The importance of gingival health in a functional cosmetic case

By Martha Cortes

Complete dentistry is the esthetic and occlusal harmonization of the teeth with the gingiva, lips and face. As dentists, we can directly affect the esthetics of the teeth and gingiva. However, we can also indirectly affect the lips and face by how we design teeth to sit in the oral cavity.

It is paramount in an esthetic case to have healthy gum tissue that enhances the beauty of a full smile makeover. The best, quickest, healthiest and most profitable way of treating gum disease is by laser therapy.

Laser Assisted New Attachment Procedure™ (LANAP) is the standard of care for periodontal laser therapy and beyond that of conventional treatment, which amputates, leading to results that can be less than desirable. LANAP is a patented soft-tissue technique specifically utilizing the Periolase® MVP-7 Nd:YAG (1064 nm wavelength) laser (Millennium Dental Technologies, Inc.) with the aim of regeneration rather than traditional resection of the gum tissue, which is done solely for pocket maintenance.

The patient, a woman in her early 60s, came to my office because she was having problems with a bridge (lower left) that had recently been replaced; she was unable to chew well. During the discussion she revealed that she was also having problems on the lower right, indicating that the problem was not local but one that involved the bite.

On further examination, it was revealed that she not only had occlusal problems, but she also had moderate periodontitis throughout with bone loss especially impacting the lower anterior. The patient had worn away her teeth and, as a result, suffered from severe malocclusion. She had large diastemas between the upper and lower centrals with little occlusal guidance. Her temporal mandibular joints demonstrated hypermobility while opening and closing. The patient also had ill-fitting porcelain fused to metal crowns on teeth #5–5 and #11, #12, #21 with metal exposure and a new zirconium bridge with flat occlusion on teeth #18–20. All prosthesis had poor color matching and flat occlusion.

The periodontitis and bone loss were partially due to a traumatic bite that improperly distributed the occlusal forces laterally rather than perpendicularly so that the loading forces were forcing the lower anterior to splay. In order to inhibit the mechanical progression of the periodontitis and bone loss, and prevent the teeth from splaying further, it was decided to completely restore the teeth to a fully functional platform. The patient was at first intimidated by the idea of a complete smile makeover, and yet she was at the same time ready for this life-changing event. The patient understood that the esthetics would be built functionally so that the occlusion, teeth, arches and periodontium would support each other and thereby help keep the entire oral cavity healthy.

Having a functionally beautiful smile not only affects a patient’s self-esteem; it also has an effect on the health of the head, neck, and body because aligned jaws might proprioceptively affect the body in space. Although the patient’s main concern was dental health, the added benefit of gorgeous esthetics appealed to her greatly.

Due to her severe malocclusion, the patient’s habitual centric bite could not be used as the guide for her smile make-over. The proper functional height for the patient’s teeth needed to be found and established. The patient had ground down her posterior teeth and much of the forces of mastication were pathologically loading on the lower anterior, causing them to splay and repetitively injuring the gingiva.

LANAP’s uniqueness allows for the prepping and placing of restorations without having to wait an inordinate amount of time for the gums to heal as the gingiva is not cut and sutured; therefore, healing is quicker and less traumatic and esthetically more pleasing.

The patient was neuromuscularly tested using the K7 Evaluation System (Myotronics) in order to determine where the bite ought to be before restoring. The patient received a fixed orthotic/occlusal device that was worn for approximately six months in order to relax the pathologic forces, arrive at the correct vertical dimension for the patient and gradually retrain the neuromuscular defects. The splint would also help to abate any negative forces affecting the gingiva.

The patient would be restored with an eye toward the correct Shim-bashi measurement and with golden proportion principles in mind. A myocentric position is derived from the orthotic, and the use of a transcutaneous electrical nerve stimulator (TENS) that erases the habitual bite and helps to create healthy neuromuscular conditions, which inhibits occlusal breakdown.

She was tested again a few months later with the K7 to evaluate the temporal mandibular/neuromuscular complex with the occlusal device determining the health of the new vertical on the entire system. At approximately four months after the mandibular trajectory was found, the upper teeth were ideally leveled with the provisionals to correct the maxillary cant by proportioning the anterior canine to canine and harmonizing them with the posterior curve of Wilson.

The patient received LANAP on all quadrants using the Periolase MVP-7 laser for pockets that were between 4–7 mm, approximately three weeks before the orthotic was fixed to the lower arch. Had this been done conventionally, the patient would have needed to wait at least three months or more for the tissue to heal. Dental lasers are site specific, biostimulative, allow for excellent hemostasis...
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years later, there is bone regeneration in the lower anteriors (a benefit of LANAP), the pockets have disappeared and the patient is enjoying occlusal health with esthetic accompaniment.

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and are intrinsically antiseptic and bactericidal on contact.

The patient received 28 units made of a pressible ceramic (IPS Empress® Esthetic Ivoclar Vivadent). The zirconium bridge was not removed as it was new, in good condition and the occlusion and stability could be added directly on to it by building it up. The patient's vertical dimension was permanently raised with the prosthetics throughout, to compensate for the collapsed occlusion. This altered the facial structure and smile by enhancing how the teeth, lips gums and face work together as a whole. Also, the patient benefited from a healthier oral cavity. Two