



LASERS

HISTOLOGICAL EVALUATION OF ABLATIVE LASER SKIN THERAPY AND MICRONEEDLING: A VALIDATION CASE REPORT

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Background: Striae and skin laxity are common clinical scenarios. Diverse esthetic treatment modalities are available besides surgical excision, as skin replenishing laser ablative, semi-ablative therapy and microneedling. In this report, we will discuss the validation of a histopathological model of effectiveness comparison with pre, immediate and post histopathological exam with collagenous fibers evaluation and morphometry.

Observation: We have exposed abdominal areas of striae to different modalities of treatment and documented with pre, immediate and late skin biopsies. After informed consent was obtained, a mid-aged male patient was subjected to ablative (Erbyum-Yag 2940nm 3.0 Joules/cm², AL), mechanical microneedling (MM) and Neodymium 10642nm ("laserneedling", LN) in similar areas of abdominal striae resulting from significant weight loss. Skin biopsies were obtained and stained for Hematoxylin and Eosin, Picro-Sirus, Voerhoeff and Masson Trichome. Slides were scanned and morphometry was performed in 10 random high-power fields. Morphological changes were visible on AL areas as dense diathermical artefacts; no changes were visible on other methods. All treatments resulted in epidermal changes (19.1, 53.9, 106.2 vs 42.0 and 116.0 µm in AL, MM, LN vs striae, fibrosis). The ratio of Collagen I / III was higher in AL areas (91%) vs MM (16.2%) and LN (3%). AL treatment is clinically and histologically more aggressive, from epidermal thinning to denser collagen and diathermical damage. MM and LN were histologically and clinically more tolerable. The shift in the collagen profile might be related to healing, as posterior biopsies will be performed under this model and evaluated.

Key message: This report evidences a histopathological model that can be employed to compare different esthetic treatment modalities and can be expanded to diverse procedures, as the histopathological and quantitative comparison between esthetic techniques is not an ample practice.

