinical examination revealed an uneven gingival margin and a wide band of keratinized gingiva, which decreased in width in the posterior regions. She exhibited a thick, scalloped periodontal phenotype with short clinical crowns from the right to the left maxillary first premolars (Fig. 1). Radiographically, there was no generalized bone loss; the trabecular pattern appeared normal, with intact lamina dura and the crestal bone at the same level as the Cementoenamel Junction (CEJ) (Fig. 2). No periodontal pockets, tooth mobility or carious lesions were observed (Fig. 3). Based on these clinical findings, a diagnosis of Altered Passive Eruption (APE) Class 1B, according to Coslet's classification, was established. Initial treatment involved Phase I periodontal therapy, including plaque control, which resulted in an O'Leary plaque index of 18%, considered acceptable [27]. Scaling and polishing were performed to preserve periodontal health. Phase II consisted of an esthetic crown lengthening procedure from the right to left maxillary first premolars. This included gingivectomy, gingivoplasty and osseous recontouring. To prevent postoperative gingival margin rebound, the Gingistat technique described by García was employed as an additional step during the surgical procedure [26].



Figure 1: Initial clinical assessment. (A) Extraoral clinical photograph shows a medium smile, well-defined nasolabial folds and asymmetrical lips; (B-D) Intraoral photographs show a wide band of keratinized gingiva with melanocyte presence, a well-defined mucogingival junction, frenula inserting below it, irregular gingival margins, short and asymmetrical clinical crowns and enamel discontinuities.

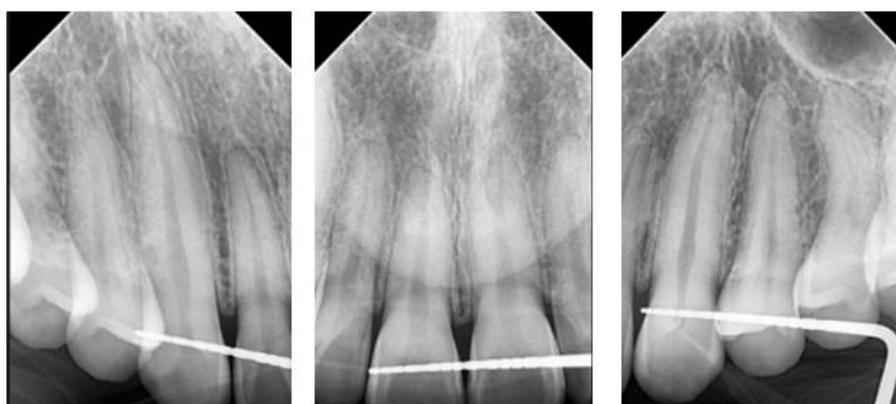


Figure 2: Radiographic assessment: Periapical radiographs show no bone loss, normal trabecular pattern and evident lamina dura.

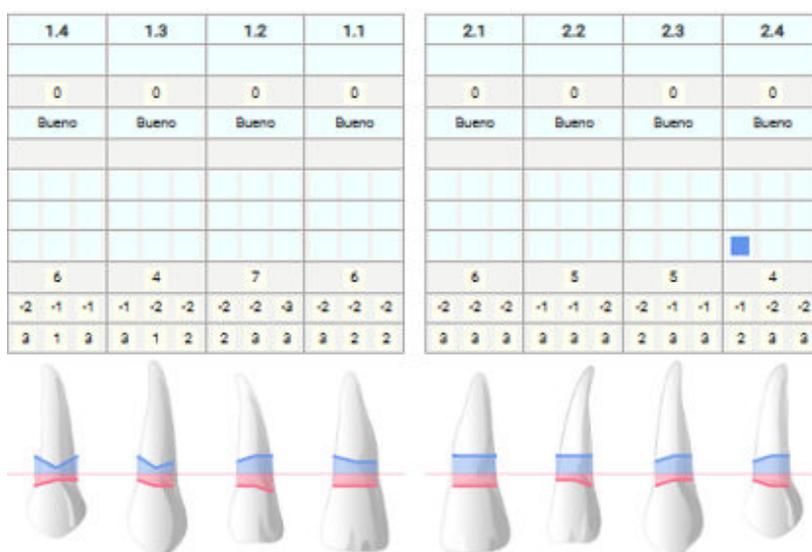


Figure 3: Periodontal charting: The initial chart revealed the absence of periodontal pockets and adequate keratinized gingiva.

Surgical Procedure

After antisepsis with 0.12% chlorhexidine (Perioxidin Lacer®) and povidone-iodine (Pharmalife®), local anesthesia was administered using 2% lidocaine with 1:100,000 epinephrine (Zeyco®) in the anterior and middle superior alveolar nerves. Reference bleeding points were marked using a North Carolina probe (Hu-Friedy®) (Fig. 4). An internal bevel incision connecting the bleeding points was made using a 15c scalpel blade (Ambiderm®) mounted on a No. 3 handle (Hu-Friedy®). Intrasulcular incisions followed to remove the gingival collar with a Gracey 7/8 curette (Hu-Friedy®) (Fig. 4). After establishing the new gingival architecture, a full-thickness buccal flap was elevated using a P20 periosteal elevator (Hu-Friedy®), exposing the crestal bone for osteotomy (Fig. 4). The osteotomy was performed using a carbide round bur on a low-speed handpiece (Fig. 4). Once the osteotomy was completed, the tooth surface was cleaned and dried. Ultradent™ LC Block-Out resin stops were placed following the CEJ contour to guide the new gingival margin and were light-cured (Fig. 4). The flap was repositioned and sutured with 5-0 vicryl (Ethicon®) using vertical mattress sutures (Fig. 4). At the 15-day postoperative appointment, some Ultradent™ LC Block-Out resin stops had displaced and sutures and resin were removed (Fig. 4).

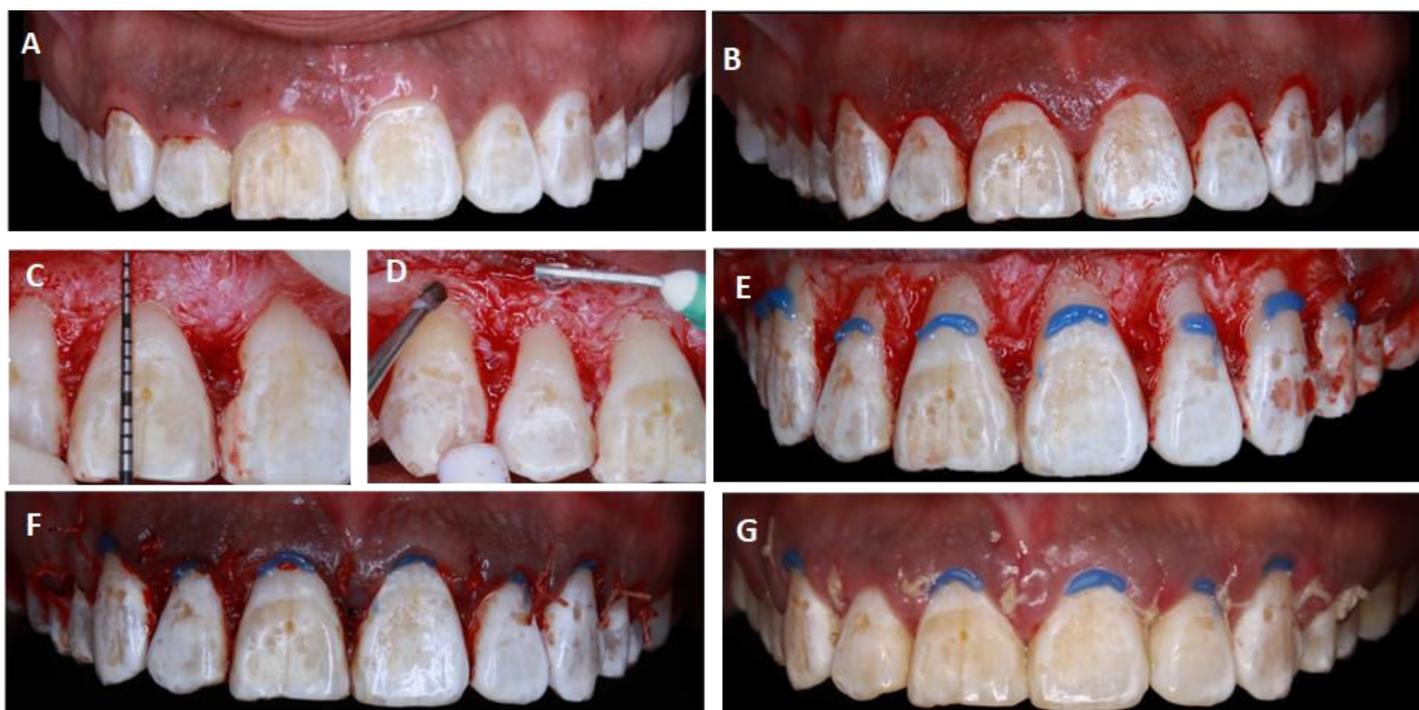


Figure 4: Surgical procedure (A) Bleeding point marking; (B) Gingival collar removal after internal bevel and intrasulcular incisions; (C) Flap elevation and measurement prior to osteotomy; (D) Osteotomy; (E) Placement of Block-Out resin stops; (F) Flap repositioning and suturing; (G) Clinical situation 15 days postoperatively.

Follow-up and Maintenance

At the 15-day postoperative check-up, signs of inflammation and minimal biofilm accumulation were noted, with the loss of the resin stop on tooth #12 at the CEJ level. Sutures were removed and oral hygiene instructions were reinforced. At the 6-month follow-up, edema, erythema and bleeding were observed at the gingival margin of teeth #12 and #11, attributed to traumatic brushing. Hygiene instructions were reinforced again and the use of a soft-bristle toothbrush was recommended (Fig. 4). At the 12-month evaluation, the gingival margin appeared stable and free of inflammation (Fig. 5).



Figure 5: Follow-up (A) Six-month postoperative follow-up; (B) Twelve-month postoperative follow-up.

Results

The technique of gingival margin remodeling using Block-Out resin as an adjunct to esthetic crown lengthening demonstrated stable gingival margins at 12 months postoperatively. Advantages of this approach include ease of handling and avoidance of secondary surgical interventions for margin correction. However, optimal plaque control and hygiene compliance are essential, as the resin stops may retain biofilm. Long-term follow-up is recommended to assess the continued stability of the clinical outcomes.

Discussion

Surgical correction of Altered Passive Eruption (APE) provides both functional and esthetic benefits, with potential psychosocial impact. As noted by Mele and others improving tooth display can enhance self-esteem, highlighting the relevance of integrating such interventions into comprehensive care [2,15]. Although Cone-Beam Computed Tomography (CBCT) offers precise diagnostic capabilities, its cost may limit accessibility. In this case, periapical radiographs using the parallel technique, as described by Zucchelli, were used [28]. A North Carolina millimeter probe replaced radiopaque markers as a simple and cost-effective alternative for differential diagnosis. Positioning the probe at the gingival margin allowed accurate measurement of the distance to the CEJ, aiding clinical assessment. One of the primary challenges following Esthetic Crown Lengthening (ECL) procedures is maintaining a stable gingival margin. Literature indicates that marginal rebound may compromise both esthetics and long-term periodontal health [29,30]. In particular, Siddhart, opted that sites with thick periodontal phenotypes are more prone to relapse, possibly due to the tissue's resistance to apical migration [21]. In this context, the GingivalStat/Block-Out technique has emerged as a valuable adjunct Garcia-Valenzuela and Chambrone, reported that its incorporation in esthetic procedures for APE not only enhances gingival contour accuracy but also supports early postoperative margin stabilization—a critical biological phase [26]. Early stabilization helps control soft tissue behavior and prevent encroachment into areas previously occupied by alveolar bone. García, further emphasized that the use of resin stops, typically applied as gingival barriers, may reduce the need for secondary surgical intervention, a significant advantage for both clinician and patient [26]. Overall, these findings highlight the importance of tailoring surgical interventions to periodontal biotype and integrating auxiliary techniques that improve predictability and safety in APE treatment.

Conclusion

At the 12-month mark, the crown lengthening technique using flowable resin or gingival barrier demonstrated satisfactory gingival margin stability. However, a well-planned treatment protocol and proper management of both hard and soft tissues are

essential. The placement of Block-Out resin must precisely follow the CEJ contour to avoid discrepancies in the final gingival margin position. In cases with thick phenotypes, as presented and when using novel techniques, long-term follow-up is recommended to monitor the stability of soft tissues.

Conflict of Interest

The authors declare that they have no conflicts of interest with the contents of the article.

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Author Contributions

All authors contributed equally for this paper.

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