Cosmetic Epidermal Skin Resurfacing Procedure with an Er:YAG Dental Laser

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Background

Lasers have been used in dermatology and plastic surgery for a number of years now. Various lasers have been used for surface cleaning, hair removal, skin rejuvenation and surgical excision. An interface exists between dentistry and plastic surgery, especially in the peri-oral soft tissues. A combined need is required to reconstruct not only hard tissues (teeth and bone) but also to address a growing need in soft-tissue construction, redesign and rejuvenation.

Many patients are looking not only to have their teeth reconstructed, but also a better, nicer looking, younger smile in soft tissues around their mouth.

In many cases during rehabilitation of the upper and lower jaws with implants there is a need for remodeling of the area around the lips, especially the creases created by lack of soft tissue caused by the shortage of alveolar bone. These tissues can be reconstructed partially by using dentures. There is a need for the elimination of the creases around the mouth. One option is to use filling materials such as "Restilen" to stretch the soft tissue and create a younger, fuller appearance. A new and exciting laser handpiece and procedure now enable the creation of an aesthetic, younger look with no need for dentures, allowing the patient a much improved, healthier lifestyle.

Materials and Methods

This is a method of crease elimination by resurfacing the location with the LiteTouch Er:YAG laser (Syneron Medical Ltd.), using a soft-tissue setting to perform this procedure. The aesthetic armament consists of a specialized, tipless handpiece designed to diffuse the laser spot size to approximately 2 mm in diameter. The setting shuts off the water spray supply and enables shallow soft tissue removal. This procedure is performed under direct visualization with low power settings. The setting parameters are 50 mJ at a frequency of 10 Hz in soft-tissue mode, using only air cooling, without water spray. A series of circular pulses are performed along the crease, thus removing approximately 30 microns per pulse of soft tissue. This procedure resurfaces the crease, thus eliminating it. Another option is to perform a series of diagonal incisions along the crease in 1 mm intervals. During the healing process of the incisions, the skin will tighten and the crease will be diminished. This option is indicated for deeper creases in which the resurfacing technique is not feasible. The procedure is almost painless and does not require analgesia in most cases. The same procedure also removes skin blemishes and stain tones in the same manner. Laser esthetic procedures are adjoined to laser surgery in soft and hard dental tissues.

The Laser

The LiteTouch Er:YAG laser (Syneron Medical, Ltd.) is a leader in the laser dental field. It uses a revolutionary direct delivery system method. The concept is a “laser in a handpiece” in which the laser chamber is located in the handpiece area, it eliminates the need for a delivery system and enables the laser to deliver a maximal amount of energy to the desired site without loss of energy or efficiency. This system simplifies the introduction of the laser into the oral cavity and eases its use on soft and hard dental tissues. The energy range is very flexible from 50-700 mJ and frequencies between 10-50 Hz. The laser can also be used with a variable pulse which enables increased efficiency in soft and hard tissues.

Case Report No. 1

A 56 year old female presented with several small creases on her upper lip. The patient expressed her will to eliminate those perioral creases. The examination revealed several shallow 2 cm creases perpendicular to the vermillion lip border.

The area was anesthetized using topical EMLA anesthetic cream.

Figure 1: Perioral creases present adjacent to vermillion border.

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Using the LiteTouch Er:YAG laser with an aesthetic handpiece and a special aesthetic tip providing air cooling (Figure 2), the crease was ablated (Figure 3). The laser was set to energy settings of 50 mJ at 10 Hz.

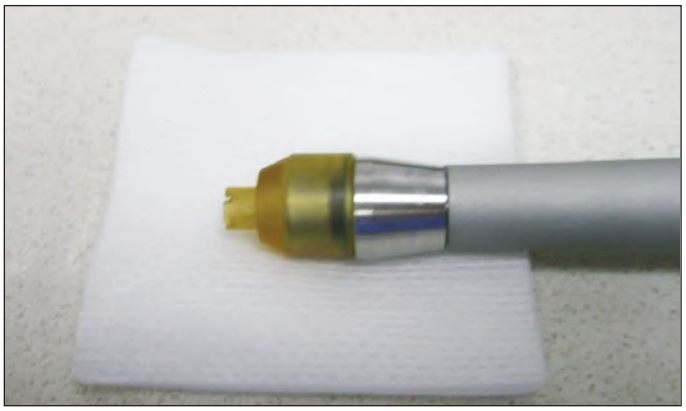

Figure 2: The LiteTouch laser aesthetic air cooled tip.

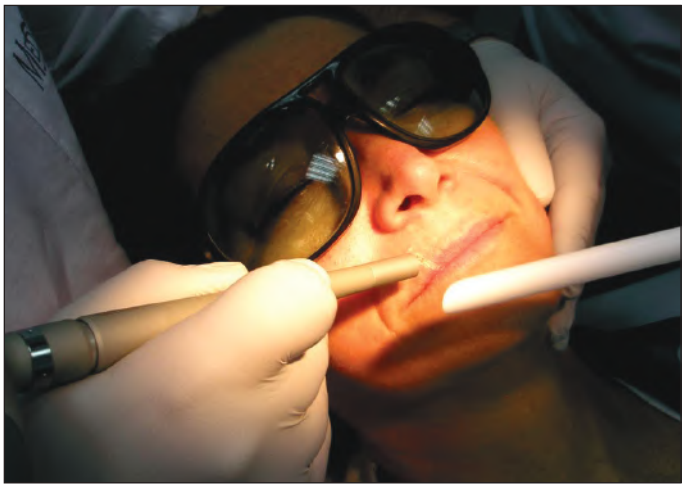

Figure 3: Crease elimination using the LiteTouch laser.

Figure 4: Immediately post-treatment. A small burn is present at the crease's location.

Following treatment, the patient was released home with instructions to avoid direct sunlight and make-up for at least 48 hours. The crease was partially healed.

At the next appointment one week later, the crease was gone completely without leaving a scar. There was no visible appearance of the crease presence and no muscular change as well as any asymmetry present.

The patient expressed her complete satisfaction with the treatment's outcome.

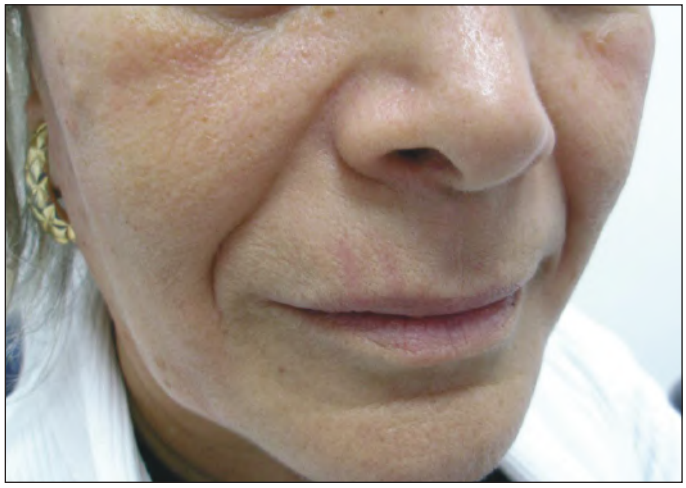

Figure 5: One week post-operative, no evidence of crease presence or of scar tissue.

CASE REPORT NO. 2

A 65 year old female patient presented with a small round lesion on her right cheek she wanted to remove. Without any anesthesia, the lesion was excised using the LiteTouch Er:YAG laser with an aesthetic handpiece at an energy setting of 50 mJ at a frequency of 10 Hz.

The healing was uneventful. The area healed without scar formation.

During treatment the patient experienced minor discomfort, but no actual pain.

Figure 6: A round, reddish lesion on the right cheek.

Figure 7: Post-operative appearance of the lesion.

CONCLUSION

The LiteTouch Er:YAG laser (Syneron Medical Ltd.) offers an easy means of crease and lesion removal in the perioral area. This tool offers a comfortable and fast alternative for both the patient and the practitioner to help create an aesthetic, pleasing perioral appearance to accompany the dental treatment.

Major Benefits:

- The results of laser resurfacing last considerably longer than with other methods of skin rejuvenation such as chemical injections, peels, etc. "Touch-up" treatments might not be necessary for several years!
- Treatment with the laser offers relatively short, pain-free healing periods of 7-10 day, leaving no surgical scars.
- The laser sterilizes the treatment site, leaving the treated area much less susceptable to post-operative trauma than other methods might. Pain or infection fighting medications are not necessary.

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Lecture topic: A revolution in Hard Tissue Laser Dentistry.

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