

A SUPPLEMENT TO

JOURNAL OF DRUGS IN DERMATOLOGY

JDD

---

DRUGS • DEVICES • METHODS

---

REAL-WORLD PATIENT CASES USING TRIPLE  
LIPID-CONTAINING CREAM POST FACIAL  
ENERGY-BASED DEVICE TREATMENT

ISSN: 1545 9616

September 2024 • Volume 23 • Issue 9 (SUPPLEMENT 1)

This educational supplement to the *Journal of Drugs in Dermatology* was supported by  
an unrestricted educational grant from SkinCeuticals International- L'Oréal Groupe.

# Real-World Patient Cases Using Triple Lipid-Containing Cream for Cutaneous Healing Post Laser or Microneedling Radiofrequency Treatment

Michael Gold MD FAAD,<sup>a</sup> Anneke Andriessen PhD,<sup>b</sup> Daniela Greiner-Krüger MD,<sup>c</sup> Edward Lain MD FAAD,<sup>d</sup> Seunghye Lee MD,<sup>e</sup> Heewon Suh MD,<sup>f</sup> Cara McDonald MBBS BMedSci MPH FAcD,<sup>g</sup> Steven Nisticò MD PhD,<sup>h</sup> Zaki Taher MD FRCPC,<sup>i</sup> Minfang Wang MD,<sup>j</sup> Patricia Brieva PhD<sup>k</sup>

<sup>a</sup>Gold Skin Care Center, Nashville, TN

<sup>b</sup>UMC Radboud, Nijmegen, Andriessen Consultants, Malden, The Netherlands

<sup>c</sup>Medicorium Center for Dermatology and Aesthetics, Oberursel, Germany

<sup>d</sup>Sanova Dermatology, Austin, TX

<sup>e</sup>YLAS Clinic, Busan, South Korea

<sup>f</sup>Cheongdam Circle Clinic, Seoul, South Korea

<sup>g</sup>St Vincent's Hospital, Melbourne, Australia; <sup>h</sup>Sapienza University of Rome, Italy

<sup>i</sup>University of Alberta, Edmonton, Alberta, Canada

<sup>j</sup>YesSkin Cosmetic Clinic, Hangzhou, China; <sup>k</sup>SkinCeuticals, New York, NY

## ABSTRACT

Lipids play an essential role in skin barrier health. With age, there is a natural reduction of physiological lipids such as fatty acids, ceramides, and cholesterol. The triple lipid restore cream is a moisturizer that contains an optimized lipid ratio for aging skin. The cream contains a 2:4:2 ratio of ceramides, cholesterol, and fatty acids that have been shown to best support aging skin. The triple lipid restore cream has been used in combination with energy-based procedures, to provide patients with comprehensive integrated skincare regimens. With limited clinical data and guidelines available in regenerative medicine, real-world cases serve as an invaluable guide for patients and dermatologists in navigating rejuvenation treatment plans.

*J Drugs Dermatol.* 2024;23:9(Suppl 1):s3-14.

## INTRODUCTION

According to the American Society of Plastic Surgeons, nonsurgical cosmetic procedures accounted for over 15 million cosmetic procedures performed in the United States in 2018.<sup>1</sup> In addition, Google searches for awareness of anti-aging and skin resurfacing procedures have seen a rise.<sup>2</sup> These procedures aim to combat the inevitable problem of skin aging and help to promote skin rejuvenation.

Skin aging is a natural process that results from a build-up of oxidative stress and cumulative DNA damage, which result in increased skin laxity, wrinkling, xerosis, abnormal pigmentation, and dullness.<sup>3</sup> Skin aging occurs due to both intrinsic and extrinsic factors. Intrinsic aging is a product of chronological age and genetic and hormonal factors.<sup>3</sup> On the other hand, extrinsic aging is primarily a product of ultraviolet (UV) radiation, environmental chemicals, toxins, pollutants, diet, and comorbid illnesses.<sup>3</sup> In addition, with age, there is a natural decline in skin lipids such as fatty acids and ceramides, putting older individuals at risk of dry skin and xerosis.<sup>3</sup>

## Skin Rejuvenation Using Energy-Based Devices (Lasers and Microneedling with Radiofrequency (MRF))

Since the invention of selective photo-thermolysis in the early 1980s, lasers and other energy-based technologies have transformed the field of cosmetic dermatology and anti-aging medicine.<sup>4</sup> There are a variety of energy-based devices (EBD) that exist for skin rejuvenation, scar revision, collagen tightening, and correction of dyspigmentation.<sup>4</sup> Laser resurfacing produces controlled skin injury to stimulate wound healing and collagen remodeling, which results in skin rejuvenation. EBD treatment falls into 2 categories: ablative and non-ablative laser skin resurfacing.<sup>4</sup>

Ablative laser skin resurfacing can be achieved using high-energy CO<sub>2</sub> or erbium lasers that target water in tissue, causing vaporization of the entire epidermis and partial dermis.<sup>4</sup> These lasers are used to treat facial rhytids, atrophic scars, and various epidermal/dermal lesions by thermally ablating and vaporizing the epidermis and heating the dermis to tighten the skin bed.<sup>4</sup> While ablative lasers provide the best clinical outcomes in a

single procedure, they are also associated with longer recovery times and increased rate of undesired side effects.

Non-ablative procedures include intense pulsed light (IPL), infrared, vascular, ultrasound, and radiofrequency (RF) devices.<sup>4</sup> These treatments target the dermis to stimulate collagen synthesis without ablating the epidermis; thereby leading to decreased recovery times and side effects.<sup>4</sup>

### Complications of Using EBD

Common complications of EBD treatments include bruising, edema, itching, crusting, erythema, and pigment changes.<sup>5</sup> Erythema is to be expected after almost any procedure using an EBD and can be worse in more aggressive treatments or patients with a history of rosacea or sensitive skin.<sup>6</sup> The risk of adverse events depends on the type of EBD used, the area treated, patient skin type, and treatment goals. In general, ablative and fractional lasers carry a greater risk of adverse events than non-ablative ones.<sup>6</sup>

Complications of ablative laser therapy are largely influenced by postoperative care, patient selection, and operator skill. The most common side effect is postoperative erythema that can last, on average, 4.5 months for the CO<sub>2</sub> laser and 2 to 4 weeks for the Er:YAG laser.<sup>6</sup> Time to re-epithelization may vary from 5 to 8 days and hyperpigmentation may be seen 3 to 6 weeks after the procedure, with a higher risk associated with more richly pigmented skin.<sup>6</sup> Complications of non-ablative energy-based procedures are typically mild and transient with local erythema and edema being the most common adverse events on treated skin.<sup>6</sup>

Minimizing adverse events relies heavily on pre-procedure patient consultation and counseling to determine a patient's risk for potential adverse events.<sup>6</sup> A detailed patient history should be elicited including any history of abnormal scarring, excessive sun exposure, inflammatory conditions, or herpes simplex virus (HSV) reactivation.<sup>6</sup>

In addition, patient skin type and color should be considered in choosing a skin rejuvenation treatment plan.<sup>7</sup> Richly pigmented skin contains a greater amount and density of melanin that may act as a competing chromophore during laser procedures.<sup>7</sup> Thus, laser treatment in darker skin types is associated with a greater risk of tissue damage and resulting hyperpigmentation, hypopigmentation, or scarring.<sup>7</sup> Following guidelines with careful selection of device and treatment parameters can help minimize complications.<sup>7</sup> In general, longer wavelength lasers are recommended for darker skin types. IPL, excimer light, fractional lasers, and RF devices have all been used safely in Fitzpatrick skin phototypes IV-VI.<sup>6</sup> Taken together, proper patient selection, appropriate laser surgery technique, and optimization of wound care strategies are essential in reducing the risk of complications.

### Post-Procedure Cutaneous Healing

Post-procedure skin care is key in minimizing complications and maximizing the results of energy-based skin rejuvenation. In general, post-procedure wound care focuses on optimizing

moisture balance and preventing infection to promote regeneration of a healthy skin barrier; however, there has been no standard post-procedure treatment established.<sup>7</sup> Common recommendations include the use of occlusive ointments to prevent crust formation and reduce patient discomfort.<sup>8</sup> In addition, topical corticosteroids can be used for pruritus or irritant dermatitis as well as oral antihistamines.<sup>6,8</sup> Oral antibiotics are helpful in post-procedure infection or acne exacerbations.<sup>6,8</sup>

A variety of other products have also been studied for post-energy-based skin resurfacing procedures to enhance cutaneous healing.<sup>8</sup> Vitamin C/Vitamin E/ferulic acid serum has been shown to facilitate collagen biosynthesis, serve as an antioxidant, and promote fibroblast cell proliferation, which leads to reduced post-laser resurfacing erythema and edema.<sup>8</sup>

Integrated skincare regimens are individualized treatment plans that combine the use of both topical treatment and nonsurgical rejuvenation procedures, to produce optimal, aesthetic results with minimal adverse effects.<sup>9</sup> Real-world experiences have informed the use of botanical serums with anti-inflammatory effects to reduce post-procedure erythema.<sup>10</sup> Topical products used in integrated skincare regimens should aim to (1) maintain, complement, and improve clinical outcomes, (2) increase patient comfort and satisfaction, and (3) increase patient commitment to the outcome of their procedures.

Skin barrier abnormalities occur with age, skin disease, and after EBD procedures.<sup>10</sup> Age-related deterioration of the skin barrier is caused by a reduction of lipids in the stratum corneum and a reduced number of extracellular lamellar bilayers to draw in and trap moisture in the epidermis.<sup>11</sup> This leads to increased susceptibility to inflammation, reduced desquamation, slower barrier function repair, and lower moisture levels, which may manifest as redness, uneven skin tone, and dry patches.<sup>11</sup> In addition, aged skin often demonstrates greater TEWL.<sup>11</sup> As with age, EBD procedures may also lead to a breakdown in the skin barrier, increased TEWL, and inflammation.<sup>6</sup> Lipid-containing post-procedure creams have been shown to accelerate barrier recovery in aging skin by promoting hydration and restoration of a healthy skin barrier.<sup>12</sup> In addition, skin lipid levels such as ceramides, cholesterol, and fatty acids, have been shown to be decreased in older individuals and patients with AD, many of whom are those who seek EBD rejuvenation treatments.<sup>13</sup>

Lipids play a crucial role in skin health, including healthy cell signaling, cell turnover, barrier function, and natural self-repair.<sup>15</sup> Replenishing lipids in the stratum corneum is optimally achieved by delivering lipids in precise molar ratios.<sup>14</sup> Combinations of ceramides 1 and 3 appear to provide synergistic benefits in barrier repair when compared to emulsions with only either ceramide alone plus cholesterol and fatty acids.<sup>15</sup> Zettersten et al suggested that treatment with a cholesterol-dominant molar formulation (1:3:1:1 ratio of ceramide: cholesterol: palmitate: linoleate) best accelerated barrier recovery following injury by tape stripping.<sup>16</sup> The group's finding led them to establish that cholesterol-dominant treatments were most effective in the restoration of the lipid barrier with the optimized lipid ratio for aging skin

being 1:2:1, ceramides, cholesterol, fatty acids, respectively.<sup>17</sup> Thus, replenishing lipid levels in the skin post-procedure may also accelerate barrier recovery and promote skin rejuvenation, especially in aging skin.

The Triple Lipid Restore (TLR) 2:4:2 cream (SkinCeuticals) contains 2% ceramides, 4% natural cholesterol, and 2% fatty acids.<sup>18</sup> The triple lipid technology incorporates ceramides 1 and 3, cholesterol, and fatty acids that synergistically lead to accelerated barrier recovery, increased barrier function, and hydration as well as aids in the structural integrity of the lipid bilayers.<sup>18</sup> Sundaram et al demonstrated by lipidomic analysis that after twice daily application of the Triple Lipid Restore 2:4:2 to the skin, there was a 57% increase in ceramides, 50% increase in cholesterol, and 12% increase in fatty acids in the form of triglycerides.<sup>17</sup> Further, hydration studies showed that application of the triple lipid cream resulted in a 39% improvement in hydration within 24 hours.<sup>18</sup> Lastly, the triple lipid formulation also appears to target aging skin by improving tone, texture, brightness, smoothness, laxity, and pore appearance after 8 weeks.<sup>18</sup> Taken together, primary barrier repair is essential for healthy aging skin as well as for optimal aesthetic results from procedures that disrupt the skin barrier.

## METHODS

This real-world case series was composed to highlight the use of the TLR lipid-containing post-procedure cream treatment for cutaneous healing post EBD skin rejuvenation treatments. The cases demonstrate how expert dermatologists choose the lipid-containing post-procedure cream for post-EBD cutaneous healing to help accelerate post-procedure healing. Expert panelists' clinical reasoning and rationale are detailed in the following patient cases to guide cosmetic dermatologists seeking to apply integrated skincare and cutaneous healing practices in their patients.

### Steps in the Process

The real-world cases were compiled and selected in the following steps: 1) project definition and expert panel selection, 2) data collection and preparation of patient cases, 3) patient case discussion and selection for publication, 4) literature review to support selected cases, e) drafting, review, and finalization of the manuscript.

### Role of the Panel

The selected expert panel consisted of 9 licensed dermatologists with collective worldwide experience in cosmetic and enhancement procedures. Panelists represented clinical practices in 7 different countries that treated diverse patient populations to capture a wide variety of integrated skincare and post-laser, micro-needling radiofrequency (MRF), and other EBD cutaneous healing practices. In general, panelists shared cases of patients above the age of 50 years to illustrate integrative skincare practices in older individuals.

The meeting took place on February 1, 2024, in Paris, France, and highlighted experience with integrated skin care in general, and lipid-containing post-procedure cream in particular, for cutaneous

healing post-EBD treatment in clinical practice under real-world conditions.

### Post-EBD Cutaneous Healing Regimen

Patients were instructed to start the post-procedure skincare regimen the same day of the procedure. Patients were provided with a gentle cleanser (SkinCeuticals, NY) and the Triple Lipid Restore (TLR) cream (SkinCeuticals, NY). The gentle cleanser contained an emollient-rich surfactant and a 3% concentration of allantoin, glycerin, and orange oil to help soften and restore the skin's barrier. Patients were instructed to use both the gentle cleanser and TLR cream twice daily, starting with the cleanser followed by the cream for 8 weeks. Any deviation in this regimen is stated in the cases. The patients were instructed to refrain from using any other type of skincare except for broad-spectrum sunscreen.

### Data Gathering and Outcome Measures

Suggested information to present included patient demographics, clinical features, cosmetic treatment goals, and qualitative and quantitative outcome measures. The panel used the same template to gather insight through a case-based approach, comprising cosmetic evaluation and alignment of treatment goals. Information on the EBD used included the brand name of the device, type of device, frequency of the device, settings of the device, and number of passes. For MRF, the depth of the needle (8 mm, 3 mm, other/please specify) and any other energy devices used (radiofrequency vs ultrasound) were recorded.

Post-EBD treatment patient outcomes were tracked over 8 weeks at day 0 (baseline), week 1 (+/- 3 days), week 4 (+/- 3 days), and week 8 (+/- 3 days). The outcome was evaluated based on the physician's assessment of facial erythema, skin tone/dyscoloration, skin texture, discomfort, tolerability, and overall appearance scores on a scale of 0 (none) to 4 (severe) (Table 1). Patients also self-evaluated their recovery in the categories as previously described on a scale from 0 (none) to 4 (severe). Qualitative responses were collected from patients on perceived post-facial EBD skin condition and improvement over the follow-up period (Table 2). Physicians also provided a Global Aesthetic Improvement Scale (GAIS) score at each follow-up visit. GAIS rates a subject's response to treatment as: very much improved (3), much improved (2), improved (1), no change (0), worse (-1), much worse (-2), and very much worse (-3).

Special considerations and lessons learned were discussed at the end of the evaluation.

## RESULTS

### Selected Real-World Patient Cases

Seven cases were selected by the expert panel to illustrate real-world, integrated skincare regimens for post-procedure cutaneous healing using the TLR cream. Cases represent a diversity of skin types, patient presentations, and treatment goals. These cases highlight the successful use of TLR cream for cutaneous healing post-EBD treatment in individuals above the age of 50 years (Table 3).

TABLE 1.

Physician Assessment											
Erythema		Skin Tone/ Discoloration		Skin texture		Discomfort		Tolerability		Overall Appearance	
Item	Score	Item	Score	Item	Score	Item	Score	Item	Score	Item	Score
0 = None	--	0 = even, healthy skin tone	--	0 = Smooth appearance	--	0 = No discomfort; 10 = worst discomfort	4	0 = no irritation	--	0 = Healthy, youthful skin	--
1 = Minimal-scant rare erythema	x	1 = Minimal discoloration	x	1 = Minimal rough patches	--			1 = Minimal irritation	--	1 = Minimal aging signs	--
2 = Mild-pink coloration on some of the face	--	2 = Mild, some discoloration	--	2 = Mild rough patches	x			2 = Mild irritation	x	2 = Mild aging signs	--
3 = Moderate- bright red color on some of the face or pink color on all of the face	--	3 = Moderate more than one area of discoloration	--	3 = Moderate rough patches	--			3 = Moderate irritation	--	3 = Moderate aging signs	x
4 = Severe very red or bright red coloration of the whole face	--	4 = Severe – uneven discoloured appearance of the face	--	4 = Severe rough facial appearance	x			4 = Severe irritation	--	4 = Severe aging signs	--

TABLE 2.

Subject Assessment											
Erythema		Skin Tone/ Discoloration		Skin texture		Discomfort		Tolerability		Overall Appearance	
Item	Score	Item	Score	Item	Score	Item	Score	Item	Score	Item	Score
0 = None	--	0 = even, healthy skin tone	--	0 = Smooth appearance	x	0 = No discomfort; 10 = worst discomfort	3	0 = no irritation	--	0 = Healthy, youthful skin	--
1 = Minimal-scant rare erythema	--	1 = Minimal discoloration	x	1 = Minimal rough patches	--			1 = Minimal irritation	--	1 = Minimal aging signs	--
2 = Mild-pink coloration on some of the face	Chin 2	2 = Mild, some discoloration	--	2 = Mild rough patches	--			2 = Mild irritation	x	2 = Mild aging signs	--
3 = Moderate- bright red color on some of the face or pink color on all of the face	--	3 = Moderate more than one area of discoloration	--	3 = Moderate rough patches	--			3 = Moderate irritation	--	3 = Moderate aging signs	x
4 = Severe very red or bright red coloration of the whole face	Eye 4	4 = Severe – uneven discoloured appearance of the face	--	4 = Severe rough facial appearance	--			4 = Severe irritation	--	4 = Severe aging signs	--

TABLE 3.

## Overview of Integrated Skincare Regimens With Triple Lipid Restore Cream and Gentle Cleanser

Case	Treatment Area	Energy-Based Procedure	Gender, Age, Fitzpatrick	Triple Lipid Restore (TLR) Cream & Gentle Cleanser Use	Skin Hydration	Result Improvement Highlights at 8 weeks	Clinical Pearl
1	Hands	Cutera Secret RF (MRF) <i>Concern of dark spots and wrinkles</i>	M57, Fitzpatrick 1	Used TLR 4 weeks pre-procedure and 4 weeks post MRF Procedure- did not use gentle cleanser on hands	Significant hydration and texture improvement by week 1 of use	Skin Tone/Discoloration Skin Texture Overall Appearance	Pre-procedure use of TLR compliments and prepares skin for rejuvenation procedures as much as post-procedure use
2	Face	Potenza MRF <i>Concern of melasma and facial discoloration</i>	F75, Fitzpatrick 5	Twice daily, TLR cream and gentle cleanser use post MRF procedure	Fewer rough patches by day 7 with improvement in skin hydration	Erythema Skin Texture Discomfort Tolerability	Integrated skincare with TLR provides comfort to patients after procedures
3	Neck	Genius MRF System <i>Concern of atrophic, sagging skin</i>	F50, Fitzpatrick 2	Twice daily, TLR cream and gentle cleanser use post MRF procedure	By week 4, the patient saw dramatic improvement in skin texture, attributing this to smoother, more hydrated skin	Skin Texture Skin Tone/Discoloration Discomfort Tolerability Overall Appearance	TLR helps to restore the skin barrier in atrophic skin by replenishing lipid levels to produce smoother skin
4	Face	Fractional CO2 Laser (Deka SmartXide) <i>Concern of wrinkles</i>	F56 Fitzpatrick 3	Twice daily, TLR cream and gentle cleanser use post MRF procedure	Hydration and skin texture improved after 4 weeks of TLR cream use	Erythema Score Skin Tone/Discoloration Skin Texture Discomfort Tolerability Overall Appearance	TLR cream helps with erythema and irritation after ablative laser procedures
5	Face	Potenza MRF	F65 Fitzpatrick 3	Twice daily, TLR cream and gentle cleanser use post MRF procedure	Patient saw improvement in skin texture and rough patches after 7 days	Erythema Score Skin Tone/Discoloration Skin Texture Discomfort Overall Appearance	TLR cream and gentle cleanser is a suitable post-procedure treatment to optimize patient outcomes after MRF and avoid adverse effects of the procedure (irritation, redness, infection)
6	Face	Corage 2.0 & VirtueRF	F55, Fitzpatrick 2	Twice daily, TLR cream and gentle cleanser use post MRF procedure	Only minimal rough patches after 7 days of TLR cream and gentle cleanser use	Erythema Score Skin Tone/Discoloration Skin Texture Overall Appearance	Patients naïve to skincare regimens benefit from neutral, soothing qualities of TLR cream to help skin recover from procedures and optimize rejuvenation
7	Face	Peninsula MRF	F58, Fitzpatrick 3	Twice daily, TLR cream and gentle cleanser use post MRF procedure	Significant improvement in rough skin texture within 7 days of TLR cream use	Erythema, Skin Tone/Discoloration Skin Texture Discomfort Tolerability Overall Appearance	TLR provides patient satisfaction and makes patients' skin feel healthier, younger, and brighter



**TABLE 4.****Scores From 8-Week Follow-up of Patient in Case 1**

Results	Before Starting Triple Lipid Moisturizer	Follow-up Week 1	Follow-up Week 4	Follow-up Week 8
Erythema score	Score – (1)	Score – (1)	Score – (1)	Score – (1)
Skin Tone/Discoloration	Score – (1)	Score – (1)	Score – (1)	Score – (0)
Skin Texture	Score – (3)	Score – (2)	Score – (2)	Score – (2)
Discomfort	Score – (0)	Score – (0)	Score – (0)	Score – (0)
Tolerability	Score – (0)	Score – (0)	Score – (0)	Score – (0)
Overall Appearance	Score – (4)	Score – (4)	Score – (3)	Score – (3)

**Case 1**

A 57-year-old female, Fitzpatrick Skin Type (FST) I, presented with dark spots and wrinkles on her dorsal hands after years of sun exposure. She requested treatment of the deep wrinkles as well as the hyperpigmented and dry patches throughout her hands. When she presented, she was found to have minimal discoloration with moderate rough patches throughout and severe signs of skin aging (Table 4). While the patient did not feel that her condition affected her daily activities or professional life, she sought to improve the aesthetics and feeling of her hands. The patient started on twice daily TLR cream to her hands as pre-treatment, 4 weeks prior to MRF. At 4 weeks, the patient saw her skin texture score improve from moderate to mild rough patches (Table 4). The dermatologist gave a GAIS score of 1 at her 1-week and 4-week follow-up visits. At her 4-week visit, the patient received Cutera Secret RF, a microneedling system for collagen stimulation and remodeling. Three passes of the Cutera Secret RF were performed at the following settings: Intensity 50%, Depth 1.8 mm, Mode 0.2 S, and Delay Time 200MS.

At week 8, the patient returned for her post-RF visit. The patient reported that she “feels greater improvement than visible in

**CASE 1\_1. Hands of 57-year-old Female.** Hands are shown at baseline after MRF treatment and at 8 weeks of twice daily, triple lipid restore cream use (*Photo courtesy of Cara McDonald MD*).



photographs.” The overall appearance score decreased from 4 (severe aging signs) to 3 (moderate aging signs) (Table 4). GAIS score increased to 2 (much improved) by week 8 of triple lipid cream use. The patient also agreed that her skin looked healthier, and younger with reduced wrinkles and fine lines (Figure 1 [=Case 1\_1]). This case demonstrates pre- and post-procedure use of the TLR cream to comprehensively complement rejuvenation procedures.

**Case 2**

A 75-year-old female, FST V, presented with severe melasma and discoloration on the malar surfaces of her face. Her primary concerns were aging, fine lines, wrinkles, and overall skin tone. At day 0, she was found to have mild pink coloration on some of the face, moderate discoloration, minimal rough patches, minimal irritation, and overall mild signs of aging (Table 5). The patient reported a discomfort score of 5 out of 10 and felt that she had moderate rough patches. She reported that her skin condition impacted her daily activities such as working out. The patient underwent MRF treatment using the Potenza MRF 125 tips (monopolar 1 Hz, Pulse Count 778). On her cheeks and nose, the following Potenza MRF settings were used: Depth 2.25, 2.0, and 1.75 mm, intensity watts/power, pulse width 95, frequency 1 MHz, 0 delay time, impact 4. On her forehead and under her eyes, the following Potenza MRF settings were used: depth 1.0, 0.75 mm, intensity watts/power 6, pulse width 95, frequency 1 MHz, 0 delay time, impact 4. In conjunction, she instructed to use the gentle cleanser and TLR cream, twice daily.

At day 7, the patient had significantly fewer rough patches with her score dropping from a 3 to 2 in skin texture (Table 5). The discoloration on her face remained the same with her GAIS score reflecting no change. The subject felt that her condition had worsened on day 7 and scored her skin discoloration as severe with 8 out of 10 in skin discomfort. At week 4, the patient continued to worsen with a GAIS score of -2 (much worse). By week 8, the patient had improved from week 4 and had a smooth appearance of skin texture. While the patient still had moderate skin discoloration, she reported no discomfort or irritation. Unfortunately, the patient had a decline in overall appearance from a 2 to 3 (moderate signs of aging) by week 8 (Figure 2 [=Case 2\_1]). At week 8, the physician assessment revealed no change, while the patient felt that her condition had improved. The patient saw the most benefit in skin hydration and texture using the triple lipid cream rather than visible improvement in her skin condition. This case illustrates that despite the failure of



**TABLE 5.****Scores From 8-Week Follow-up of Patient in Case 2**

Results	Before Starting Triple Lipid Moisturizer	Follow-up Week 1	Follow-up Week 4	Follow-up Week 8
Erythema score	Score – (2)	Score – (2)	Score – (1)	Score – (0)
Skin Tone/Discoloration	Score – (3)	Score – (3)	Score – (4)	Score – (3)
Skin Texture	Score – (1)	Score – (1)	Score – (1)	Score – (0)
Discomfort	Score – (3)	Score – (0)	Score – (0)	Score – (0)
Tolerability	Score – (1)	Score – (2)	Score – (0)	Score – (0)
Overall Appearance	Score – (2)	Score – (2)	Score – (2)	Score – (3)

**CASE 2\_1. Face of 75-year-old Female.** Face is shown at baseline after MRF treatment and at week 1, 4, and 8 of triple lipid restore cream and gentle cleanser, twice daily, post-procedure (*Photo courtesy of Zaki Taher MD*).



the procedure, integrated skin care can still provide benefit and comfort to patients as an adjunctive treatment.

### Case 3

A 60-year-old female, FST II, presented with moderate signs of aging and requested treatment for the rough skin on her neck. She felt very uncomfortable with her neck and she felt that her neck looked “more aged” than her face. She reported that the loose skin on her neck impacted her daily activities, professional life, social life, and self-image. She resorted to wearing clothing that would hide her neck. To treat this, the patient received MRF treatment using the Genius RF system (1 pass, depth 1 mm, 30 mJ/pin). After the procedure, the patient was in moderate discomfort (5 out of 10) and had moderate erythema, discoloration, and irritation (Table 6). Post-procedure, she was instructed to use TLR cream and a gentle cleanser twice daily.

At day 7, the patient had moderate erythema on her neck with mild rough patches. Her GAIS score on day 7 was +3, very much improved (Figure 3 [=Case 3\_1, 3\_2, 3\_3, 3\_4.]). The patient also strongly agreed that her skin condition had improved over the past 7 days. At week 4, the patient had even healthy skin tone with a smooth appearance (Figure 3). The patient exhibited no irritation, scant erythema, and minimal signs of aging. At week 8, the patient continued to see improvement and reported that her neck skin seemed to be “in line” with her face. It gave her tremendous self-esteem as she no longer felt the need to cover her neck during her daily activities. A combination treatment of MRF and skincare products enhanced this patient's clinical results. The patient tolerated the integrated skincare regimen and saw a major improvement in her atrophic skin over the 8 weeks.

**TABLE 6.****Scores From 8-Week Follow-up of Patient in Case 3**

Results	Before Starting Triple Lipid Moisturizer	Follow-up Week 1	Follow-up Week 4	Follow-up Week 8
Erythema score	Score – (1)	Score – (3)	Score – (1)	N/A
Skin Tone/Discoloration	Score – (3)	Score – (2)	Score – (0)	N/A
Skin Texture	Score – (4)	Score – (2)	Score – (0)	N/A
Discomfort	Score – (5)	Score – (3)	Score – (0)	N/A
Tolerability	Score – (3)	Score – (1)	Score – (0)	N/A
Overall Appearance	Score – (3)	Score – (2)	Score – (1)	N/A

**CASE 3\_1, 3\_2, 3\_3, 3\_4. Neck of 60-year-old female.** Neck is shown at baseline after MRF procedure and at week 1, 4, and 8 of twice daily triple lipid restore cream use (*Photo courtesy of Daniela Greiner-Krüger MD*).

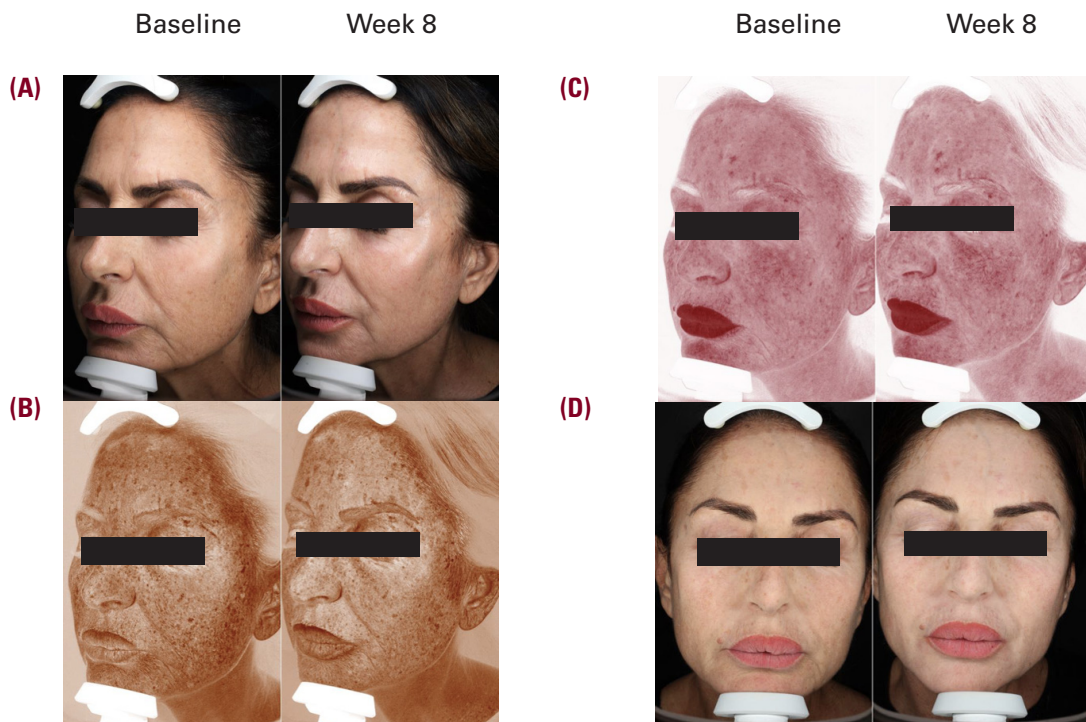


#### Case 4

A 56-year-old female, FST III, presented with photoaged skin, dark spots, fine lines, and wrinkles on her face. She wanted to achieve a smoother, more even complexion. Upon presentation, the patient had moderate signs of aging such as wrinkles, multiple dark spots with significant vertical line lips and marionette lines (Figure 4 [= Case 4\_1, 4\_2, 4\_3, 4\_4.]). She also had moderate rough patches throughout her skin. The patient underwent 1 pass of fractional CO2 laser using the Deka SmartXide laser at the following setting: 10 watt, 500 micron spacing, and 800 msec pulse duration, for facial rejuvenation (Table 7). After the procedure, she had some moderate erythema and irritation. She was instructed to start using the TLR cream and gentle cleanser twice daily post-procedure.

By day 7, the patient felt that her rough patches had improved as well as her discoloration. The dermatologist scored her outcome as improved; GAIS score 1. By week 8, the patient had significant improvement in signs of aging, irritation, rough patches, discoloration, and erythema and had a GAIS score of 3, very much improved (Table 7). She had a significant reduction in dark spots and facial discoloration (Figure 4\_2). At the end of 8 weeks of using the TLR cream, the patient felt that her overall skin quality had greatly improved and that her skin looked healthier, younger, more supple, smoother, and with reduced wrinkles and discoloration. The TLR cream helped with post-procedure cutaneous healing and soothing of the skin, in addition to contributing to daily moisturizing action.

**CASE 4\_1, 4\_2, 4\_3, 4\_4. Face of 56-year-old female.** Face shown at baseline after fractional CO2 laser and at week 8 post-procedure with twice daily use of triple lipid restore cream **A.** Side View of Face under white light **B.** Side View of Face Showing Discoloration **C.** Side View of Face Showing Erythema **D.** Frontal view under white light (*Photo courtesy of Steven Nisticò MD*).



**TABLE 7.****Scores From 8-Week Follow-up of Patient in Case 4**

Results	Before Starting Triple Lipid Moisturizer	Follow-up Week 1	Follow-up Week 4	Follow-up Week 8
Erythema score	Score – (3)	Score – (2)	Score – (2)	Score – (0)
Skin Tone/Discoloration	Score – (3)	Score – (3)	Score – (2)	Score – (1)
Skin Texture	Score – (3)	Score – (3)	Score – (2)	Score – (1)
Discomfort	Score – (6)	Score – (5)	Score – (4)	Score – (1)
Tolerability	Score – (3)	Score – (2)	Score – (2)	Score – (0)
Overall Appearance	Score – (3)	Score – (3)	Score – (2)	Score – (1)

**Case 5**

A 65-year-old female, FST III, presented for facial rejuvenation. She denied any impact on her daily life but requested procedures to improve skin brightness and texture. The patient received Potenza MRF (monopolar, 1 MHz, depth 1.25 mm, impact 4), in combination with the TLR cream and gentle cleanser as her integrated skincare regimen. On day 0, the patient was noted to have moderate rough patches, moderate areas of discoloration, and mild pink coloration on some of her face (Table 8). She reported 4 out of 10 in skin discomfort but did not exhibit any visible irritation. Overall, she had moderate signs of aging (Table 8).

On day 7, the patient was noted to have decreased erythema and rough patches without any noted improvement in GAIS score. At week 4, her discoloration improved to mild and had minimal rough patches. Her overall appearance had improved and had a GAIS score of 1, improved. The patient continued to improve over the next 4 weeks and had a GAIS rating of 2, much improved by

8 weeks (Figure 5 [= Case 5\_1]). She had no residual erythema only mild discoloration, and minimal rough patches. Her skin discomfort was a 2 out of 10. The patient strongly agreed that her skin looked healthier and brighter. She was satisfied with the product and tolerated it well. The TLR cream was demonstrated to be a suitable post-procedure treatment to optimize patient outcomes after MRF.

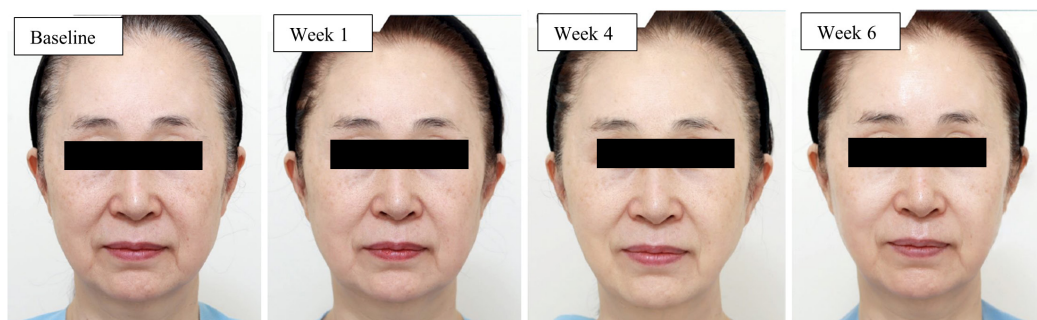
**Case 6**

A 55-year-old female, FST II, presented with moderate facial sagging and mild rough skin texture. The patient requested facial rejuvenation procedures. She was also found to have mild pigmentation around the eyes and diffuse fine wrinkles with minimal erythema. At the presentation, the patient did not use skincare products or a skincare regimen. The patient's dermatologist performed Virtue RF in combination with Corage 2.0, a multi-wavelength energy-based collagen-stimulating technology. The multi-wavelength energy-based device was used

**TABLE 8.****Scores From 8-Week Follow-up of Patient in Case 5**

Results	Before Starting Triple Lipid Moisturizer	Follow-up Week 1	Follow-up Week 4	Follow-up Week 8
Erythema score	Score – (2)	Score – (1)	Score – (1)	Score – (0)
Skin Tone/Discoloration	Score – (3)	Score – (3)	Score – (2)	Score – (2)
Skin Texture	Score – (3)	Score – (2)	Score – (1)	Score – (1)
Discomfort	Score – (4)	Score – (5)	Score – (3)	Score – (2)
Tolerability	Score – (0)	Score – (1)	Score – (1)	Score – (0)
Overall Appearance	Score – (3)	Score – (3)	Score – (2)	Score – (2)

**CASE 5\_1. Face of 65-year-old female.** Face shown at baseline after MRF and at weeks 1, 4, 6 post-procedure with twice daily use of triple lipid restore cream (*Photo courtesy of Heewon Suh MD*).

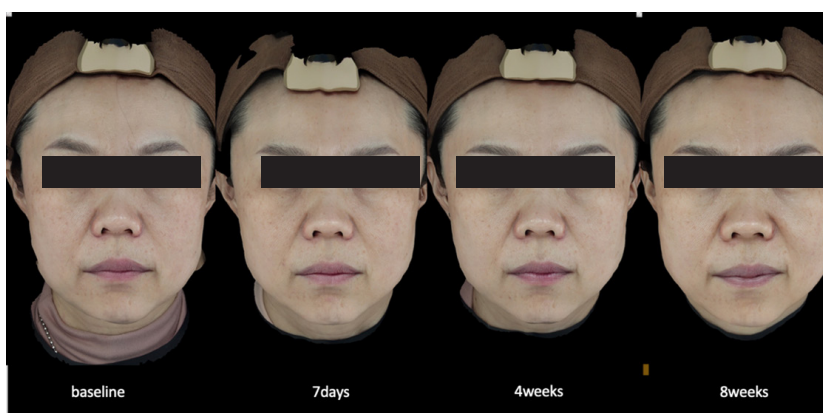




**TABLE 9.****Scores From 8-Week Follow-up of Patient in Case 6**

Results	Before Starting Triple Lipid Moisturizer	Follow-up Week 1	Follow-up Week 4	Follow-up Week 8
Erythema score	Score – (1)	Score – (1)	Score – (1)	Score – (0)
Skin Tone/Discoloration	Score – (3)	Score – (2)	Score – (1)	Score – (1)
Skin Texture	Score – (1)	Score – (0)	Score – (1)	Score – (0)
Discomfort	Score – (0)	Score – (0)	Score – (0)	Score – (0)
Tolerability	Score – (0)	Score – (0)	Score – (0)	Score – (0)
Overall Appearance	Score – (3)	Score – (3)	Score – (1)	Score – (1)

**CASE 6\_1. Face of 55-year-old female.** Face shown at baseline after MRF in combination with CORAGE 2.0 and post-procedure at weeks 1, 4, 8 with triple lipid restore cream and gentle cleanser, twice daily use (*Photo courtesy of Seunghee Lee MD*).



at level 24 in ceramic mode for 15 minutes, 10 times a week. The Virtue RF used with the following settings: 1Mhz, 10 pulse, 0.6 mm depth for 2 to 3 passes on the patient's face. In parallel, the patient applied the TLR cream and gentle skin cleanser, twice daily. On day 0, the patient had moderate discoloration, minimal rough patches, and moderate skins of overall aging (Table 9). She reported that her skin impacted every aspect of her life. She started the TLR cream and gentle cleanser immediately after her procedure on day 0.

On day 7, the GAIS of 1 already reflected an improvement in the patient's condition. The skin discoloration had improved from moderate to mild and the skin texture had improved to have only minimal rough patches. The patient had a GAIS score of

+2 by week 4, which was maintained through week 8. Using the integrated skincare regimen, the patient was found to have only minimal aging signs by week 8 (Figure 6 [=Case 6\_1]). The patient's skin benefited from the soothing, hydrating properties of the TLR cream, which helped her skin recover and tolerate the energy-based devices used in her skin rejuvenation treatment plan.

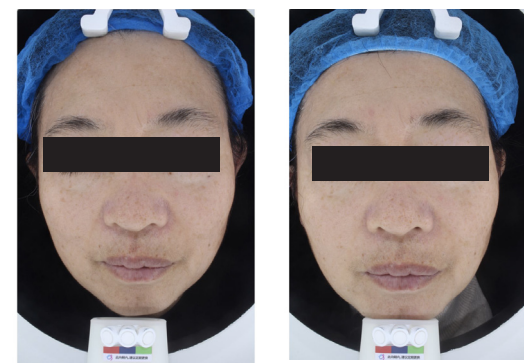
#### Case 7

A 58-year-old woman female, FST III, presented with aging skin. She requested treatment for wrinkles, large pores, and uneven skin tone and texture. She also had diffuse dark spots from years of sun exposure across the frontal and malar surfaces of her face. Upon presentation, the patient had her skin hydration, TEWL, melanin index, rebound time, skin thickness, erythema

**TABLE 10.****Scores From 8-Week Follow-up of Patient in Case 7**

Results	Before Starting Triple Lipid Moisturizer	Follow-up Week 1	Follow-up Week 4	Follow-up Week 8
Erythema score	Score – (2)	Score – (2)	Score – (2)	Score – (1)
Skin Tone/Discoloration	Score – (2)	Score – (3)	Score – (2)	Score – (1)
Skin Texture	Score – (3)	Score – (2)	Score – (2)	Score – (1)
Discomfort	Score – (5)	Score – (5)	Score – (3)	Score – (2)
Tolerability	Score – (2)	Score – (2)	Score – (1)	Score – (1)
Overall Appearance	Score – (3)	Score – (3)	Score – (2)	Score – (1)

**CASE 7\_1 BASELINE, 7\_2 WEEK 8.** Frontal view of face of 58-year-old female. Face seen at baseline and at week 8 post-MRF procedure with use of triple lipid restore cream (*Photo courtesy of Minfang Wang MD*).



Baseline

Week 8

index, and collagen density measured which were 133, 12.7, 33.9, 1421, 1462, 13.2, and 13.2, respectively. She underwent MRF with post-procedure use of the TLR cream and gentle cleanser. The Peninsula MRF system was used at the following settings 8-10 W, delay time 500 ms, depth 1.2-1.5 mm for 1 pass.

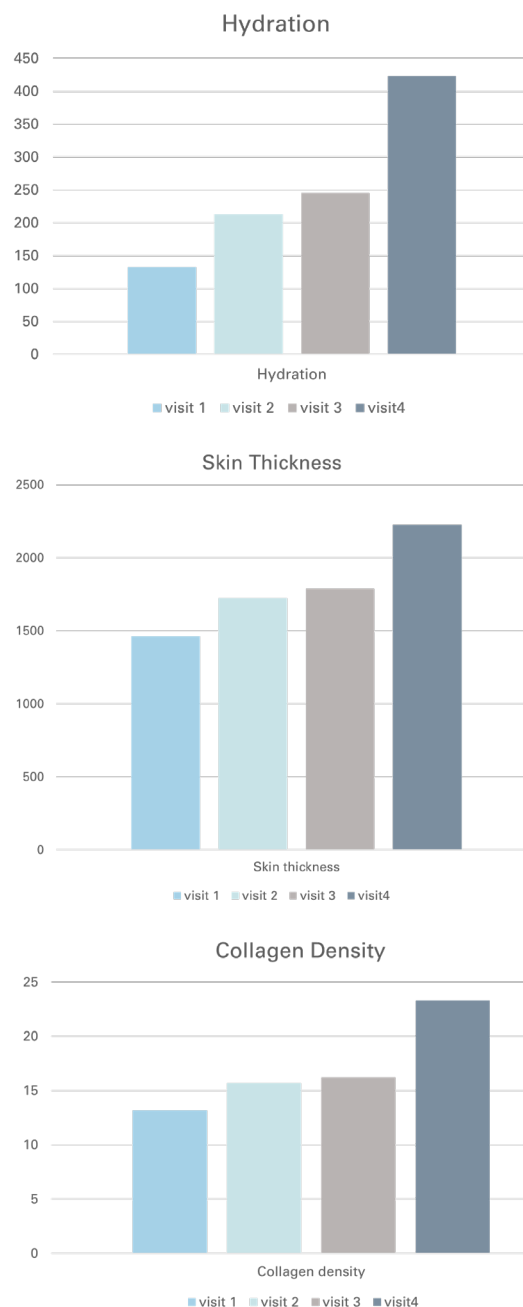
After 8 weeks, the patient saw significant improvement in her skin confirmed by re-measurements of her skin hydration, TEWL, melanin index, rebound time, skin thickness, erythema index, and collagen density. Her skin hydration index had increased to 423 and collagen density to 23.3 (Figure 8). In addition, the patient saw a reduction in TEWL and melanin index to 11.3 and 31.2, respectively. The rebound skin of her time reduced to 1073 and skin thickness reduced to 2225 (Figure 8 [= Figure 8\_1, 8\_2, 8\_3]). Over 8 weeks, the patient also saw a reduction in discoloration, erythema, and uneven skin texture. (Figure 7 [= Case 7\_1 baseline, 7\_2 week 8.]). At the end of the treatment period, the patient had only minimal signs of aging and the patient agreed that her skin felt healthier, younger, more supple, and brighter (Table 10).

## DISCUSSION

Few existing guidelines for skin rejuvenation procedures guide patients and dermatologists from pre- to post-treatment. Real-world cases can help provide expert, anecdotal evidence for effective post-EBD cutaneous healing regimens that may complement dermatologic procedures performed in the clinic. They provide examples of a variety of treatment plans in a diverse patient group that may serve as example regimens for individuals over the age of 50 years seeking skin rejuvenation therapies. Further, implementing cutaneous healing skincare allows patients to regain autonomy and play an active role in their care. The patient cases discussed illustrate a cutaneous healing regimen using the lipid-containing post-procedure cream treatment for cutaneous healing post-EBD treatment.

With age, the skin barrier becomes less efficient in preventing loss of moisture due to significant losses in skin lipid levels.<sup>14</sup> This is due to reduced delivery of secreted lipids to the stratum

**FIGURE 8\_1, 8\_2, 8\_3.** Case 7: Measurement of hydration (8\_1), collagen density, and skin thickness over 8 weeks of cream use. All measurements represent the average of face areas measured.



corneum which results in fewer extracellular lamellar bilayers and increased permeability compared to younger skin.<sup>14</sup> Topical supplementation with physiological lipids is crucial in supporting healthy skin barriers.<sup>14</sup> In the past, research on skin barrier abnormalities has largely focused on atopic dermatitis (AD). In AD, ceramide-dominant formulations of moisturizers with a 3:1:1 molar ratio of ceramides, cholesterol, and free fatty acids are considered ideal.<sup>18</sup> However, restoring lipid levels in older adults with damaged, aged skin appears to require a different

formulation, one with more cholesterol.<sup>18</sup> Restoring lipid levels is especially important in older adults who undergo procedures that disrupt the skin barrier such as MRF or laser procedures.<sup>14</sup> Having already reduced lipid levels, the skin of older individuals is particularly vulnerable to dryness and discomfort after procedures. Experts agree that the TLR cream provides the appropriate ratio of lipids to best support healthy skin barriers in aging skin.

The TLR cream is the first topical formulation to contain all 3 types of physiologically relevant lipids (2:4:2, ceramide, cholesterol, fatty acid) in a ratio optimal for aging skin.<sup>18</sup> Cholesterol is the predominant lipid in the TLR cream, which has been shown to accelerate barrier recovery following injury.<sup>17</sup> Patient and expert dermatologist experience has also confirmed that the lipid-containing cream soothes and hydrates skin after aggressive MRF and laser treatments. Prior to the TLR cream, thick occlusive ointments were often the first option post-procedure to lock in skin moisture. However, based on patient experience, the TLR cream provides as much hydration and protection as ointments and is much easier and pleasant to apply. In addition, the TLR cream appears to improve skin smoothness and texture over time, potentially working synergistically with procedure-based rejuvenation techniques. Experts suggest that the TLR cream may be optimally used with MRF and/or other non-ablative laser techniques to help with skin healing and long-term skin maintenance treatment. Energy-based procedures such as MRF activate a post-trauma repair mechanism, which is necessarily supported by lipid levels in the skin. Therefore, supporting lipid skin levels in older individuals is crucial after procedures that activate repair mechanisms.

Experts agreed that the TLR cream was an ideal post-procedure treatment with high patient and dermatologist satisfaction. In the future, extending the length of patient observation may lead to greater results as patients were only observed after one MRF or laser treatment. In reality, patients often return for multiple laser sessions and MRF treatments over months. Using the TLR cream to complement procedure-based treatments results in optimized patient outcomes as well as increased patient satisfaction and empowerment.

### Limitations

While the presented cases demonstrate the successful use of TLR cream with energy-based procedures, it is difficult to discern if positive patient outcomes were attributed more to the skincare regimen or EBD procedures. It will be important to compare the triple lipid cream to another lipid-based cream to determine superiority for optimal patient outcomes and integrated skincare regimens.

### CONCLUSION

The real-world cases presented demonstrate how the TLR cream is used in combination with EBD procedures in an integrated skincare model for skin rejuvenation of aged skin. Experts' cumulative experience and insight suggest that the TLR cream uniquely supports the skin of older individuals who have reduced skin lipids levels. However, experts emphasize that the

TLR cream is beneficial for all skin types and ages. In this case series, the TLR cream was used as a post-procedure cream in older individuals to help with cutaneous healing and promote skin rejuvenation long-term. These cases demonstrate the successful use of an integrative skincare regimen including the TLR cream. This regimen may be used as a guide for patients and dermatologists in the field of skin rejuvenation in the future.

### DISCLOSURES

The real-world case series was supported by an unrestricted educational grant from SkinCeuticals International- L'Oréal Groupe who supplied the products for the real-world case series in commercially available packaging to the physicians who participated. All authors contributed to the cases and development of the manuscript, reviewed it, and agreed with its content.

### ACKNOWLEDGMENT

The authors acknowledge and thank Sophie Guénin MSc for her assistance in preparing this manuscript.

### REFERENCES

- Asop S. 2019 Plastic Surgery Statistics Report. ASPS National Clearinghouse of Plastic Surgery Procedural Statistics. Available at: <https://www.plasticsurgery.org/documents/news/Statistics/2019/plastic-surgery-statistics-report-2019.pdf>.
- Tijerina JD, Morrison SD, Nolan IT, et al. Predicting public interest in nonsurgical cosmetic procedures using Google trends. *Aesthet Surg J*. 2020;40(11):1253-1262.
- Makrantonaki E, Zouboulis CC. Molecular mechanisms of skin aging: state of the art: State of the art. *Ann NY Acad Sci*. 2007;1119(1):40-50.
- Burgess CM, ed. *Cosmetic Dermatology*. Heidelberg, Germany: Springer. 2005:170.
- Alster TS, Li MK. Dermatologic laser side effects and complications: Prevention and management. *Am J Clin Dermatol*. 2020;21(5):711-723.
- Alexis AF. Lasers and light-based therapies in ethnic skin: treatment options and recommendations for Fitzpatrick skin types V and VI. *Br J Dermatol*. 2013;169 Suppl 3:91-97.
- Angra K, Lipp MB, Sekhon S, et al. Review of post-laser-resurfacing topical agents for improved healing and cosmesis. *J Clin Aesthet Dermatol*. 2021;14(8):24-32.
- Kim J, Kim J, Lee YI, et al. Effect of a topical antioxidant serum containing vitamin C, vitamin E, and ferulic acid after Q-switched 1064-nm Nd: YAG laser for treatment of environment-induced skin pigmentation. *Journal of Cosmetic Dermatology*. 2020;19(10):2576-2582.
- Gold M, Abdulla S, Andriessen A, et al. Real-world patient cases using botanical serum-containing corrective gel as an adjunct to aesthetic facial laser or microneedling radiofrequency (MRF) treatment. *J Drugs Dermatol*. 2024;23(3):SF400676s3-SF400676s14.
- Choi EH. Aging of the skin barrier. *Clin Dermatol*. 2019;37(4):336-345.
- Ghadially R, Brown BE, Sequeira-Martin SM, et al. The aged epidermal permeability barrier. Structural, functional, and lipid biochemical abnormalities in humans and a senescent murine model. *J Clin Invest*. 1995;95(5):2281-2290.
- Proksch E, Brandner JM, Jensen JM. The skin: an indispensable barrier. *Exp Dermatol*. 2008;17(12):1063-1072.
- Danby SG, Andrew PV, Kay LJ, et al. Enhancement of stratum corneum lipid structure improves skin barrier function and protects against irritation in adults with dry, eczema-prone skin. *Br J Dermatol*. 2022;186(5):875-886.
- Rogers J, Harding C, Mayo A, et al. Stratum corneum lipids: the effect of ageing and the seasons. *Arch Derm Res*. 1996;288(12):765-770.
- Huang HC, Chang TM. Ceramide 1 and ceramide 3 act synergistically on skin hydration and the transepidermal water loss of sodium lauryl sulfate-irritated skin. *Int J Dermatol*. 2008;47(8):812-819.
- Zettersten EM, Ghadially R, Feingold KR, et al. Optimal ratios of topical stratum corneum lipids improve barrier recovery in chronologically aged skin. *J Am Acad Dermatol*. 1997;37(3 Pt 1):403-408.
- Sundaram H, Du A, Yatskayer M, et al. Pilot evaluation of a novel topical formulation containing high level, cholesterol-dominant, physiological lipids for specific targeting of skin barrier deficits in aging skin. *J Drugs Dermatol*. 15(12):1513-1523.
- Kircik LH, Del Rosso JO, Aversa D. Evaluating clinical use of a ceramide-dominant, physiologic lipid-based topical emulsion for atopic dermatitis. *J Clin Aesthet Dermatol*. 2011;4(3):34-40.

### AUTHOR CORRESPONDENCE

Anneke Andriessen PhD

E-mail: ..... ti016762@telfort.nl





