

Treatment of Décolletage Photoaging With Fractional Microneedling Radiofrequency

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ABSTRACT

Objectives: The objective of this study was to examine the efficacy and safety of a novel fractional microneedling radiofrequency device to improve the appearance of rhytides and skin laxity of the décolletage.

Methods: Twelve subjects received a total of three fractional microneedling radiofrequency treatments with Endymed Intensif (EndyMed Ltd., Cesarea, Israel) at least three weeks apart. Primary outcome measure was clinical efficacy quantified by a patient survey to assess treatment satisfaction as well as a physician Global Aesthetic Improvement Scale (GAIS). Photos were taken before every treatment and at a follow-up appointment.

Results: Assessments by two board-certified dermatologists revealed an overall improvement in 67% of patients. Seventy percent of subjects rated their post-treatment skin laxity and rhytides as improved, while 60% of patients rated their skin texture as improved. Eighty percent of subjects were at least slightly satisfied with their treatment. Forty percent of subjects would recommend this treatment to others.

Conclusions: Subjects in this study demonstrated an overall improvement in décolletage appearance in regard to skin tightening, wrinkles, and skin texture suggested by overall patient satisfaction (80%) and physician-rated GAIS improvement (67%). This study suggests that fractional microneedling radiofrequency devices are a safe and efficacious way to improve overall décolletage appearance with little down time.

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INTRODUCTION

Ultraviolet (UV) photoaging contributes to increased skin laxity, rhytidosis, solar lentigines, hyperpigmentation, erythema, tactile roughness, atrophy, and telangiectasias. These changes can have a significant effect on patient self-esteem and may negatively affect quality of life.[1] Patients often seek out various treatments to mitigate these changes including photorejuvenation, radio-frequency tightening, chemical ablation, retinoids, fillers, neurotoxins, and surgical intervention. Although laser and light-based treatments are frequently employed to address these concerns, their use can be limited on poikilodermatous skin of the chest, given the higher risk of post inflammatory pigment changes. Noninvasive and nonablative options are increasing in popularity due to their decreased downtime and better safety profile. Fractional microneedling radiofrequency (FMR) offers an approach that is safe and efficacious on the décolletage.

FMR devices have been successfully used for aesthetic treatments of the face and neck to improve skin laxity, rhytides, acne scars, and post inflammatory hyperpigmentation, and multiple studies have substantiated their clinical validity.[2-5] FMR devices deliver radiofrequency energy at specified depths to the dermal layer, while minimizing damage to the epidermis. Because energy is delivered at a deeper level than contact radiofrequency devices, fewer treatments may be required to achieve results, and epidermal cooling is unnecessary.[6] Dermal collagen fibrils are targeted, leading to collagen fibril shortening and collagen neogenesis.[7-9] Moreover, these devices are gaining in popularity, given their minimal side effects and required downtime. Clinical data evaluating the efficacy of FMR on the chest has been limited.

The aim of this study was to investigate the efficacy of a specific FMR device, Endymed Intensif (EndyMed Ltd., Cesarea, Israel) on the décolletage rhytides, skin laxity, and skin texture. Our aims were to characterize FMR's ability to improve skin rhytides and laxity of moderate-severely photodamaged décolletage, correlate FMR therapy of the décolletage with patient satisfaction, and identify the safety of FMR of this anatomic region. To our knowledge, this is the first study to characterize the effect of FMR on the décolletage.

MATERIALS AND METHODS

The study was a prospective study that included healthy female subjects who had a Fabi/Bolton Chest Wrinkle Scale of 3, 4, or 5 (Table 1).[10] Patients were recruited from a private dermatology

FIGURE 1. Before and after FMR treatment of décolletage of a 50-year-old woman. (A) Baseline; (A) After 3 treatment sessions.

(A)

(B)

practice in Beverly Hills, California. Exclusion criteria included pregnant or nursing women, minors under the age of 18, and prior treatment of the décolletage, including any rejuvenation procedure, treatment with lasers, intense pulse light, radiofrequency, or injectables. Subjects were also excluded from the study if they are unable to provide consent or if they underwent any additional treatment of the décolletage during the study or follow-up period.

Subjects who fulfilled the eligibility criteria received 3 total Endymed FMR treatments at least 3 weeks apart with a final visit in which clinical and photographic evaluations were performed, and a patient satisfaction survey was administered. Prior to each treatment, the décolletage was cleansed with isopropyl alcohol, and topical anesthesia (Benzocaine/lidocaine/tetracaine) was applied for at least 30 minutes. The chest was treated with a pulse duration of 110-140ms, power of 12-17 W, and penetration depth of 2 mm.

TABLE 1.

Fabi/Bolton Chest Wrinkle	
1	Wrinkles absent
2	Shallow but visible lines
3	Moderately deep lines
4	Deep with well-defined lines
5	Very deep with redundant folds

Results were reviewed at baseline and 30 days after the third treatment (Figure 1A and 1B). Overall improvement was assessed using the Physician Global Aesthetic Improvement Scale (GAIS)[11] (Table 2) for each patient by two board-certified dermatologists, and patient satisfaction was assessed using a post-treatment patient satisfaction survey. For the GAIS, a score of -1=the appearance is worse than the original condition; 0=the appearance is essentially the same as the original condition; 1=appreciable improvement in the appearance from the original condition; 2=marked improvement in the appearance from the original condition; 3=optimal cosmetic results in the patient.[11] Overall satisfaction in the patient satisfaction survey was graded on a scale of -1 to 2 where: -1=not satisfied,

TABLE 2.

Global Aesthetic Improvement Scale (GAIS)	
(3) Very Much Improved	Optimal cosmetic result
(2) Much Improved	Marked improvement in appearance from the initial condition but not completely optimal
(1) Improved	Obvious improvement in appearance from the initial condition, but a touch up is indicated
(0) No Change	The appearance is essentially the same as the original condition
(-1) Worse	The appearance is worse than the original condition

TABLE 3.

GAIS Percentages (%)	
3	0%
2	0%
1	67%
0	33%
-1	0

TABLE 4.

Patient Satisfaction Percentages (%)	
	Percent (%) of patients who saw improvement
Laxity	70
Rhytides	70
Texture	60
Overall Satisfaction	80

0= neither satisfied nor unsatisfied, 1=slightly satisfied, 2=very satisfied. In addition, subjects graded the improvement of décolletage skin laxity, rhytides, and texture. They were also asked if they would recommend the treatment to others.

RESULTS

Fourteen healthy female patients ages 47-77 (mean age 59) were enrolled in the study, but two were lost to follow-up due to relocation. For the 12 patients who completed the study, GAIS scores are reported in Table 3. This evaluation resulted in overall improvements of at least 1 point of the GAIS in 67% of study subjects.

Patient satisfaction was assessed by use of a post-treatment patient satisfaction survey (Table 4). Eighty percent of subjects were at least slightly satisfied with the results after completing the study. Seventy percent of patients saw improvement in rhytides and skin laxity while sixty percent saw improvement in their skin texture. Forty percent of the subjects would recommend the treatment to others. None of the subjects experienced significant discomfort during the treatment and transient post-treatment erythema was the only reported side effect.

DISCUSSION

The demand for minimally invasive cosmetic interventions with decreased downtime and side effects is growing. Non-ablative rejuvenation of the décolletage with this FMR device has little to no recovery time and few side effects. Results from this study revealed that both subject and investigator appreciated an overall improvement at 30 days post treatment series. These results are in agreement with other studies done with FMR devices.[2-5]

There were some limitations to this study including relatively short follow-up time of approximately 1 month. In addition, all of our subjects were Caucasian, thus, results may not be generalizable to all ethnicities. In addition, hydration status of the subjects at the time of photographic evaluation was not controlled for and may have influenced skin laxity and the appearance of rhytides.[12] This study was also limited by the number of subjects enrolled as well as the dropout rate.

CONCLUSION

After undergoing three treatments with a novel FMR device, subjects in this study demonstrated an overall improvement in décolletage appearance with regard to skin laxity, rhytides, and texture. This was confirmed by overall patient satisfaction (80%) and physician-rated GAIS improvement (67%). FMR is a minimally invasive treatment option for improving photoaging manifestations on the décolletage of women with little downtime.

DISCLOSURES

The authores have no conflicts of interest to declare.

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