Two-stage esthetic crown lengthening

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A smile that is perceived as unattractive mars confidence, sociability and self-regard. For some patients, the lack of visual appeal stems in large part from a “gummy smile,” which a layperson begins to consider disharmonious when there is 5 to 7 mm of gingiva displayed.1 Management of such a complaint often entails both periodontal and restorative therapy, if not also orthognathic surgery and facial plastic procedures.

The following report showcases two-stage esthetic crown lengthening and prosthodontic rehabilitation for the treatment of a gummy smile.

Patient history
A medically and periodontally stable 40-year-old female presented with excessive, asymmetric gingival display of 5 to 7 mm upon smiling, short clinical crowns and incisal wear from tooth #4 to #15 (Figs. 1, 2). Due to attrition and the relationship between the dentition and periodontal drape, the anterior teeth appear square-shaped and “masculine.”

Diagnoses included (1) Coslet Type IA altered passive emergence profile of the maxillary anterior teeth extending from tooth #4 to #13, and vertical incisions were made extending from tooth #4 to #15; (2) altered passive emergence profile and dental symmetry included a two-stage crown lengthening procedure followed by delivery of porcelain veneers from tooth #4 to #15.

A biphasic crown lengthening approach mini-mizes the 1 to 3 mm coronal gingival shift common after one-stage procedures detected espacially in patients with thick soft tissue biotypes (such as the patient featured in this report).5

By first reshaping only the osseous crest and letting healing commence, it is possible to correct any coronal re-bound of the soft tissue seen after healing at the second, gingivectomy-only, surgery. Once the attachment apparatus fully remodels post-gingivectomy, which takes roughly three months, final restorations may be cemented.

Restorative consult
From the diagnostic models, the patient’s prosthodontist created an ideal denal wax-up, upon which a vacuum matrix was applied to generate a surgical guide (Figs. 3, 4).

Ostectomy was performed using an Ochsneihin chisel, carbide finishing bur and Neumeyer bur to position the alveolar crest at least 5 mm from the anticipated restorative margins, as outlined by the surgical guide.

Gingivectomy (second stage)
Once the soft tissue repositioned six weeks post-ostectomy (Fig. 9), the second stage of biphasic crown lengthening of teeth #4 through #15 was executed. The patient was sedated and anestheticized as above.

A definitive external bevel gingivectomy of teeth #4 through #15 was performed with a #15 scalpel utiliz-

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In order to correct lip line asymmetry and further diminish gingival display, neuromuscular-ocular lip correction (lowering) with BTX-A was reconsidered, but the patient did not pursue treatment. Variability is often related to the presence of diagnostic overlap. Six years after veneer placement, the patient remained satisfied with the functional and aesthetic result achieved solely through periodontal surgery and prosthetic rehabilitation (Figs. 15, 14).

Postoperative instructions

After each surgical procedure, the patient was instructed to take 600 mg of ibuprofen every 4–6 hours, hydrocodone 7.5 mg/acetaminophen 750 mg every 4–6 hours as needed for pain and 100 mg of doxycycline a day for 10 days.

The patient was instructed not to brush at or near the surgical site but instead to rinse with 0.12 percent chlorhexidine or 0.05 percent sodium fluoride twice daily. The patient was also directed not to chew in the affected area for at least two weeks.


References