Treatment of disseminated superficial actinic porokeratosis with 1,340nm Nd:YAP laser

Tratamento da poroqueratose actínica superficial disseminada com laser 1340-nm Nd:YAP

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ABSTRACT

This study demonstrated the clinical and histologic result of the treatment of one disseminated superficial actinic porokeratosis patient with non-ablative fractional laser. The patient was treated with seven sessions of 1340-nm Nd:YAP laser, with 4 or 5 week-intervals. Biopsies and photographs were performed before and after treatment, which was well tolerated and lead to improvement in the erythema and texture of the lesions. There was a 1-year follow-up. Histopathologic examination after treatment revealed little changes in the cornoid lamella.

Keywords: Biopsy; Laser Therapy; Lasers; Porokeratosis

RESUMO

Este estudo demonstrou o resultado clínico e histológico do tratamento com laser fracionado não ablativo de paciente com poroqueratose actínica superficial disseminada. A paciente recebeu sete sessões de laser 1340-nm Nd:YAP, com intervalos de quatro a cinco semanas. Biópsias e fotos foram realizadas antes e após o tratamento, o qual foi bem tolerado e trouxe melhora do eritema e da textura das lesões. O seguimento foi de um ano. O exame anatomopatológico após o tratamento revelou pouca modificação da lamela cornoide.

Palavras-chave: *Biópsia; Lasers; Poroceratose; Terapia a Laser*

INTRODUCTION

Disseminated superficial actinic porokeratosis (DSAP) is a clonal proliferation of aberrant keratinocytes[1] that clinically arises as papules and erythematous or hyperchromic plaques with thin elevated borders in photoexposed body sites. [2] Ultraviolet radiation, immunosuppression and genetic factors are likely to contribute to its pathogenesis.[3]

Follow-up of these patients is necessary due to the potential malignant progression of the lesions. For symptomatic cases, there are a number of therapeutic options, such as diclofenac, calcipotriol, 5-fluoracil, imiquimod, topical and systemic retinoids, phototherapy and laser (CO_2: Er:YAG, Q-switched ruby, Q-switched Nd: 1,550nm YAG; erbium-doped, or 1,927nm thulium).[4-7]

Case Reports

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Two case reports[5,6] evidenced clinical improvement of DSAP after treatment with fractional laser. Nevertheless, histological follow-up was not carried out. The present article describes both the clinical and histological follow-up of a DSAP case treated with 1,340 nm Nd:YAP (Neodimiun:Ytrium Aluminum Perovskite) laser, which has water as its target.

CASE REPORT

A 61-year-old woman (Fitzpatrick skin phototype II) presented erythematous-hyperchromic papules and annular plaques measuring from 3 to 12 mm, with thin hyperkeratotic borders, predominating in the legs and sparse in photoexposed areas of the thorax and forearms (Figure 1). The lesions emerged 20 years before, having been worsened in the past previous years. The patient denied pain or pruritus. The patient's mother had similar lesions and multiple cutaneous neoplasias. Histological examination revealed cornoid lamella and hypogranulosis, confirming the diagnosis of disseminated superficial actinic porokeratosis (Figure 2). After therapeutic failure with topical 0.5mg/g tretinoin in dermatological cream on alternate days for four months, the patient underwent seven 1,340 nm Nd:YAP laser sessions (Etherea®, Industra Technologies, São Carlos, SP, Brazil), with intervals of four to five weeks. Four passes per session were performed with 100mJ / MTZ, 3ms pulse duration, 100MTZ / cm^2 density and 8mm tip. Tolerance to treatment was excellent. Although new lesions have emerged during the treatment, the patient and the medical team noticed improvement of erythema and cutaneous texture after 12 months of follow-up (Figure 3). Nonetheless, after seven sessions (eight months), the anatomopathological evidenced the presence of the cornoid lamella (Figure 4).

DISCUSSION

Fractional lasers produce microscopic treatment zones, sparing the tissue that surrounds the treated column. The non-ablative property of 1,340nm laser generates fewer complications and a shorter recovery time as compared to ablative lasers. However, there is absence of literature comparing ablative and non-ablative fractional lasers in the treatment of DSAP.

Just as in other case reports where lesions were treated with non-ablative fractional laser (1,550nm and 1,927nm),[5,6] the patient was satisfied with the improvement of the treated lesions, with absence of pain or complications, except for mild erythema. Nevertheless, the intervention did not prevent the occurrence of new lesions – which continued to increase in number despite the clinical improvement.

Biopsies performed before and after treatment revealed a similar corneal lamella, hypogranulosis, and dyskeratosis. This fact does not confirm the possibility that fractional laser is capable of reducing the risk of DSAP malignant transformation, of DSAP, emphasizing the importance of the clinical follow-up.

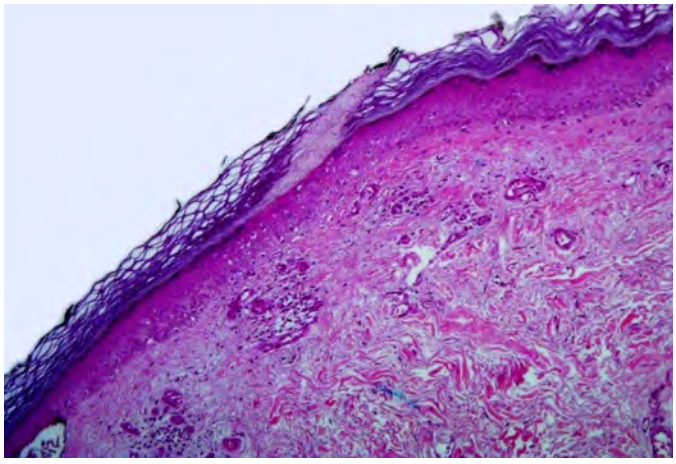

Figure 2: Histology (Hematoxylin & eosin x100) before treatment, evidencing the cornoid lamella

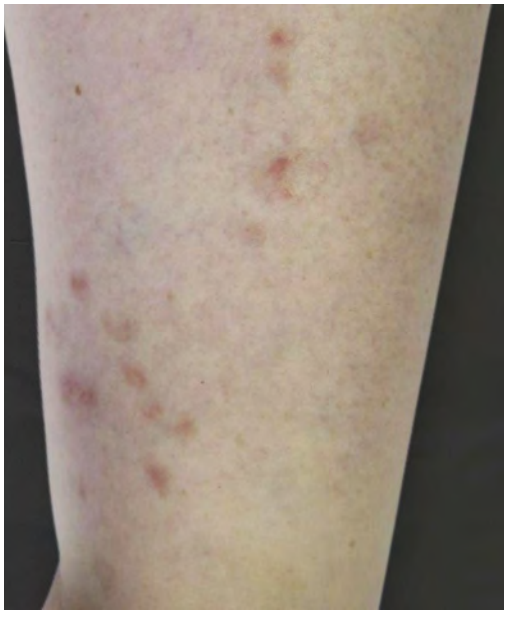

Figure 1: Active lesions of disseminated superficial actinic porokeratosis in the left leg before treatment

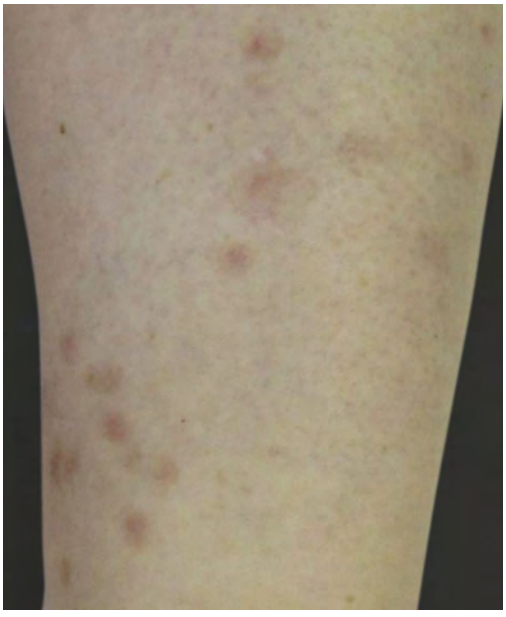

Figure 3: Left leg after 12 months of follow-up: improvement of skin texture and reduction of erythema and desquamation

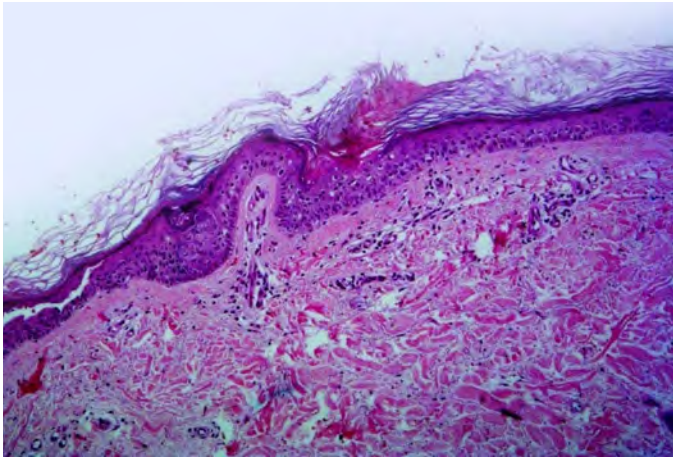

Figure 4: Histopathology (Hematoxylin & eosin x100) after treatment with fractional laser; cornoid lamella does not recede

CONCLUSION

The literature data offer a variety of therapeutic proposals with limited results for DSAP, a pathology that may bring possible risks to patients. In this way, the use of technologies becomes a potential alternative.

Despite the fact that the histologic picture did not change, treatment with 1,340nm fractional laser was proven as a well-tolerated therapeutic option for cosmetic improvement of DSAP.

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