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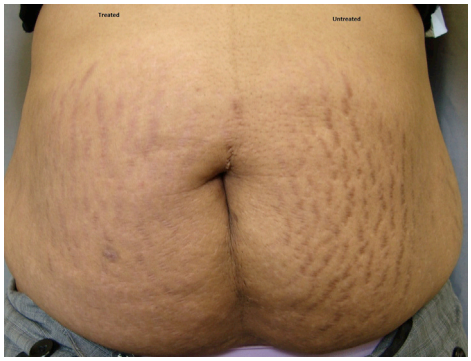

Fig 1. Clinical aspect of striae gravidarum after laser treatment. Representative image showing the difference between striae gravidarum on the treated side of the abdomen after treatment with an ablative 10,600-nm carbon dioxide fractional laser system (*right side*) and striae gravidarum on the untreated side (*left side*).

Fractional ablative carbon-dioxide laser treatment improves histologic and clinical aspects of striae gravidarum: A prospective open label paired study

To the Editor: Striae distensae frequently lead to psychologic distress for patients[1] and occur in 70% of females, 40% of adolescent males, and 90% of pregnant women,[2] who usually develop striae gravidarum (SG) during the last trimester of pregnancy.[3] Younger age, maternal and family history of SG, increased prepregnancy and predelivery weight of the mother, and increased birth weight of the baby are the most significant risk factors identified for SG.[4] Despite the widespread use of ablative lasers, SG have not been clinically and histologically studied after carbon dioxide (CO_2) fractional system treatment. Improved understanding of histopathologic changes may lead to new treatment insights. We performed a single-center, 2-arm, prospective, self-control open label study. A total of 13 female volunteers with SG who were recruited after signing the informed consent form (institutional ethics committee approval 323/2009) received the treatment on the right side of their abdominal region with a 70-W ablative 10,600-nm CO_2 fractional single-pass, nonoverlapping laser (CO_2FS, Pixel-CO2, Alma Lasers, Cesarea, Israel). Each patient underwent 4 sessions at increasing pulse energy levels (80, 90, 100, and 110 mJ/microscopic treatment zone) with a 30-day interval between each session. The left half of the abdominal region was kept untreated (Fig 1).

The largest pretreatment stria was selected for measurement and skin biopsy before treatment and the same stria was again used 1 month after treatment (4 sessions); patient satisfaction was assessed with a visual scale. Normal-appearing pretreatment skin biopsy specimens were also obtained. The histologic changes were evaluated on the superficial (part A, 500 ± 10 μm) and deep portions (part B, 501-1000 μm) of the skin samples for analysis of collagen fibers (Masson's trichrome and picrosirius red staining) and recent, intermediate, and mature elastic fibers (resorcine fucsine with or without oxone and Verhoeff staining). The thickness of the epidermis was also measured.

We observed a significant increase in the amount of collagen fibers ($P < .05$) in the post-treatment SG samples (with Masson's trichrome: part A, from 36.70 ± 4,94 to 45.58 ± 7,00 μm^2, and part B, from 31.08 ± 4.40 to 41.69 ± 10.21 μm^2; with picrosirius red: from 17.19 ± 4.77 μm^2 to 21.27 ± 5.47 μm^2). Additionally, a nonsignificant difference was observed for collagen when untreated normal-appearing skin was compared with post-treatment samples (Table I). A nonsignificant increase in the number of mature intermediate and recent elastic fibers was observed ($P > .05$). Possible reasons for this are the difference between patient's elastic fiber maturation and the higher thermal stability of elastin in comparison with that of collagen fibers.[5]

Also, a significant increase was observed in the thickness of the epidermal cell layer of the post-treatment samples when compared with normal-appearing skin (normal-appearing skin, 67.08 ± 11.55 μm; before treatment, 77.55 ± 17.19 μm; and after treatment, 90.67 ± 18.17 μm; [$P < .05$]). Of the 13 patients, 12 considered their results to be good or very good 30 days after the treatment. The clinical improvement was evidenced by a significant decrease ($P < .05$) in the width of the largest stria

Table I. Collagen and elastic fibers quantification

Specimen	Normal-appearing skin, mean ± SD	SG before treatment, mean ± SD	SG after treatment mean ± SD	*P* value: Normal-appearing skin × before treatment	*P* value: Before treatment × after treatment	*P* value: Normal-appearing skin × after treatment
Collagen part A (Masson)	43.58 ± 11.35	36.70 ± 4.94	45.58 ± 7.00	.075	.002	.600
Collagen part B (Masson)	38.89 ± 12.91	31.08 ± 4.40	41.69 ± 10.21	.087	.004	.701
Collagen (picrosirius)	26.22 ± 6.60	17.19 ± 4.77	21.27 ± 5.47	.001	.023	.033
Recent elastic fibers (RF with oxone)	0.061 ± 0.014	0.033 ± 0.017	0.038 ± 0.022	.008	.657	.026
Intermediate elastic fibers - (RF)	0.034 ± 0.009	0.020 ± 0.010	0.025 ± 0.015	.016	.286	.075
Mature elastic fibers — Part A (Verhoeff)	2.67 ± 1.89	3.45 ± 3.15	3.80 ± 2.63	.701	.463	.422
Mature elastic fibers — Part B (Verhoeff)	6.91 ± 5.07	6.56 ± 6.06	7.51 ± 3.61	.175	.463	.384

Description of the averages of fiber percentages found in the streak specimens in their respective staining, with the differences found through the Wilcoxon test. The measurements were performed in μm^2 and the data expressed in proportional area of fibers in relation to the selected area in the slice (%).
RF, Resorcine fucsine; *SD*, standard deviation; *SG*, striae gravidarum.

measured before (0.66 ± 0.32 cm) and after treatment (0.43 ± 0.23 cm). As expected, erythema, swelling, and scale formation were observed in all the patients, with no further complications.

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Incidence of androgenic dermatologic side effects following placement of a levonorgestrel intrauterine device for menorrhagia: A survey-based study

To the Editor: Dermatologic manifestations of hyperandrogenic states include acne vulgaris, alopecia, and hirsutism and result from the excess stimulation of the pilosebaceous unit. A synthetic progestin, levonorgestrel, is a methyl testosterone derivative. When orally administered, it has been associated with acne, with a reported incidence between 5% and 20%.[1] In contrast, given its localized effect, a levonorgestrel intrauterine device 52 mg (LNG-IUD) produces lower systemic levels of progestogens than with oral administration and, hence, is believed to have fewer systemic adverse effects. Existing literature has demonstrated the development of