



Correcting a patient's 'gummy' smile with ease and predictability

Today's esthetic awareness creates new demands for anterior crown lengthening but CE and lasers can dynamically alter old methodologies

Michael DiTolla, DDS Clinical Presentation: Robert Lowe, DDS

It's not often you take a continuing education course that can fundamentally change the way you diagnose and treat one of the more common procedures in your practice, but that is exactly what happened when I went to see Dr. Bob Lowe's "Surgical Recontouring of Hard and Soft Tissue" at the Nash Institute in Charlotte, North Carolina. Dr. Lowe taught a combination hands-on/over-the-shoulder class that focused on a topic just starting to come to the forefront in esthetic dentistry: anterior crown lengthening. Using a combination hard- and soft-tissue YSGG laser (Biolase Technology), Dr. Lowe performed a live crown lengthening procedure from tooth #7 to tooth #10 on a young female patient who complained about her gummy smile. The clinical figures with this article detail that case from start to finish. After observing the surgical case, we performed the same procedure on pig jaws utilizing the hard/soft tissue laser, but it was watching the excellent live patient procedure that made this class so worthwhile. This two-day course is a must for anyone who is serious about improving the esthetics of his/her anterior all-ceramic or ceramometal restorations.

In the early days of esthetic dentistry, the majority of anterior porcelain restorations were placed without too much thought given to the surrounding gingival tissues. A patient would come to us interested in improving his or her smile and to most of us that meant improving the appearance of their teeth. Periodontal surgery, specifically crown lengthening, was thought to be strictly a posterior procedure. For decades, the gingival was thought of as a place to hide a metal margin. As we started to take and evaluate before and after photos of our anterior cases, it became clear that we not only needed to pay attention to the gingival, but that we also needed a predictable way to sculpt the tissue to achieve the optimal esthetic results desired by our patients.

The world's best looking crowns or veneers cannot make up for clinical crown lengths that are off by 1 mm on adjacent central incisors as a result of the difference in gingival crest levels. In the past, at the try-in appointment patients would often comment that one central incisor appeared to be shorter than the adjacent central incisor. Many dentists would check the length of the central incisors at the incisal edge and tell the patient that the teeth were in fact, the same length. In reality, the patient perceived the difference in the length of the clinical crowns, and before we began recontouring hard and soft tissues,

the only place to adjust the length of the tooth was at the incisal edge.

Today we realize there is much more to a pleasing esthetic smile than simply the teeth. The most stunning before and after photo cases tend to be those involving some degree of successful gingival recontouring, as in this gummy smile case. A patient who expresses dissatisfaction with his or her smile, saying their teeth are too small, may in fact be complaining of a gummy smile. It bears repeating that even a perfect set of anterior restorations cannot save an esthetic case in which the excess gingival tissue has not been adequately dealt with. On the other hand, correcting gingival height discrepancies to the ideal can make up for less than perfect veneers, for example. One of the reasons why before and after photo albums are so effective at motivating patients to accept this procedure is photos allow us to show them why gingival recontouring can make all the difference in the world.

When it becomes apparent that a substantial amount of gingival recontouring will be required to satisfy my and the patients esthetic requirements, we will often have our laboratory fabricate a tooth-colored splint that will fit onto the unprepared teeth. The cervical third of this splint shows the desired size, shape and outline of the gingival tissues, and this splint can be used as an aid in marking on the gingival tissue the size and shape of the gingivectomy. The patient can also view the splint in place to get a preview of what the longer teeth will look like when they are lengthened at the cervical margin.

There are few among us who can look back at many of our anterior cases and not see results compromised because little to no attention was paid to the gingival tissues. And while some dentists may frown upon it, I have enjoyed the few occasions in which a patient decided not to have the veneers done after having the gingival recontouring done, as the increase in the clinical crown teeth was their main treatment objective. When having your laboratory do a diagnostic wax-up for an esthetic case, be sure to communicate to them whether or not you will be altering the gingival levels, or they will be forced to increased clinical crown length solely by adding length to the incisal edges. The difference between ideally sized central incisors with minimal gingival show, and short central incisors growing from 4mm of excess gingival, can truly make all the difference in the world.

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Fig. 1

Fig. 1—Pre-op facial portrait of patient whose chief complaint is that her teeth are too short.



Fig. 2

Fig. 2—Patient also complains that she shows too much gum tissue when she smiles as well.

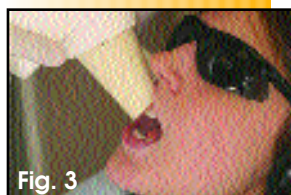


Fig. 3

Fig. 3—The X-Rite Shade Vision system is used to determine the pre-op shade of the teeth.



Fig. 4

Fig. 4—Unlike other shade systems, Shade Vision sends a color image to the laboratory technician with the shade map so the technician can see the actual tooth.



Fig. 5

Fig. 5—A pre-op measurement of the teeth confirms that the clinical crown length is inadequate.

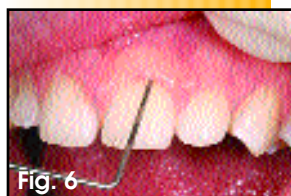


Fig. 6

Fig. 6—A periodontal probe is used to measure the depth of the existing pocket. As a result of the minimal pocket depth, it will be necessary to remove bone to establish proper biological width.



Fig. 7

Fig. 7—The proposed gingivectomy is drawn on the tissue with a marker. A lab fabricated splint can also be used to assist in marking the tissue to be removed.



Fig. 8

Fig. 8—Initial gingivectomy incisions being made with the Biolase diode laser. Note the absence of bleeding at the surgical site.



Fig. 9

osseous recontouring will take place after prep and provisionalization.



Fig. 10

Fig. 10—The clinical crown lengths are measured again to verify the desired lengths have been reached. The patient is allowed to view this initial result and give any input.



Fig. 11

Fig. 11—The veneer preparations are now accomplished utilizing standard techniques, beginning with placement of facial depth cuts.



Fig. 12

Fig. 12—The veneer preparations have now been completed. The gingival margins of the preparations are placed at level of the new gingival crest.



Fig. 13

Fig. 13—A hard bite material, Luxabite, is injected between the teeth. Unlike many polyvinylsiloxane registration materials, Luxabite exhibits no flexibility that can lead to errors.



Fig. 14

Fig. 14—A D&D Double Bite Tray (Superior Surgical & Dental Manufacturing, Inc.) was used which gives the dentist and the lab technician the best of both worlds.



Fig. 15

Fig. 15—Due to the lack of subgingival margins, no retraction cord is necessary to produce this highly accurate impression with Honigum heavy and light body.



Fig. 16

Fig. 16—Temphase bisacryl provisionals are "spot-etched" into place and a thin layer of Luxagaze is light cured onto the provisionals to enhance vitality.

Fig. 17—With the provisionals in



place the crown lengthening procedure can now begin. Intrasulcular incisions are made around the facial aspects of the teeth in order to reflect the flap.



Fig. 18—With the flap reflected it is readily apparent there is not the required 3-4 mm of biological width between the restorative margin and the osseous crest.



Fig. 19—The Waterlase from Biolase is a hard tissue laser that safely and conservatively removes and recontours osseous tissue.



Fig. 20—Osseous recontouring is finished and it is now apparent that we have the proper vertical dimension between the osseous crest and the margin of the restoration. At this point the margins of the provisionals should be finished in the mouth to insure a smooth junction to promote gingival healing.



Fig. 21—Sutures have been placed and the patient will be reappointed in 5-7 days for suture removal and a post-op check.

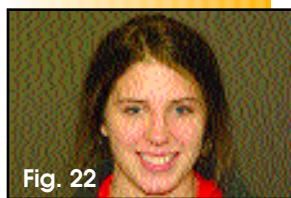


Fig. 22—Post-op portrait. It has been 7 weeks since the preparation/surgical appointment. The excess of gingival tissue visible on the pre-op portrait is now gone.

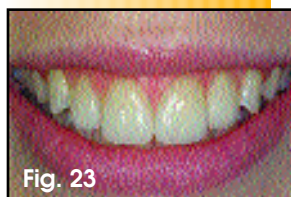


Fig. 23—A closer look at the smile shows a dramatic difference when compared to the pre-op smile close-up seen in Fig. 2.



Fig. 24—A close-up facial view of the tissues show no signs

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that any surgery took place. This type of quick, complete healing is typical of laser surgery.

Fig. 25—Extreme close-up of central incisors. Note vitality of restorations.



Fig. 26—Extreme close-up of right lateral incisor. Note the optimum gingival health.



Fig. 27—Extreme close-up of left lateral incisor. Recall that the margins were placed at the gingival crest, and even after the surgery, the gingival crest has remained in the same position as is often the case with laser surgery.

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Dr. Lowe is a magna cum laude graduate of Loyola School of Dentistry, 1982. He holds fellowships in AGD, ICD, ADI, and ACD. Currently, he is the Director of hands-on programs at the **Nash Institute for Dental Learning** and practices with Dr. Ross Nash, Co-Founder of the Nash Institute and a pioneer in the field of cosmetic dentistry in Charlotte, North Carolina.

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