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 roughness 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 anteriors. 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 #31, #30, #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. It is understood that the esthetics would provide a benefit for the body to the pathologic forces, arrive at the correct vertical dimension for the patient and gradually retrain the patient and gradually retrain the neuromuscular conditions, which inhibits its occlusal breakdown.

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 its 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 provisions to correct the maxillary cant by proportioning the anterior canines 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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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 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.

Dr. Martha Cortes is a graduate from the University of New York at Buffalo School of Dental Medicine. She is the current president of the American Academy of Cosmetic Dentistry New York Chapter, as well as a past president (1994–1996) and past international chair serving consecutive terms, and an accredited member since 1992. An international lecturer and published author, Dr. Cortes has served two consecutive years as co-chair of dentistry with the American Society for Laser Medicine and Surgery and is a recognized member of the American Society of Dental Aesthetics, as well as a diplomat of the American Board of Aesthetic Dentistry and the International Dental Facial Esthetic Society and an LVI fellow. Dr. Cortes is a qualified laser educator and former examiner for laser qualifications for the Academy of Laser Dentistry, and has a mastership in laser technology through the Academy of Laser Dentistry. You may e-mail Dr. Cortes at lazersmile@aol.com.