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ABSTRACT

Lichen sclerosus et atrophicus (LSA) is a chronic inflammatory disease of unknown cause that typically affects the genital area¹. It has been reported in post-traumatic areas as a result of Koebner's phenomenon. LSA responds poorly to treatment making it a therapeutic challenge². Laser therapy has been described for LSA with variable results^{3,4}.

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Case reports and short reports

Lichen sclerosus et atrophicus in a surgical scar treated with fractional laser

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ABSTRACT

Lichen sclerosus et atrophicus (LSA) is a chronic inflammatory disease of unknown cause that typically affects the genital area¹. It has been reported in post-traumatic areas as a result of Koebner's phenomenon. LSA responds poorly to treatment making it a therapeutic challenge². Laser therapy has been described for LSA with variable results^{3,4}.

Keywords: Lasers and light sources; lichen sclerosus et atrophicus; fractional laser; koebner's phenomenon

Case report

On presentation, a 63-year-old woman, without any notable medical history, was diagnosed with an epidermoid cyst in her back. The cyst was excised without any complications. Although it healed correctly, the patient consulted 8 months later for a pruritic lesion at the site of the scar. The patient denied any contact with sensitizing agents. On physical examination, there was an 8 x 5 cm indurated, white and bright irregular plaque around the scar (Figure 1). No other sites were affected and gynaecological examination was normal.

A clinical diagnosis of lichen sclerosus et atrophicus was performed. Treatment was provided with clobetasol propionate 0.05% cream daily for 2 weeks, and then, on alternate days for further 2 weeks, with some overall improvement of symptoms. During re-evaluation, 9 months after surgery, rejection of one of the subcutaneous sutures was observed. A surgical cleaning was realized after which the lesion remained stable.

A biopsy was performed to confirm the clinical diagnosis. Histology showed a broad band of hyalinization in papillary dermis, accompanied by mononuclear perivascular and perianexal infiltrates. A clinical and histological diagnosis of lichen sclerosus et atrophicus by the Koebner phenomenon was carried out.

The patient was treated with an ablative fractional erbium: YAG laser (ProFractional XC laser, Sciton, California, USA) under local anaesthesia, which was used in scanner mode with the following parameters: 500µm, 22% density, coagulation 1, two passes. The injury had a prolonged recovery, completing re-epithelialization 1 month postoperatively. The itching improved notably with this session. The plaque texture improved and the induration decreased. After a 4-month interval, a second session was performed with the following settings: 400 µm; 22% density; coagulation 1; two passes. The itching disappeared and the texture improved more. After one month, a third session was performed with identical parameters. At the end of the three sessions, a partial positive response was achieved with good cosmetic results (Figure 2), however, the scar of the cyst removed persisted as a whitish patch. No side effects were observed. The patient was asymptomatic and satisfied with the treatment, evaluating the treatment as 9 out of 10. Two dermatologists evaluated the response as a clinical improvement of 70%. After a 2 year follow up, the patient continues to show no symptoms, no itching and clinical response is maintained.

Discussion

We describe an unusual presentation of lichen sclerosus et atrophicus (LSA) in a surgical scar without genital involvement. LSA is an inflammatory disease of autoimmune origin with repeated trauma¹ being proposed as one of the pathogenetic factors. LSA has been previously described in sunburned areas, surgical scars, skin grafts, irradiated areas, vaccination sites, herpes zoster scars and injection sites, amongst others^{1,5,6,8}. It is thought that LSA appears on post-traumatic areas due to the Koebner phenomenon^{1,5}. There are few cases where LSA appears on post-traumatic areas without previous lesions of LSA in other locations, for example, at the site of herpes zoster scars¹. Our case is noteworthy for two reasons: 1) a positive response to laser treatment; and, 2) the absence of genital LSA and the development of LSA due to the Koebner phenomenon on a scar. We have found three similar reports of the Koebner phenomenon in extragenital LSA^{1,5,7}.

Typically, LSA responds poorly to treatment. Although topical corticosteroids partially improve symptoms, they do not provide a permanent cure, nor do they change the clinical appearance of the lesion. The response is only temporary and can produce skin atrophy if used continuously. Other drug therapies have been reported, including topical calcipotriol, topical tacrolimus, phototherapy and hydroxichloroquine², but they are often unsuccessful. Several laser and light therapies have been described for LSA with variable results²⁻⁴. Treatment modalities that have been proposed are: monochromatic excimer light⁹, pulsed dye laser^{2,10}, photodynamic therapy¹⁰⁻¹⁴ and CO₂ laser^{3,4,15,16}.

A 308 nm monochromatic excimer light showed complete remission in 5 cases of genital lichen sclerosus⁹. However, since 2009 no new cases have been reported and there is limited evidence at this time.

Similarly there are isolated cases of response with pulsed dye laser (PDL) treatment¹⁰. Nevertheless, there is more evidence of its combined use with methyl-aminolevulinic or aminolaevulinic acid. This pulsed dye laser-mediated photodynamic therapy (PDL-PDT) has shown greater efficacy and a marked response with 2-3 sessions, but it is more painful and expensive^{2,11}. Besides, one of the cases reported suffered a clinical relapse after 4 months and the others had a shorter follow-up¹². Photodynamic therapy (PDT) with non-coherent red light has also been shown to be effective in several case series^{13,14}. PDT has evidenced significant improvement in symptoms after 1-3 sessions for a period ranging from 3 to 9

months. Improvement in clinical appearance is not reported. It also presents the same disadvantages as PDL-PDT and may require sedation.

PDT and ablative carbon dioxide laser are the most reported in the literature. In contrast to PDT, with CO₂ laser a clinical improvement occurs apart from symptomatology with 2-3 sessions^{3,15,16}. Treatment with carbon dioxide laser seems to achieve long-term remissions with a mean follow up of 2-3 years and a report with a median follow up of 14 years^{3,4}. The strongest evidence to date comes from patients with anogenital lesions and from dermatological and urological reports. CO₂ laser is reported in the largest series in up to 62 patients. The mechanism whereby laser improves LSA is unknown. It is hypothesized that laser heat improves dermal remodelling, that is to say the quantity and organization of producing cellularity, collagen fibre and elastin production, thereby increasing epidermal thickness and keratinocyte proliferation.

To our knowledge, no cases of ablative erbium laser treatment of LSA have been published. Our case is the first one describing extragenital LSA treated with erbium laser. Results have been satisfactory for the patient with absence of pruritus maintained 2 years later and an improvement of skin texture. Moreover, improvement was noted from the first session. The mechanism of action of Erbium laser could be similar to a CO₂ laser, and advantages could be less hyperpigmentation risk in high phototypes.

Currently, there is no consensus on either the modality of choice, or the parameters and devices used in treatment.

Some of the limitations of the case presented are: the lack of a response evaluation scale and of a control area.

Conclusion

Our case is noteworthy for being extragenital LSA secondary to the Koebner phenomenon and for presenting a long term response with fractional laser treatment. We consider that the fractional laser could provide an improvement in LSA, being safe, with a short recovery time, without leaving any scars, and producing good cosmetic results. It should be considered a treatment for LSA, specially improving pruritus and texture. Further controlled clinical studies are required to conclude the effectiveness of treatment and standardization of parameters.

REFERENCES

1. Monteagudo B, Cabanillas M, Bellido D, Suárez-Amor O, Ramírez-Santos A, de la Cruz A. Lichen sclerosus atrophicus at an insulin injection site: an unusual koebner phenomenon. *Actas Dermosifiliogr* 2010; 101 (6): 563-565.
2. Passeron T, Lacour JP, Ortonne JP. Comparative treatment of extragenital lichen sclerosus with methylaminolevulinic acid pulsed dye laser-mediated photodynamic therapy or pulsed dye laser alone. *Derm Surg* 2009; 35 (5): 878-880.
3. Peterson CM, Lane JE, Ratz JL. Successful carbon dioxide laser therapy for refractory anogenital lichen sclerosus. *Derm Surg* 2004; 30 (8): 1148-1151.
4. Windahl T. Is carbon dioxide laser treatment of lichen sclerosus effective in the long run? *Scand J Urol Nephrol* 2006; 40: 208-211
5. Meffert JJ, Grimwood RE. Lichen sclerosus et atrophicus appearing in an old burn scar. *J Am Acad Dermatol* 1994; 31: 671-673.
6. Vergara G, Betloch I, Albares MP et al. Lichen sclerosus et atrophicus arising in urethroscopy scar. *Int J Dermatol* 2002; 41 (9): 619-21.
7. Monteagudo Sánchez B, León Muñíos E, Labandeira García J et al. Lichen sclerosus with genital and extragenital lesions. *An Pediatr (Barc)* 2006; 64 (4): 397-8.
8. Abdelbaky AM, Aluru P, Keegan P, Greene DR. Development of male genital lichen sclerosus in penile reconstruction skin grafts after cancer surgery: an unreported complication. *BJU International* 2011; 109: 776-779.
9. Nisticò SP, Saraceno R, Schipani C, Costanzo A, Chimenti S. Different applications of monochromatic excimer light in skin diseases. *Photomed Laser Surg* 2009; 27 (4): 647-654.
10. Greve B, Hartschuh W, Raulin C. Extragenital lichen sclerosus et atrophicus-treatment with pulsed dye laser. *Hautarzt* 1999; 50 (11): 805-808.
11. Alexiades-Armenakas M. Laser-mediated photodynamic therapy of lichen sclerosus. *J Drugs Dermatol* 2004; 3: S25-27.
12. Vano-Galvan S, Fernandez-Guarino M, Bea-Ardebol S, Perez B, Harto A, Jaen P. Successful treatment of erosive vulvar lichen sclerosus with methylaminolaevulinic

acid and laser-mediated photodynamic therapy. *J Eur Acad Dermatol Venereol* 2009; 23: 71-72.

13. Imbernón-Moya A, Martínez-Pérez M, Churruca-Grijelmo M et al. Photodynamic therapy as a therapeutic alternative in vulvar lichen sclerosus: series of 8 cases. *Photodermatol Photoimmunol Photomed* 2016. (Epub ahead of print).
14. Sotiriou E, Apalla Z, Patsatsi A, Panagiotidou D. Recalcitrant vulvar lichen sclerosus treated with aminolevulinic acid-photodynamic therapy: a report of five cases. *J Eur Acad Dermatol Venereol* 2008; 22 (11): 1398-1399.
15. Hackenjos K, Schröder E, Vanscheidt W. Therapy of lichen sclerosus et atrophicus vulvae with the CO2 silk touch laser. *Hautarzt* 2000; 51 (7): 502-504.
16. Aynaud O, Plantier F. Genital lichen sclerosus treated by carbon dioxide laser. *Eur J Dermatol* 2010; 20 (3): 387-388.

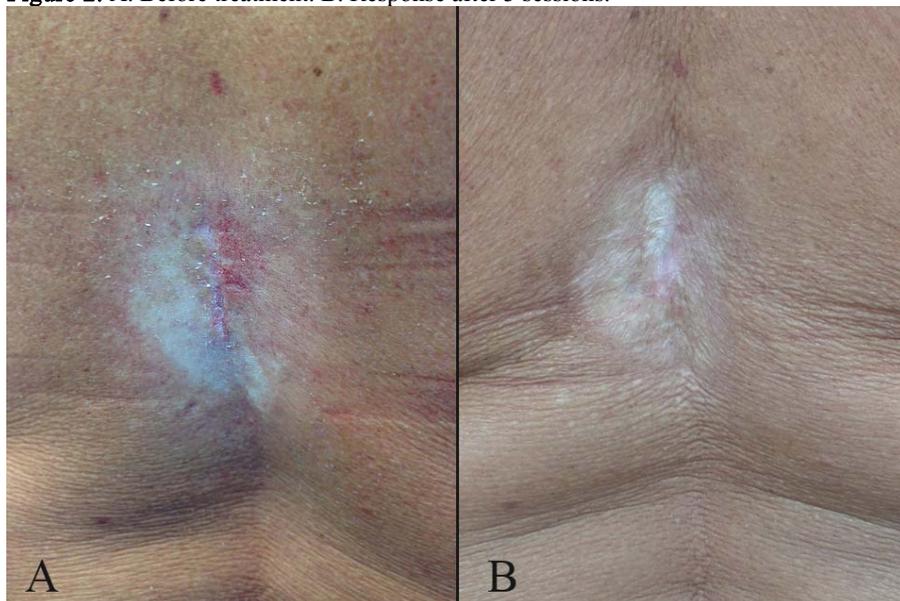
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Figures Legends

Figure 1. Lichen sclerosus et atrophicus before treatment (the mark left after the biopsy-punch in order to confirm diagnosis can be seen).



Figure 2. A. Before treatment. B. Response after 3 sessions.



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