

## CASE REPORT

# Dermatosis Papulosa Nigra and 10,600-nm CO<sub>2</sub> laser, a good choice

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### Abstract

Dermatosis Papulosa Nigra (DPN) is a common skin condition observed in black people and considered a benign epithelial tumor, and more specifically, a particular topographic form of seborrheic keratosis. We treated five female patients affected by DPN with 10,600-nm CO<sub>2</sub> laser.

We propose the 10,600-nm CO<sub>2</sub> laser as a valid therapeutic option in patients affected by DPN, since the treatment is well tolerated, causes no major side effects, and is effective and long lasting.

**Key Words:** *Dermatosis Papulosa Nigra, 10,600-nm CO<sub>2</sub> laser, laser therapy*

### Introduction

Dermatosis Papulosa Nigra (DPN) is a common skin condition observed in black people, characterized by superficial, round, pigmented papules localized predominantly on the malar regions of the face, as well as the forehead, neck, and upper trunk. The papules, which are considered a form of seborrheic keratoses, initially appear on the face and then spread to all the photo-exposed areas.

Although the lesions are benign epithelial tumors, treatment is often sought by patients for cosmetic reasons.

By using a 10,600-nm CO<sub>2</sub> laser in order to treat five cases of facial DPN we were able to completely remove the lesions and achieve excellent cosmetic results in all cases, with no scar formation.

### Case history

We treated five female patients affected by DPN with 10,600-nm CO<sub>2</sub> laser. One of them was Brazilian, 48 years old, with no family history for DPN. Three other patients were Cubans; two of them (aged 61 and 64) had a positive family history, while the third one, who was 52 years old, had no family history for DPN.

The most severely affected patient was a 57-year-old Peruvian woman, who presented small, round, verrucous hyper-pigmented papules with a keratotic appearance. She had between 40 and 60 dark brown to black lesions localized on the malar regions of the face and on the neck (Figure 1a). As in the majority of DPN cases there was a positive family history with the mother being affected by a milder form of DPN.

Due to facial disfigurement caused by several pigmented papules, this patient had a stronger desire for therapy than the others. In the past she had repeated treatments with electrodesiccation, without success.

The initial diagnosis of Dermatitis Papulosa Nigra, based on typical clinical features, ethnic and familial predisposition, was confirmed by a histological analysis of a biopsy specimen taken from lesional skin of the neck, which revealed parakeratosis, a diffuse epidermal hyperpigmentation, horn cysts, pseudocysts, acanthosis, and papillomatosis.

### Material and methods

We treated this patient using a 10,600-nm CO<sub>2</sub> pulsed laser (SmartXide DOT, DEKA-M.E.L.A.,

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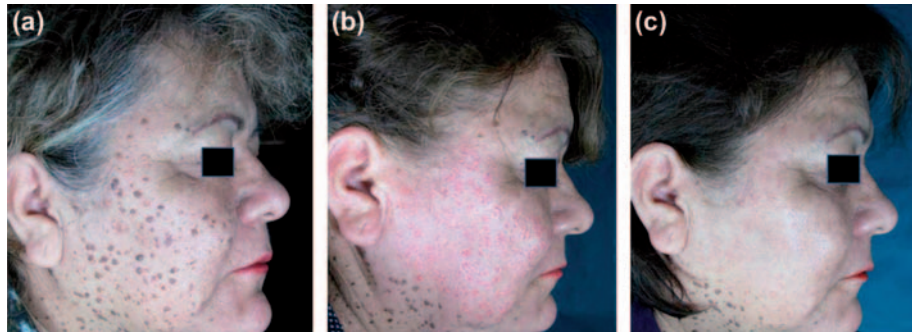


Figure 1. (a) Dermatitis Papulosa Nigra in the Peruvian patient at baseline. (b) Dermatitis Papulosa Nigra in the patient after one treatment with 10,600-nm CO<sub>2</sub> laser. Erythema of the cheek immediately after laser treatment. (c) There are no lesion recurrences and neither side effects at the 8-month follow-up.

Calenzano, Italy) with spot size of 0.7 mm, 0.5–0.7 W, and 10 Hz. Surface anesthesia was not required since the procedure itself is not particularly painful. In addition local anesthesia could cause edema and hinder the ‘visual feedback processing’ during treatment.

Initial explorative laser therapy was carried out on a small area in order to test whether this kind of laser was effective for removing the lesions and to estimate the patient’s skin reaction. Since the test was successful, we extended the treatment to the remaining skin areas during the same session.

## Results

Results were excellent and immediate (Figure 1b), and remained stable over time. In fact, at the 8-month follow-up there had been no recurrence (Figure 1c). The patient tolerated the laser treatment well without any side effects except for mild local pain. For this reason she was satisfied with the clinical outcome and pleased to have avoided the discomfort that other therapies might have caused.

An antibiotic cream and sunscreen were applied regularly by the patient for 15 days after therapy to prevent infection and postinflammatory hyperpigmentation.

The treatment was applied to the other four patients, achieving similar results. Usually one or two applications proved to be sufficient for treating the entire face.

## Discussion

DPN is a common skin condition among African-Americans and Asians, and the incidence in adult black people is between 35% and 77% (1,2). It can be considered a benign epithelial tumor, and more specifically, a particular topographic form of seborrheic keratosis (3,4). The condition affects predominantly females with family predisposition (about half of the patients have a positive family history), and is localized mainly on photo-exposed areas like

the facial and neck region. It clinically appears with small, superficial, dark brown to black (1–5 mm), round or filiform, smooth-surfaced papules.

Over time DPN lesions increase in number and size, therefore therapy is often difficult and frustrating for patients, who seek a successful and painless removal of lesions.

Treatment options include surgical excision, curettage, cryotherapy, electrodesiccation (5) and laser procedures. The field of laser techniques for DPN is very extensive: it includes 532-nm diode laser, 1064-nm neodymium-doped yttrium aluminum garnet (Nd:YAG) laser (6), potassium-titanyl-phosphate (KTP) laser (7), 1550-nm erbium-doped Fraxel laser (8), and 10,600-nm CO<sub>2</sub> laser. Since lasers are less time-consuming than other traditional methods such as surgery or electrodesiccation, the use of lasers can be advantageous for the physician especially when patients have numerous DPN lesions. In our experience we prefer 10,600-nm CO<sub>2</sub> laser since this procedure, thanks to a precise skin vaporization, often requires one single session to eliminate epidermal lesions (Figures 1a–c and 2a, b), it has no or minimal postoperative morbidity, it does not require surface anesthesia, it has a predictable outcome, and it induces greater and faster skin healing, minimizing the risk of scarring and depigmentation.

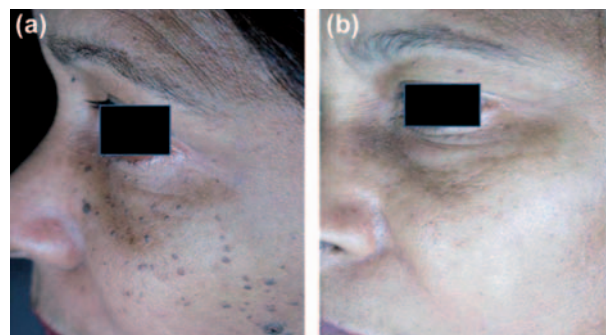


Figure 2. (a) Dermatitis Papulosa Nigra in the Cuban patient at baseline. (b) The same Cuban patient at the 8-month follow-up, no lesion recurrences.

In conclusion, we propose the 10,600-nm CO<sub>2</sub> laser which represents a valid therapeutic option in patients affected by DPN, since the treatment is well tolerated, causes no major side effects, and is effective and long lasting.

**Declaration of interest:** The authors report no declarations of interest. The authors alone are responsible for the content and writing of the paper.

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