

Vulvar lichen sclerosus: description of 5 cases successfully treated with the 2,940nm Erbium-YAG laser

Líquen escleroso vulvar: descrição de cinco casos de sucesso com laser Erbium-YAG 2940

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ABSTRACT

Lichen sclerosus is a chronic dermatosis, usually anogenital and mainly affecting post-menopausal women. The use of topical corticosteroids is the mainstay of medical treatment. Other treatments are topical testosterone, calcineurin inhibitors, photodynamic therapy, cryotherapy, antibiotic therapy and laser therapy. In this article, five patients with vulvar lichen sclerosus which had no response to treatment with topical clobetasol, had good results when treated with fractional Erbium:YAG laser 2940.

Keywords: laser therapy; vulvar lichen sclerosus; 17-Hydroxycorticosteroids

RESUMO

Líquen escleroso é dermatose crônica com predileção pela região genital. Acomete, principalmente, a raça branca, sendo mais frequente em mulheres. O tratamento-padrão é feito com corticosteroides tópicos de alta potência. Tratamentos com propionato de testosterona, imunomoduladores tópicos, terapia fotodinâmica, crioterapia, antibioticoterapia e laserterapia são citados na literatura. Neste artigo são relatados cinco casos de pacientes com líquen escleroso vulvar, sem sucesso com o clobetasol tópico, submetidas ao tratamento com Laser Erbium YAG 2940 fracionado. Os resultados foram bastante satisfatórios, sugerindo a laserterapia como opção no tratamento do líquen escleroso, incluídos casos de insucesso com o uso corticoides tópicos.

Palavras-chave: líquen escleroso vulvar; corticosteroides; terapia a laser

INTRODUCTION

Lichen sclerosus (LS) is a chronic and benign dermatosis that affects the genital and extragenital region. Vulvar involvement is predominantly observed in premenopausal and menopausal women, and may cause pruritus, pain, dyspareunia and sexual dysfunction (1,2).

Autoimmune and genetic factors are implicated in its etiology. Association with other autoimmune diseases corroborates this theory (3). The participation of the spirochaete *Borrelia Burgdorferi* is still controversial (1).

Clinically, it affects the perineum, labia majora and minora, clitoris and perianal region. It is characterized by hypochromic plaques, fissures, as well as causing a buried clitoris and fusion of the labia majora and minora. The main complaint is *pruritus vulvae*, associated or not with dysuria, dyspareunia and burning sensation. Lesions can also be observed lesions in genitocrural folds, thighs and buttocks (4).

Histologically the epidermis is scarce with hyperkeratosis, homogenization of collagen between the dermis and the epidermis, and lymphocytic infiltrate (4).

Case report

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Some cases of LS can progress to squamous cell carcinoma, requiring the control and clinical follow-up of these patients (5).

Many patients respond to treatment with the abolition of signs and symptoms, but in other cases the signs remain and the symptoms are intermittent (6).

Currently, the treatment is done with a high-potency topical corticosteroid (clobetasol) with good results. Other options are topical immunomodulators (tacrolimus and pimecrolimus), photodynamic therapy, cryotherapy, antibiotic therapy and laser therapy (7). The use of laser in the treatment of lichen is recent and few studies have used the fractional CO₂ laser (8,9,10); none have used the fractional 2,940 Er:YAG fractional laser.

The purpose of this study was to evaluate the efficacy of the 2,940 Er:YAG fractional laser

in the treatment of LS in cases where other treatments were not successful in relieving symptoms.

We have described in this article five cases of patients with LS confirmed by histological exams, resistant to the use of clobetasol who underwent five sessions of 2,940 Er:YAG fractional laser (Solon Platform – LMG, MG, Brasil) every 21 days, with an important improvement of lesions and pruritus. The parameters used are shown in Table 1.

Case 1

MSNL, 68 years old, Caucasian, underwent menopause 13 years previously, with clinical and anatomopathological diagnosis of LS for 8 years, intense vulvar pruritus without improvement with clobetasol 0.5 mg/g daily. At the examination presented with a loss of the vulvar architecture, hypopigmentation, whitish plaques and excoriations (Figure 1).

Two months after the last session the patient reported complete improvement of pruritus and that she was no longer using the topical clobetasol. During the clinical examination, presented improvement of skin texture and areas of repigmentation (Figure 1).

Case 2

MAV, 69 years old, Caucasian, underwent menopause 24 years previously, complaint of intense vulvar pruritus for 2 years. Clinical and anatomopathological diagnosis of LS, using clobetasol 0.5mg/g daily without improvement of pruritus. At examination, vulva with hypopigmentation and areas of leukoplakia mainly on the clitoral hood. (Figure 2).

Two months after the end of treatment, the patient reported improvement of 70% of pruritus and that since the last consultation she had not used the topical clobetasol. During the clinical examination, presented significant improvement of leukoplakia and areas of repigmentation (Figure 2).

Case 3

ERN, 70 years old, Caucasian, underwent menopause 25 years previously, presenting intense vulvar pruritus and little re-

TABLE 1: Treatment Protocol with 2,940 Er:YAG fractional laser

	Mode	Fluence (J/cm ²)	Pulse Width (ms)	Number of passes
Mucous Membrane	Ablative / Coagulative	17	Auto	2
Skin	Ablative	10	1.0	2



FIGURE 1: Case 1, photographs before and two months after the last session



FIGURE 2: Case 2, photographs before and two months after the last session



FIGURE 3: Case 3, photographs before and two months after the last session



FIGURE 4: Case 4, photographs before and two months after the last session

sponse to daily use of clobetasol 0.5mg/g. Upon examination, presented with a loss of the vulvar architecture, erythematous and atrophic mucosa, and fusion of the labia minora (Figure 3).

Two months after the end of the treatment, the patient reported improvement of 80% of pruritus and that since the last consultation she had used the topical clobetasol only when she had pruritus (once a week). During the examination, presented improvement of texture and separation of the labia minora (Figure 3).

Case 4

VES, 60 years old, Caucasian, underwent menopause 6 years previously, reported vulvar pruritus for over 1 year, using clobetasol 0.5mg/g twice a day since then, with little improvement. Upon examination, were observed loss of the vulvar architecture, hypopigmented and atrophic mucosa and whitish plaques (Figure 4.1).

Two months after the end of the treatment, the patient reported improvement of 100% of pruritus and that since the last consultation had not used the topical clobetasol. During the examination, presented improvement of the texture and color of the vulvar mucosa (Figure 4.2).



FIGURE 5: Case 5, photographs before and two months after the last session

Case 5

JGP, 67 years old, Caucasian, underwent menopause 24 year previously, presenting vulvar pruritus for over 23 years. She has used several topical medications without clinical improvement and underwent surgery for debridement in the clitoral region one year previous due to phimosis and abscess formation. Has been using clobetasol 0.5mg/g for 6 months, once a day with little response. During the clinical examination presented loss of the vulvar architecture, hypopigmented and atrophic mucosa (Figure 5).

Two months after the end of the treatment, the patient reported improvement of 100% of the pruritus and that she had not used the topical clobetasol. During the examination, presented improvement of the texture and pigmentation of the vulva (Figure 5).

DISCUSSION

Lichen Sclerosus can occur at all ages and both genders, but it is more frequently seen in postmenopausal women (11). Pruritus is the main complaint, often important, causing discomfort and even social isolation. Dyspareunia and loss of vulvar architecture are also common (12). Severe pruritus was reported by all patients, even with daily clobetasol use prior to the start of the treatment. After the third session there was a significant improvement in pruritus (of at least 50%) and a decrease in the frequency of daily corticosteroid application to once a week or less.

The pain during laser application was reported by all patients as moderate in the first session and mild in the following. We believe that the fear of the unknown towards the treatment, in its first session, was responsible for the greater intensity of the pain, because in the subsequent sessions it was less intense, without change to the parameters that were used. The topical anesthetic may ease the pain during the application.

Godoi et al., in 2015 (2) compared tissue biopsies with and without lichen sclerosus and found in patients with LS decreased elastic fibers in the upper layer of the dermis, associated with the increase of type V collagen and decreased expression of extracellular matrix protein 1, the latter two probably due to poor tissue repair due to the disappearance of the elastic fibers. As demonstrated in other areas of the body, laser induces remodeling of connective tissue through the production of collagen and elastic fibers (13). This process involves the interaction of the heat shock proteins 43, 47 and 70 that induce local increase of cytokines such as TGF- α (transforming growth factor alpha) that stimulates proteins in the matrix such as collagen, FGF (fibroblast growth factor) that stimulates angiogenic activity, EGF (epidermal growth factor) that stimulates reepithelialization, PDGF (platelet-derived growth factor) that stimulates fibroblasts to produce the components of the extracellular matrix and VEGF (vascular endothelial growth factor) that regulates angiogenesis (14). We believe that the remodeling promoted by the laser may play an important role in the reorganization of elastic fibers and consequently in the treatment of lichen sclerosus, bringing hope that a more stable treatment, with better results may be used in these patients.

Our subjective (pruritus) and objective (aspect of the vulva) results corroborate with our hypothesis; however, studies with more patients are necessary.

CONCLUSION

The 2,940 Er:YAG fractional laser has shown promise in the treatment of vulvar lichen sclerosus, even in resistant cases to topical treatment with clobetasol. ●

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