Lasers can be used effectively on ethnic skin to treat conditions such as pseudofolliculitis barbae, hirsutism and acne keloidalis nuchae. Read on for a review of four cases of patients whose conditions were successfully treated with lasers.

LONG-PULSED Nd:YAG FOR THE TREATMENT OF PSEUDOFOLLICULITIS BARBAE AND HIRSUTISM

CASE 1
Patient Presentation
A 23-year-old African-American man presented with a history of pseudofolliculitis barbae for 5 years. Previous hair removal methods utilized included conventional razors, depilatories (Magic Shave), electric razors and electric clippers. He had achieved the best results with electric clippers but continued with significant pseudofolliculitis, spending up to 1 hour daily removing ingrown hairs. Physical examination revealed red follicular papules on the neck and chin. Multiple dark brown hyperpigmented papules and macules were also present.

Treatment
The patient was treated with the long-pulsed Nd:YAG (1064 nm CoolGlide) laser. Topical 5% lidocaine (EMLA, Ela-Max) was applied for 30 minutes prior to the procedure. Epidermal cooling was achieved with contact pre-cooling with the laser handpiece. He was treated with an energy of 40 J/cm² and a pulse width of 40 ms. Hair ejection was noted during treatment. Post cooling with an ice pack was applied for 5 minutes after the proce-
dure. He tolerated the procedure well.

Clinical Course

The patient noticed an immediate improvement in his condition within 2 days after the laser treatment as many hairs were ejected during the procedure. The remaining treated beard hairs fell out 1 to 2 weeks following the procedure. Approximately 4 to 5 weeks following laser hair removal, new hairs were noted in the treated area, however, the patient denied any new ingrown hairs. Two months following the initial treatment, a few ingrown hairs were present but far less severe than on initial presentation.

A second treatment with an energy of 40 J/cm² and a pulse width of 35 ms was performed. The patient tolerated the procedure well. The patient received a third treatment 2 months later. The patient continues to be largely symptom-free 18 months following his last procedure. Ingrown hairs in the treated area are infrequent.

CASE 2

Patient Presentation

A 31-year-old African-American woman presented with a 10-year history of hirsutism. On presentation, she said she tweezed hair regularly and complained of frequent ingrown hairs. She has a family history of hirsutism, and hormonal evaluation was within normal limits. Physical examination revealed coarse dark terminal hair on the cheeks and chin. Multiple hyperpigmented macules and papules were present.

Treatment

The patient was treated with the long-pulsed Nd:YAG at an energy of 40 J/cm² and a pulse width of 40 ms. Hair ejection was noted during the procedure. As with the patient in case one, topical 5% lidocaine was applied for 30 minutes prior to the procedure, and epidermal cooling was achieved with contact pre-cooling with the laser hand-piece. Post cooling with an ice pack was applied for 5 minutes after the procedure. She tolerated the procedure well.

Clinical Course

The patient noticed immediate improvement in her condition after the first laser treatment. About 70% of facial hair fell out within 2 weeks after the first treatment and regrowth of new hair was noticed 4 weeks after each laser treatment. The patient received 6 monthly treatments. The settings were modified at each treatment (as treated facial hair became finer) to a final setting of 42 J/cm² and 35 ms. Since completing her initial series, she returns twice yearly for maintenance and has achieved approximately 80% permanent reduction in unwanted facial hair. The remaining hairs are finer. She denies any ingrown hairs.

Discussion

Pseudofolliculitis barbae (PFB) affects up to 80% of African-American men.1 Hirsute women are also frequently affected.2 Prior to laser hair removal, treatment options were limited and were frequently ineffective. Depending on the affected area, most men achieve excellent results within two to four treatments.3 More treatments are required for women affected with this condition since these patients not only desire cessation of ingrown hairs but also more permanent hair reduction. The area most responsive to treatment is the upper neck/lower chin area. In men, the central cheek area can be more challenging to treat, as patchy alopecia will result. This is most apparent in men with dense beard hair. Most men who have involvement of both the neck and cheeks choose to treat the entire beard area leaving only upper lip and chin hair in a “goatee” type pattern. Patients must be educated that patchy hair loss will occur when treating PFB on the cheeks and growing a full beard may not be possible in the future.

Unwanted facial hair in women can be effectively treated with the long-pulsed Nd:YAG laser. Multiple treatments are required for best results. Settings should be modified at each treatment.

Pseudofolliculitis barbae, as seen above, can be treated with the long-pulsed Nd:YAG laser with an energy of 40 J/cm² and pulse width of 40 ms.

Unwanted facial hair in women can be treated with the long-pulsed Nd:YAG laser. Multiple treatments are required for best results. Settings should be modified at each treatment.
ments is usually recommended. Patients should also understand that although the majority of hair will be permanently reduced, there will be some remaining hairs. Once realistic expectations are established, patients are most satisfied with the results.

Overall, patients with PFB and unwanted facial hair can achieve excellent results with laser-assisted hair removal. With the introduction of the long-pulsed Nd:YAG laser, patients with skin types V and VI can enjoy the benefits of laser-assisted hair reduction with minimal risk of side effects. After laser treatments, ingrown hairs are infrequent and less severe. When treating hirsute women, a series of multiple treatments, in addition to occasional maintenance treatments, are required to achieve optimal results.

NON-ABLATIVE LASER TECHNOLOGY FOR TREATMENT OF ACNE KELOIDALIS NUCHAE

CASE 3

Patient Presentation

A 47-year-old African-American male patient presented with a 4-year history of acne keloidalis nuchae of the occipital scalp. Previous treatments included various combinations of diltiasem diacetate 0.05% cream (Maxilair, Psorcon E), benzoyl peroxide 5%/clindamycin 1% (Benzacain, Duac) and muciparoic acid (Bactroban). He subsequently underwent elliptical excision of the alopecic plaque down to the underlying fascia followed by gentle electrocautery. The wound healed well, without incident. One-year post-op, the patient complained of recurrence of papules in the surgical scar. Additionally, the patient complained of pruritus in the affected area, which was relieved by topical diflorasone diacetate 0.05% cream. Physical exam revealed a firm, linear, hairless plaque with a smooth glossy surface on the occipital scalp. Recurrence of pink papules was noted in the surgical scar.

Treatment

This patient was treated for acne keloidalis nuchae with a non-ablative flashlamp pumped, pulsed dye laser at settings of 1.5 J/cm², a pulse duration of 350 microseconds and a spot size of 7 mm for 98 pulses.
CASE 4
Patient Presentation
A 36-year-old Hispanic man presented with a 7-year history of acne keloidalis nuchae. Previous treatments included clobetasol foam (Olix), clindamycin gel (Cleocin T) and sodium sulfacetamide 10%/sulfur5% cleanser (Plexion, Sulfacet R) with no significant improvement.

Treatment
After a 3-week washout period, he was treated with the non-ablative Nd:YAG laser (Medlite) at settings of 1.5 J/cm² and a pulse duration of 6 ms for a total of 34 pulses. No topical anesthesia was used. Epidermal cooling was achieved with an ice pack to the skin for 5 to 10 minutes before and after the procedure. Transient erythema was observed post-treatment. No flaking, crusting or hyperpigmentation was observed.

Clinical Course
Improvement in the scar thickness was noted 3 weeks after laser treatment. The patient received a second laser treatment 1 month later. The patient remains improved, using clobetasol foam for intermittent pruritus 11 months after treatment.

Discussion
Acne keloidalis nuchae (AKN) is a scarring alopecia that commonly affects men and women with skin of color, especially African-American men. Due to the location of papules on the occipital scalp where hair is closely cut, the theory that acne keloidalis is related to ingrown hairs has been entertained. More recent data suggest that AKN is a primary scarring alopecia.4,5

Treatment options include topical steroids, oral and topical antibiotics, retinoids and topical anti-inflammatories. Aggressive and early intervention is necessary to halt the inflammatory process. Once keloidal plaques develop, surgery is frequently required. Interestingly, in these cases, non-ablative laser technology proved to be successful not only in halting the progression of AKN, but also in reversing the scarring process.

The newer non-ablative lasers such as the 1320 nm and 1064 nm Nd:YAG, the 1450 nm diode, and the wrinkle mode of the flashlamp pumped, pulsed dye laser have been utilized in darker skin types to target collagen for other conditions, such as rhytids and acne scarring.6-8 The infrared lasers offer a safe alternative in darker-skinned patients since the wavelengths are outside of the absorption spectrum of melanin.

Histologic studies suggest that they may work by inducing thermal injury in the dermis. The thermal injury affects the dermal vasculature to start a series of inflammatory events including fibroblast proliferation and collagen remodeling.9 Non-ablative lasers may offer a new treatment option for patients with AKN by altering the scarring process. Further investigations are necessary to elucidate the role of non-ablative laser technology in the treatment of AKN and other dermatologic conditions characterized by scarring.10

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References