

## **Safe and Effective Treatment of a Benign Pigmented Lesion and Superficial Pigmentation on Darker Skin with the Novel Fractional Ablative 2910 nm Erbium-Doped Fluoride Fiber Glass Laser**

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### **SUMMARY**

Benign pigmented lesions and superficial pigmentation present unique treatment challenges for patients with Fitzpatrick Skin Types IV-VI due to the heightened risk of post-inflammatory hyperpigmentation (PIH) and prolonged erythema. Traditional resurfacing lasers, such as CO<sub>2</sub> and Er:YAG, often yield suboptimal results in these skin types. This white paper explores the efficacy and safety of the novel 2910 nm fractional ablative fiber laser (UltraClear, Acclaro Medical) in treating pigmented lesions with minimal risk. Through a clinical case series, the 2910 nm fiber laser demonstrated significant pigmentation improvement with reduced downtime and no observed PIH. The cold ablation technology, adjustable treatment parameters, and precise energy delivery of the 2910 nm fiber laser make it a promising modality for the treatment of darker Fitzpatrick skin types. The findings support the integration of this advanced laser technology into aesthetic and dermatological practices to enhance patient outcomes while minimize complications.

## INTRODUCTION

Benign pigmented lesions, including superficial pigmentation and seborrheic keratoses, are common concerns in patients with dark skin tones (Fitzpatrick Skin Types IV-VI).<sup>1,2</sup> Historically successful treatments of these lesions presents unique challenges due to the increased risk of post-inflammatory hyperpigmentation (PIH) and prolonged erythema following laser procedures.<sup>2,3</sup> It has been reported that hyperpigmentation occurs in almost 100% of dark-skinned patients between 6 weeks and 6 months after laser ablation.<sup>3</sup> Traditional resurfacing lasers, such as CO<sub>2</sub> and Er:YAG, often lead to suboptimal results in these skin types, necessitating the need for safer, more effective technologies.

In this case series, the 2910 nm fiber laser (UltraClear, Acclaro Medical), proprietary fractional and cold ablation technology has demonstrated the ability to treat benign pigmented lesions and superficial pigmentation with minimal risk to patients with darker skin tones. This white paper outlines specific treatment protocols and highlights the importance of safe, effective laser therapy for patients with higher Fitzpatrick skin types.

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## BACKGROUND ON TREATING DARKER SKIN TYPES

Patients with darker skin are at a higher risk for PIH and prolonged healing following laser-based treatments.<sup>2,3</sup> The increased melanin content in the epidermis absorbs more laser energy, which can lead to excessive thermal damage and unintended pigmentation changes.<sup>5</sup> Fitzpatrick skin type VI has been shown to absorb up to 40% more energy than Type I or II skin when penetrated by a visible light laser using the same fluence and exposure duration.<sup>6</sup> Conventional laser modalities may fail to provide the targeted energy delivery and precision necessary to safely treat pigmented lesions without significant downtime or risk of adverse effects.<sup>2,3,6</sup>

The 2910 nm fiber laser employs a non-thermal, fractional approach that minimizes epidermal trauma while effectively targeting pigmented lesions. The system's Clear Mode allows for precise control of density, depth, and energy delivery, making it an optimal choice for treating benign pigmented lesions and superficial pigmentation in darker skin tones.

## CLINICAL CASE SERIES: TREATMENT PROTOCOLS & OUTCOMES

### Dr. Vyas: Treatment of Superficial Pigmentation in Skin Type V Patient



Figure 1: A Fitzpatrick Type V female patient was treated for superficial pigmentation using Clear mode. The following treatment parameters were utilized:

Treatment 1 Parameters	
Mode	Clear
Coverage (%)	25%
Ring (1,2,3)	1
Ring Depth ( $\mu\text{m}$ )	10 $\mu\text{m}$
Coagulation / Therme	0

Treatment 2 Parameters (Performed 7 Months Post 1 <sup>st</sup> Treatment)	
Mode	Clear
Coverage (%)	25%
Ring (1,2,3)	1
Ring Depth ( $\mu\text{m}$ )	30 $\mu\text{m}$
Coagulation / Therme	0

### Adjunctive Skincare:

- The patient utilized topical tretinoin and hydroquinone before and after treatment under physician supervision
- A rotating schedule of 3 months on hydroquinone followed by alternative tyrosinase inhibitors (such as arbutin) was employed

### Outcome:

- Significant improvement in pigmentation with minimal downtime
- No signs of PIH or complications were observed

### Dr. Vyas's Perspective:

1. *"I chose this modality as my patient was looking for a treatment with minimal pain, short treatment time, and low downtime to complement her at-home skincare regimen. UltraClear was perfect to address all these requirements."*
2. *"UltraClear has the potential to become a gold-standard modality not only in the treatment of benign pigmented lesions but also for early prevention and maintenance. Regular maintenance treatments in younger patients as a preventative approach have certainly proved beneficial in my practice."*

### Dr. Linnell: Treatment of Seborrheic Keratosis in a Skin Type IV Patient



Figure 2: A Fitzpatrick Type IV female patient presented with seborrheic keratosis (benign pigmented lesion) on the left periocular area. The patient had previously undergone two CO2 laser treatments in the same area with minimal success. The 2910 nm fiber laser was chosen as an alternative due to its lower risk of PIH.

Treatment 1 & Treatment 2 Parameters	* Two Passes Performed
Mode	Clear
Pattern Size	15x15 mm
Coverage (%)	50%
Ring (1,2,3)	3
Ring Depth (µm)	7.5 µm
Coagulation / Therme	0

**Second Treatment (1 month later):**

- Same protocol and settings as the first treatment

**Adjunctive Skincare:**

- No adjunctive skincare was utilized pre-or post-treatment to achieve outcomes

**Outcome:**

- Marked reduction in benign pigmented lesion appearance
- Minimal post-procedure downtime, with no PIH observed

**Dr. Linnell's Perspective:**

1. *"We chose to use the UltraClear for this patient as she had failed other treatment modalities (CO2) and because of her skin type (IV, Filipino). We were worried about post-inflammatory hyperpigmentation. Given UltraClear's unique mechanism, we felt this would be a lower risk for PIH."*
2. *"In my opinion, UltraClear will become the gold standard of treatments for many benign pigmented lesions. Nothing else compares with it in terms of outcome and tolerability for the patient."*



## DISCUSSION

Adjustable treatment parameters, such as mode selection, pattern shape and size, coverage, depth, and multiple passes, allow for a highly customized approach to treating pigmented lesions and superficial pigmentation in darker skin tones.

Key takeaways from these clinical cases include:

1. **Efficacy:** Both patients showed significant improvement 3-4 months following two treatments with minimal downtime.
2. **Safety:** No adverse events, prolonged erythema, or post-inflammatory hyperpigmentation were reported.
3. **Flexibility:** The 2910 nm fiber laser's versatility and independently adjustable treatment parameters allowed safe application on Fitzpatrick IV and V patients.
4. **Skincare Integration:** The use of adjunctive skincare, such as hydroquinone and tretinoin, was instrumental in optimizing results and mitigating risks.

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## CONCLUSION

The 2910 nm fiber laser has demonstrated exceptional efficacy and safety in treating benign pigmented lesions and superficial pigmentation in Fitzpatrick Skin Types IV-V. By utilizing advanced blended pulse technology and fiber laser precision, the novel 2910 nm fiber laser minimizes thermal damage and reduces the risk of PIH, making it an optimal choice for dermatologic and aesthetic skin specialists seeking safe and effective solutions for a wide global patient population.<sup>7</sup>

These cases reinforce the importance of incorporating the latest technological advancements that prioritize patient safety while delivering notable and reliable clinical outcomes. With the groundbreaking 2910 nm fiber laser, providers can confidently integrate cutting edge laser treatments for benign pigmented lesions and superficial pigmentation in patients with Fitzpatrick IV-V skin types.

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## ACKNOWLEDGEMENT

The clinical outcomes described in this paper reflect the expertise of Dr. Vyas and Dr. Linnell and highlight the precision and versatility of the 2910 nm fiber laser (UltraClear, Acclaro Medical).

## 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  
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