

Safe and Effective Treatment of Acne Scars on Asian Skin with the Novel Fractional Ablative 2910 nm Erbium-Doped Fluoride Glass Fiber Laser

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SUMMARY

Acne scarring is a prevalent concern among Asian patients with Fitzpatrick Skin Types (FST) III–V, who are at increased risk of post-inflammatory hyperpigmentation (PIH) and other complications following laser treatments. Traditional ablative lasers, such as CO₂ and Er:YAG, often result in prolonged downtime and higher rates of adverse events. This study evaluates the safety and efficacy of the 2910 nm fractional ablative fiber laser (UltraClear, Acclaro Medical) in treating acne scars on Asian skin. The laser's advanced fractional blended pulse technology enables precise energy delivery, minimizing thermal damage while optimizing recovery. A clinical case series of four Asian patients (FST IV) demonstrated significant improvement in scar texture and depth with minimal downtime and no observed PIH or adverse events. These results highlight the potential of the 2910 nm fiber laser as a safe and effective option for treating acne scars in Asian populations.

INTRODUCTION

Acne scarring is a prevalent dermatological concern, particularly among patients with FST III - FST V, which are common in Asian populations.^{1,2} It has been reported that more than half of Asian acne patients suffer from acne scars.¹ Treating acne scars on Asian skin presents unique challenges due to an increased risk of post-inflammatory hyperpigmentation (PIH), erythema, and other adverse events associated with laser-based treatments.²⁻⁵ Traditional resurfacing lasers, while effective, often struggle to strike a balance between efficacy and safety in these skin types and ethnicities.⁴⁻⁶

In this case series, the 2910 nm fiber laser (UltraClear, Acclaro Medical), with its advanced fractional technology and precise parameters, demonstrates the ability to safely and effectively treat acne scars on Asian skin. This white paper outlines specific protocols used in a clinical setting and showcases significant improvement in acne scarring following one to two 2910 nm fiber laser treatments.

BACKGROUND ON TREATING ASIAN SKIN

Asian skin, characterized by its thicker dermis and increased melanin content, is more prone to PIH and thermal damage during laser procedures.^{2-5,7} Conventional ablative lasers, such as CO₂ and Er: YAG, while effective for resurfacing, often result in prolonged downtime, discomfort, and higher rates of complications when used on darker skin tones.⁸⁻¹¹

With a spot size of 170 µm, the 2910 nm fiber laser utilizes advanced fractional technology, enabling controlled delivery of ablative energy with high precision. This precision minimizes collateral thermal damage, reducing the risk of PIH and enhancing recovery times.^{12,13} With customizable modes such as Clear, Clear+, Ultra, UltraClear and more, the system offers versatility to tailor treatments to individual patient needs, including those with Asian skin.

CLINICAL CASE SERIES: TREATMENT PROTOCOLS & OUTCOMES

A series of four Asian patients, FST IV, with acne scarring were treated using the 2910 nm fiber laser. The following outlines the corresponding treatment parameters, patient experience and outcomes:

CASE #1



Figure 1: 30-year-old female at baseline and 15 days following a single treatment. Outcome: Follow-up photos demonstrated significant improvement in scar texture and depth. No adverse events or PIH were observed.

Treatment Parameters	
Mode	Ultra
Coverage (%)	3%
Drill Depth (μm)	750 μm
Coagulation Level	0

CASE #2



Figure 2: 22-year-old male at baseline and 15 days following two treatments.

Outcome: Follow-up photos demonstrated significant improvement in scar texture and depth. No adverse events or PIH were observed.

Treatment Parameters	1 st Pass	2 nd Pass
Mode	Ultra	Clear
Coverage (%)	1%	25%
Ring / Drill (1,2,3)	1	1
Ring / Drill Depth (µm)	500 µm	20 µm
Coagulation Level	1	0

CASE #3



Figure 3: 23-year-old male at baseline and 15 days following a single treatment.

Outcome: Follow-up photos demonstrated significant improvement in scar texture and depth. No adverse events or PIH were observed.

Treatment Parameters	1 st Pass	2 nd Pass
Mode	Ultra	Clear
Coverage (%)	1%	25%
Ring / Drill (1,2,3)	1	1
Ring / Drill Depth (µm)	500 µm	20 µm
Coagulation Level	0	0

CASE #4



Figure 4: 20-year-old female at baseline and 7 days following two treatments.

Outcome: Follow-up photos demonstrated significant improvement in scar texture and depth. No adverse events, PIH or prolonged erythema were observed.

Treatment Parameters	1 st Pass	2 nd Pass
Mode	Ultra	Clear
Coverage (%)	1%	25%
Ring / Drill (1,2,3)	1	1
Ring / Drill Depth (μm)	500 μm	20 μm
Coagulation Level	1	0

Patient Experience

Treatment discomfort was managed solely with topical anesthetic. None of the patients reported experiencing pain or discomfort. Downtime was minimal, with all patients taking approximately one week for complete healing. Historically, patients had received fractional CO2 laser, RF microneedling, and microneedling treatments, with no significant improvement. All four patients reported high satisfaction with the results of the 2910 nm fiber laser treatment(s) received.

Dr. Khanh's Perspective:

1. *"I chose UltraClear for my clients because it is an ablative laser device that is highly suitable for Asian skin. Compared to traditional ablative lasers like CO2 or Erbium:YAG, UltraClear significantly reduces the risk of post-inflammatory hyperpigmentation (PIH). Additionally, one of its standout features is the reduced pain during treatment, which is a major advantage for my high-end clientele who prioritize both comfort and effectiveness."*
2. *"Before UltraClear, my clinic primarily used a traditional CO2 laser. In comparison, I find UltraClear superior in terms of precision, adjustable depth, and predictable outcomes. It also offers a faster recovery time, which enhances both patient satisfaction and treatment efficiency."*
3. *"My clients particularly enjoy the 3DMIRACL mode, as they find the procedure comfortable and the results impressive. While some patients with scarring concerns may experience a risk of hyperpigmentation, they generally accept it as a trade-off for scar improvement. Moreover, any hyperpigmentation can be effectively managed with the Clear mode, making overall patient feedback on UltraClear overwhelmingly positive."*
4. *"In my experience, UltraClear has immense potential in treating superficial pigmentation and benign pigmented lesions, particularly for Asian skin. The Clear mode has delivered outstanding results, achieving at least a 60% reduction in superficial pigmentation in just one session. The ability to minimize PIH, provide noticeable skin brightening, and eliminate the need for numbing cream during treatment marks a significant breakthrough in aesthetic dermatology, especially for ablative lasers."*

DISCUSSION

The 2910 nm fiber laser mode versatility and parameter flexibility, offer independent adjustment of coverage, pattern shape and size, depth, and coagulation, allowing providers the ability to customize protocols for optimal results on Asian skin. Key observations from this clinical series include:

1. **Efficacy:** Significant improvement in acne scars was observed across all patients, with reductions in scar depth, improved texture, and more even skin tone.
2. **Safety:** No adverse events, prolonged erythema, or post-inflammatory hyperpigmentation were reported.
3. **Flexibility:** The 2910 nm fiber laser range of treatment parameters —allow for adjustable treatment protocols including multi-pass, multi-depth approaches— allowed treatments to be tailored to individual patient needs.
4. **Recovery:** Patients experienced minimal downtime, demonstrating the 2910 nm fiber laser suitability for Asian skin types.

CONCLUSION

The 2910 nm fiber laser has demonstrated the ability to safely and effectively treat acne scars on Asian skin, a population historically at risk for complications with ablative treatments.²⁻⁵ By leveraging fractional delivery, adjustable coverage, precise depth control, and adjustable coagulation with a customized thermal dose, the 2910 nm fiber laser minimizes thermal damage while achieving reliable and appreciable clinical outcomes with one to two treatments.

These results underscore the importance of advanced technologies like the 2910 nm fiber laser in addressing the unique needs of Asian patients. Physicians can confidently adopt these protocols to deliver safe, effective, and reproducible results in treating acne scars on Asian skin.

ACKNOWLEDGEMENT

The clinical outcomes described in this paper reflect the expertise of Dr. Anna Khanh and highlight the precision and versatility of the 2910 nm fiber laser (UltraClear, Acclaro Medical) in addressing a patient population with increased risk of unwanted post-treatment responses.

DISCLAIMER

The information, including but not limited to, text, graphics, images and other material contained in this presentation are for informational purposes only. No material in this training module is intended to be a substitute for professional medical advice, diagnosis or treatment.

This clinical training module is intended for **educational purposes only**. Patient results may vary, and treatment outcomes are influenced by multiple factors including skin type, medical history, and provider technique.

Sample treatment parameters provided in this module serve as general guidance from industry experts and should not replace clinical judgment. When in doubt, always perform test spots prior to treatment to assess patient tissue response and safety. Providers must refer to the UltraClear User Manual and Quick Reference Guides for official device instructions, safety protocols, and additional guidance.

By using this training module, you acknowledge that **Acclaro Medical is not responsible for any adverse events, misuse, or misinterpretation of the information provided**. Providers should always adhere to applicable regulatory guidelines and best clinical practices when performing treatments.

For further assistance, contact Acclaro Medical Clinical Support clinicalsupport@acclaromd.com

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