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Treatment of Pseudofolliculitis Barbae (PFB) with the GentleYAG®

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Introduction

Pseudofolliculitis barbae (PFB) is a chronic inflammatory condition of the hair follicle that appears primarily in the area of a man's face as a result of shaving. It can affect men and women of all races wherever shaving takes place, including the armpits, pubic area and legs. PFB is observed more frequently in people with dark skin and curly hair. The incident rate in African Americans has been reported as high as 80%.

The pathogenesis of PFB is multi-factorial, depending upon the anatomical site of hair growth. In general, it occurs when the hair is cut obliquely, sharpening the tip (distal) of a curved hair follicle, which then re-introduces itself into the skin, causing inflammation and a foreign body reaction—this results in multiple erythematous papules and pustules.

Treatment includes the use of antibiotics, topical steroids, retinoid, benzoyl peroxide, all typically with typically mixed results. Considering that hair is the primary factor responsible in the pathogenesis of the Pseudo-folliculitis barbae, eliminating it is a definitive treatment option for the condition.

The objective of this study was to evaluate the effectiveness of the GentleYAG Nd:YAG laser from Candela Corporation, in the treatment of the pseudofolliculitis of the beard.

Method

Ten male patients of varying skin types (50% Type III, 40% Type IV and 10% Type V) between the ages of 21 and 37 years with a diagnosis of pseudofolliculitis of beard, who were resistant to conventional treatments were treated with a

Nd:YAG 1064 nm laser per manufacturer's recommended treatment parameters. (Table 1)

Table 1
Treatment parameters used in patients with pseudofolliculitis barbae (PFB)

Skin Type	Pulse		Fluence (J/cm ²)	Cooling	
	Duration (ms)	Spot (mm)		DCD Spray/ Time (ms)	Retreat (wks)
III	3	12	50	30/20/0	5-6 weeks
IV	3	12	20-40	30/20/0	5-6 weeks
V	3	12	18-20	30/20/0	5-6 weeks

The sessions were repeated every five or six weeks for a total of six (6) treatments

After each procedure, a topical, low potency corticosteroid was applied, and the patient was instructed to use the corticosteroid twice a day for next three days.

Treatment efficacy was measured by the percentage reduction in hair counts and by the clinical improvement of the lesions.

Results

In 60% of the patients, the whole beard area was treated, while 40% of the patients received treatment in the neck area.

All patients experienced a significant reduction in the number of papules and pustules after the first session, with some demonstrating up to a 60% clearance rate. After four treatments, 80% of the patients demonstrated significant clearing.

Two patients experienced complete improvement of the lesions after the second session, and three patients after five treatments. 50% hair reduction was observed in six patients after the first session, 40% in one, 30% in one and 60% of hair reduction in two patients. All patients experienced an 80% reduction in hair counts



after the fourth session and 90% after the fifth session. Immediately after the laser application, all patients presented urticarian papules of variable intensity that disappeared in six hours without side effects.

All patients reported varying but acceptable levels of pain during the treatment sessions, with no incremental pain reported in the successive sessions. Hyper- or hypo-pigmentation was not observed in any of the cases.

All of the patients reported total satisfaction with the improvement of the lesions, and in the reduction of the body hair.

Discussion

There are several reports about the use of lasers to treat PFB. Nani et al. reported using a long-pulse Alexandrite laser, but they observed that the reduction of the hair was temporary. Chui et al used a ruby laser in white patients and observed improvement up to ten months after three treatments. Later, Battle et al. reported the safety and efficacy of using a long-pulse 800 nm laser in dark-skinned patients.

Subsequently, these studies were confirmed by Ross et al. who treated 37 patients for PFB with skin types IV, V, and VI, using a 1064 nm Nd:YAG laser. Following a single treatment using fluences between 50 and 100 J/cm², they observed a 33 to 40% reduction in hair. Ross et al. also demonstrated a visible improvement in PFB lesions in the treated areas compared with untreated areas.

This data matches the results observed in our study, where the reduction of hair and lesions was clearly evidenced after the first treatment session. Interestingly, the fluences used on our patients were much smaller, with excellent results demonstrated nonetheless.

Several aspects of laser therapy have changed since lasers were first introduced to permanently eliminate hair, including improved skin cooling methodologies, and the use of longer wavelength lasers, such as 755 nm, 810 nm and 1064 nm energies. These longer wavelengths reduce relative melanin absorption and minimize collateral tissue injury. This reduced melanin absorption is especially useful when treating darker skin types, and allows for the use of larger spot sizes (for faster treatments) and increased fluences (for greater efficacy).

Conclusion

Pseudofolliculitis barbae is a relatively common chronic inflammatory affliction that causes a great deal of pain and uneasiness in patients who suffer from it. The lack of an effective therapy has historically limited the dermatologist's treatment capabilities in this area. It can be recommended that the use of a Nd:YAG laser to treat PFB will result in a highly effective treatment without side effects resulting in the improved quality of life of those patients treated.

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Figure 1. Pretreatment.



Figure 2. Pretreatment.



Figure 3. After one treatment.



Figure 4. After five treatments.



Figure 5. After six treatments.

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