

## CASE REPORT

# Treatment of dermatosis papulosa nigra with a 1064 nm Nd:YAG laser: Report of two cases

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### Abstract

Dermatosis papulosa nigra (DPN) is a chronic skin condition characterized by verrucous hyperpigmented papules on the face, neck and upper trunk in African American patients. The lesions are more common in females and in older patients. Although the lesions are benign, treatment is often sought for cosmetic reasons. We report two cases of patients with facial DPN who achieved an excellent cosmetic result following a single treatment with a long-pulsed 1064 nm Nd:YAG laser. We suggest this modality for consideration in treating patients with DPN.

**Key words:** *Ethnic skin, lasers, light sources*

### Introduction

Dermatosis papulosa nigra (DPN) is a chronic skin condition characterized by verrucous hyperpigmented papules on the face, neck and upper trunk in African American patients. Investigators have reported a 35–77% incidence in this population with women being more commonly affected than men (1,2). Lesions appear in darker skinned adults as 1–5 mm hyperpigmented macules or papules but may also be pedunculated. The number of lesions often increases as the patient ages. Histologically, the lesions are benign and resemble seborrheic keratoses. No treatment is required for DPN; however, patients often seek treatment for cosmetic reasons. We report the successful treatment of DPN in two patients using a long-pulsed 1064 nm neodymium:yttrium-aluminum-garnet (Nd:YAG) laser. This modality has not been reported for this condition in the literature until now.

### Materials and methods

All treatments were performed with a long-pulsed 1064 nm Nd:YAG laser using the Xeo<sup>®</sup> platform (Cutera Inc., Brisbane, CA, USA). No sedation or anesthesia of any kind was used in the treatments. Patients reported minimal discomfort.

### Case 1

A 42-year-old African American female presented to our dermatology clinic with a 20-year history of multiple bumps on her face that were increasing in number as she aged. She was interested in treatment to reduce the appearance of the lesions on her face. Physical exam revealed a Fitzpatrick skin type V patient with numerous 2–4 mm dark brown papules on the malar cheeks and around her eyes (Figure 1). After a discussion on different treatment options, the decision to treat with a long-pulsed 1064 nm Nd:YAG laser was decided upon. Initially, two lesions were treated with the laser using a 3 mm spot size. Fluences utilized ranged from 145 to 155 J/cm<sup>2</sup>, the pulse duration was set at 20 ms and each lesion was double pulsed. After pulsing, a ‘popping’ sound ensued and a small plume of smoke emanated from the lesions.

The procedure was tolerated well by the patient with minimal pain and without the need for topical anesthesia. White petroleum jelly was applied to treated areas immediately after treatment. One month following the test treatment, the patient reported resolution of the lesions without any scarring or evidence of pigmentary changes. At that visit, she received full-face treatment to all the remaining lesions using the same settings as above. One week following the treatment, as expected, the patient had crusting of all treated lesions (Figure 2).



Figure 1. Typical lesions of dermatosis papulosa nigra.



Figure 2. One week post-treatment with a 1064 Nd:YAG laser.

Two months following treatment she returned to the clinic and expressed great satisfaction with the



Figure 3. Two months post-treatment with a 1064 Nd:YAG laser.

treatment results (Figure 3). It was estimated that around 90% of the laser-treated lesions had resolved without any residual pigmentary changes. At the last follow-up 7 months following full-face treatment, the patient continued to maintain her positive result without recurrence of the lesions. In addition, no scarring or post-inflammatory pigmentation changes occurred.

### Case 2

A 53-year-old African American female (Fitzpatrick skin type V) with a long-standing history of DPN on her face and neck presented to our clinic with an interest in the removal of her lesions. After a discussion on the potential risks, the patient received a test treatment on two lesions with the 1064 nm Nd:YAG laser. At 1 month follow-up the patient noted resolution of the treated lesions and elected to receive treatment for the remaining lesions. The lesions were treated with a 3 mm spot size 1064 nm Nd:YAG laser using a fluence of 155 J/cm<sup>2</sup> and pulse duration of 20 ms. Each lesion was double pulsed and again a 'popping' sound ensued and a plume of smoke was emanated from the lesions. Two months after treatment the patient was very satisfied with the results. On examination, about 70% of the treated lesions had resolved without any scarring or pigmentary changes.

## Discussion

DPN is a chronic skin condition that is very common in African American patients (1,2). Many patients find these lesions unsightly and seek counsel from physicians to discuss options for removal.

Treatments for DPN have included cryotherapy, electrodesiccation and/or curettage. Pedunculated lesions have also been removed with scissors. It is well known that these treatment methods (in particular cryotherapy) may cause unsatisfactory cosmetic results including scarring and post-inflammatory hyper- or hypopigmentation (1–3). Additionally, these procedures may cause patient discomfort requiring anesthesia prior to treatment.

The treatment of DPN using a 532 nm diode laser has been reported with positive results (4,5). One author reports that in treating patients with this modality for over 10 years they have experienced no pigmentary changes after treatment (4).

The 1064 Nd:YAG laser is a near infrared laser run at the 1064 nm wavelength. Melanin is relatively weakly absorbed at the 1064 nm wavelength, which makes it safe to use in those with darker skin tones. The short-pulsed 1064 nm Nd:YAG laser has been shown to be highly effective for clearing pigmented lesions such as lentigines and is also useful for black tattoo removal (6). The long-pulsed 1064 nm Nd:YAG laser is useful in treating vascular lesions such as blue spider veins, and is also the laser of choice for hair removal in patients with Fitzpatrick skin type IV or higher.

Given the safety of the 1064 nm Nd:YAG laser in darker skin types and reports of successful treatment of DPN with a 532 nm laser, we found it logical to use our long-pulsed 1064 laser to treat DPN lesions. We achieved excellent cosmetic results after a single treatment without any side effects. In addition, our patients reported minimal

discomfort and required no anesthesia. Treatment time was also very fast and between 5 and 10 minutes per patient.

In summary, we successfully treated two patients with DPN using a single treatment with a long-pulsed 1064 nm Nd:YAG laser. This modality offered excellent cosmetic results without any side effects. Both patient and physician satisfaction were high. It is important to keep in mind that while our patients experienced no adverse effects, the potential risks do include pigmentary changes and possible scarring. Patients with DPN should be aware of these potential side effects before they elect to receive this treatment. The authors also recommend treating a few ‘test areas’ and confirming that the patient is satisfied with the result before embarking on a full-face treatment.

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