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Q-Switched Laser for the treatment of mucocutaneous pigmentation on Peutz-Jeghers Syndrome

Laser Q-Switched para o tratamento da melanose labial na síndrome de Peutz-Jeghers

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ABSTRACT

Peutz-Jeghers syndrome (PJS) is a rare, autosomal dominant disease where there is a mutation in the tumor suppressor gene, with a greater predisposition to neoplasms, especially of the gastrointestinal tract. The first manifestations begin during childhood with the presence of mucocutaneous melanosis and, later, gastrointestinal hamartomatous polyps. We describe a case of a young woman whose initial PJS manifestation started during her childhood with cutaneous melanosis. Three sessions with the Q-switched 1064nm Nd:YAG and 532nm KTP lasers were performed to treat the melanosis with excellent results and without recurrence.

Keywords: Lasers; Lentigo; Peutz-Jeghers syndrome

RESUMO

A síndrome de Peutz-Jeghers (SPJ) é uma doença autossômica dominante, rara, em que há mutação no gene supressor tumoral, havendo maior predisposição para neoplasias, principalmente do trato gastrointestinal. As primeiras manifestações iniciam-se na infância com a presença de melanose mucocutânea e, posteriormente, surgem os pólipos hamartomatosos gastrointestinais. Apresentaremos o caso de uma paciente feminina, jovem, cujas manifestações iniciais da SPJ iniciaram-se na infância sob a forma de melanose cutânea. O tratamento dessas lesões foi realizado em três sessões com os lasers Nd:YAG Q-Switched 1064nm e KTP Q-Switched 532nm, evoluindo com excelente resposta terapêutica e sem recidiva.

Palavras-chave: *Lasers; Lentigo; Síndrome de Peutz-Jeghers*

Case report

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INTRODUCTION

Peutz-Jeghers syndrome (PJS) is an autosomal dominant disorder clinically expressed by mucocutaneous melanosis and intestinal polyposis. It is a rare disease, with an estimated 1:8,000 to 1:200,000 births. The skin lesions are composed of multiple pigmented macules distributed in perioral, lip vermilion, buccal mucosa, palate, tongue, palms, soles, and perianal region. These lesions may fade after adolescence or adulthood. Several therapeutic modalities have been proposed to treat skin lesions but without effect. The exception is the Q-Switched laser, which is effective and presents no scarring or recurrence.

CASE REPORT

A 27-year-old woman sought medical care due to a complaint of spots on her lips. She mentioned that the spots appeared before the first year of life, and, at the age of two, they were diagnosed with Peutz-Jeghers syndrome. She had no other associated diseases and was using only oral contraceptives. No history with other family members. Control colonoscopy and upper digestive endoscopy were performed, requiring polypectomy during these procedures, and enterectomy in 2016.

We proposed therapy with the 1064nm Q-Switched Nd:YAG and Q-Switched KTP lasers 532nm (New Vektra, Solon Platform, LMG, Guaxupé, MG, Brazil). The first session was performed in June 2019 (Figure 1) and the others with intervals every 30 days (Figures 2 and 3). Table 1 describes the parameters.

The patient evolved well, without intercurrences, and did not experience a recurrence in the follow-up two years after the last session.

DISCUSSION

Peutz-Jeghers syndrome (PJS) is an autosomal dominant disease associated with a mutation in the STK11 gene, located on chromosome 19p13.3, responsible for tumor suppression. [123] This mutation has been documented in 70-80% of patients, and up to 15% present partial or complete deletion.[1] Individuals with this syndrome are more predisposed to gastrointestinal neoplasms and, more rarely, breast, testicles, uterus, and ovaries cancer.[3,4,5]

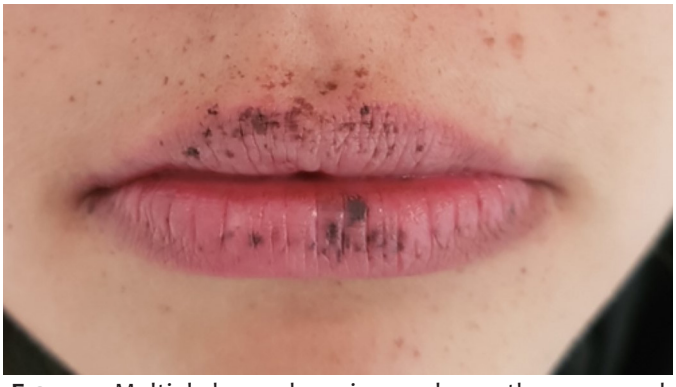

Figure 1: Multiple hyperchromic macules on the upper and lower lips (first laser session and treatment start)

Table 1: Parameters for the treatment of lip melanosis

Session	Filter (nm)	Spot (mm)	DP (ns)	Fluency (J/cm²)
1	1064 (dark lesions)	4	5	6
	532 (light lesions)	4	2	2
2	1064	2	5	19
	532	4	2	3
3	1064	2	5	19
	532	4	2	3

nm: nanometer; mm: millimeter; ns: nanoseconds

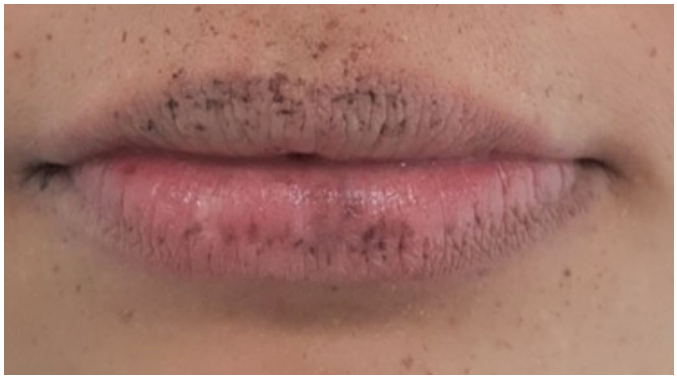

Figure 2: Attenuation in the staining of labial macules after the second laser session (30 days after the treatment start)

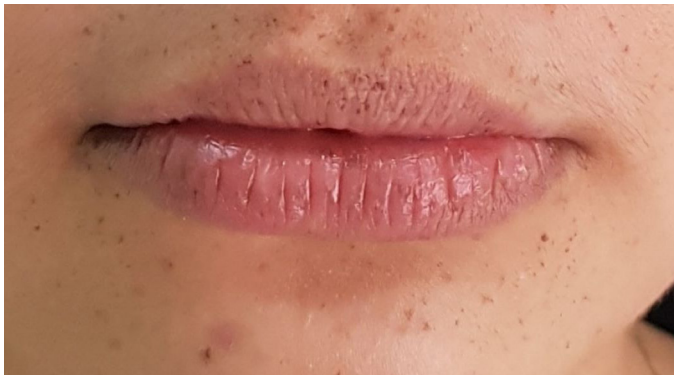

Figure 3: Significant reduction in the number of labial macules after the third laser session (60 days after the treatment start)

Clinically, it is characterized by hamartomatous polyps of the gastrointestinal tract, mainly in the jejunum, and mucocutaneous melanosis.1,5 Its onset is in childhood or early adolescence, while gastrointestinal changes appear in adolescence or adulthood.[1] The presence of multiple macules pigmented in the labial and perioral region suggests PJS, but is not pathognomonic, as they are also observed in Laugier-Hunziker syndrome (LHS).[1,3]

Histologically, the analysis of mucocutaneous lentigines suggests an increase in melanin granules in the epidermis, without melanocyte proliferation,[2,3] and it is an excellent target for pulsed lasers that have melanin as a chromophore.[2,3]

The protocol for the management of intestinal polyps and the screening for neoplasms in PJS is already well established. Nevertheless, it is not for facial lentigos, which have there is no standard treatment.[2,6] Several therapeutic modalities are used, such as dermabrasion, cryosurgery, surgical excision, electrodissection, or carbon dioxide or argon laser ablation. However, they present incomplete removal of the lesion, scarring, or change in skin pigmentation.[2,4,5]

The most commonly used lasers to treat pigmented lesions have ultrashort or Q-switched pulses (QS Alexandrite; QS ruby laser; QS Dye laser, and QS Nd:YAG), damaging the endogenous chromophores without harming adjacent collagen.[4,7,8] Given the histology of skin lesions associated with PJS, these types of laser have been preferred as a therapeutic option, showing resolution of the lesions, absence of residual scars, and preventing the recurrence of pigmented lesions.[1] For individuals with skin phototypes III and IV, QS Alexandrite and QS Nd:YAG are preferred over QS ruby, as this can cause residual hyperpigmentation.[1]

Few data are available in the literature regarding the use of QS Nd:YAG to treat lentiginous lesions in this syndrome. A retrospective study by Yiping Ge *et al*. demonstrated the effectiveness of this laser in the treatment of skin lesions associated with PJS, presenting excellent results with total remission with an average of 2.9 sessions and without recurrence after a follow-up of 12 to 97 months.[1] All patients were treated with the Q-switched Nd:YAG 532 nm laser, fluences of 1.8-2.2J/cm^2, a spot of 3 mm, and pulse amplitude of 5-20 ns.[1]

We found similar results using two wavelengths in the same session to enhance the result: 1064 nm for dark brown lesions and 532 nm for light brown lesions.

We present this case report to demonstrate that the Nd-YAG laser is effective and safe in treating mucocutaneous lesions in PJS, constituting a good therapeutic option. ●

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