Treatment of Scars With Er:YAG Laser in Patients With Cleft Lip: A Preliminary Report

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Objective: **Although one goal in cleft lip surgery is to avoid serious scarring, residual scars are often observed after primary surgery. The goal of this preliminary report was to present the standardized application of laser technology to reduce the appearance of residual scars.**

Design: **Ten patients with scarring after unilateral and bilateral cleft lip surgery were treated with a Dual Mode erbium yttrium-aluminum-garnet laser. This laser was recently introduced and had been used only for cosmetic applications, skin resurfacing, and correction of acne scars.**

Results: **An improvement in the clinical appearance of the laser-treated scars was observed after the first treatment, with continued improvement after the second laser session. The clinically observed improvements were corroborated by the patients' reports concerning satisfaction with the result.**

Conclusions: **The combined mechanisms of ablation/coagulation and shrinking of the skin caused by the laser, in addition to observed patient satisfaction and low risk associated with the procedure, suggest that this treatment approach can be effective in the correction of residual scarring in patients with cleft lip.**

KEY WORDS: *cleft lip, Dual Mode Er:YAG laser, scarring*

Although one goal in cleft lip surgery is to avoid serious scarring, residual scars are often observed after primary surgery. Scars are usually termed *hypertrophic* when they develop excessive redness, elevation, widening, and stiffness (McCraw et al., 1999). The presence of serious scarring limits social interaction and affects self-esteem (Alster and Nanni, 1998). Because of these psychological implications, options for functional rehabilitation and good aesthetic results, even in cases treated with old protocols, must be considered.

In patients with cleft lip, traditional secondary treatment typically leads to further scarring. For this reason, an alternative treatment approach using laser technology was considered. The Dual Mode erbium yttrium-aluminum-garnet laser (Er:YAG) (Contour, Sciton, Palo Alto, CA; supplied by Stern Laser, Appiano, Bozen, Italy), shown in Figure 1, was recently introduced for use in cosmetic applications, skin resurfacing, and correction of acne scars. The advantage of this particular laser device is that it causes only short-term erythema compared with other types of laser treatments. It also reacts with tissue water in removing a very thin layer of tissue. Furthermore, it is a purely ablative laser, which does not heat the tissue. This laser combines ablative and coagulative functions in a sequential mode to prevent bleeding that may occur after penetration of the papillary dermis.

The current study presents the standardized application of this treatment to facial scars of patients after primary surgery for unilateral or bilateral cleft lip.

MATERIALS AND METHODS

Ten patients were treated for late postoperative scar removal with the Dual Mode Er:YAG laser. All of the patients presented with lip scars, four bilateral and six unilateral. Scar quality was evaluated using the McCraw et al. (1999) classification (see Table 1). Because there is no protocol for the treatment of secondary cleft lip facial scars with the Dual Mode Er:YAG laser, we studied the quality of the skin in each patient by using the Fitzpatrick (1993) Skin Phototype (Table 2), selecting 10 patients with similar color, texture, and thickness of skin.

The depth of each ablating pass was calculated with a computerized machine scanner, following a protocol described by Zachary (2000). Our protocol was as follows: (1) first pass = 100 micron ablation without coagulation; (2) second pass =

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