

95% CI, 0.9-36), and in patients with gonorrhoea (OR, 49; 95% CI, 3.0-794.4); 66.7% of all the patients with gonorrhoea had chlamydia. Associations between *Chlamydia trachomatis* infection and the other study variables (Table 2) could not be determined due to insufficient statistical power.

Our study has certain limitations. Because information on sexual orientation, sexual habits, and sexual partners was collected during patient interviews, its reliability may be questionable. Nevertheless, all interviews were conducted by trained STI experts in an appropriate, confidential setting. While the detection techniques used were highly sensitive and specific, it should be noted that results may vary according to the quality of the biological sample. Finally, we studied a relatively small sample of patients, and consequently the study was not sufficiently powered to detect certain risk factors. Small samples can also result in imprecise estimates with wide confidence intervals. Notwithstanding, despite the limited size of the sample analyzed, we found 2 risk factors significantly associated with chlamydial infection that have been reported in numerous studies,<sup>5,8,10</sup> namely, number of sexual partners in the previous month and homosexual relationships.

## References

1. WHO. Global strategy for the prevention and control of sexually transmitted infections: 2006-2015. Breaking the chain of transmission [accessed 30 Dec 2012]. Available at: <http://www.who.int/reproductivehealth/publications/rtis/9789241563475/en/index.html>
2. ECDC. 2012 Annual Epidemiological Report [accessed 24 April 2013]. Available at: <http://ecdc.europa.eu/en/publications/Publications/Annual-Epidemiological-Report2012.pdf#page=51>
3. Godoy P. La vigilancia y el control de las infecciones de transmisión sexual: todavía un problema pendiente. *Gac Sanit.* 2011;254:263-6.
4. Corbeto EL, Carnicer-Pont D, Lugo R, González V, Bascañana E, Lleopart N, et al. Sexual behaviour of inmates with *Chlamydia*

- trachomatis* infection in the prisons of Catalonia. Spain. *Sex Health.* 2012;9:187-9.
5. Corbeto EL, Lugo R, Martró E, Falguera G, Ros R, AVECILLA A, et al. Epidemiological features and determinants for *Chlamydia trachomatis* infection among women in Catalonia. Spain. *Int J STD AIDS.* 2010;21:718-22.
  6. Klovstad H, Grijbovski A, Aavitsland P. Population based study of genital *Chlamydia trachomatis* prevalence and associated factors in Norway: A cross sectional study. *BMC Infect Dis.* 2012;12:150.
  7. Geisler WM. Duration of untreated, uncomplicated genital *Chlamydia trachomatis* infection and factors associated with chlamydia resolution: A review of human studies. *J Infect Dis.* 2010;201 Suppl 2:S104-13.
  8. Folch C, Sanclemente C, Esteve A, Martró E, Molinos S, Casabona J, HIVITS-TS. Social characteristics, risk behaviours and differences in the prevalence of HIV/sexually transmitted infections between Spanish and immigrant female sex workers in Catalonia. Spain. *Med Clin (Barc).* 2009;132:385-8.
  9. CEEISCAT. Vigilància epidemiològica sentinella de les infeccions de Transmissió Sexual (ITS) a Catalunya. 2012 [accessed 15 May 2013]. Available at: [http://www.cceiscat.cat/documents/2012\\_2n.semestre ITS.pdf](http://www.cceiscat.cat/documents/2012_2n.semestre ITS.pdf)
  10. Management of genital *Chlamydia trachomatis* infection: A national clinical guideline. Edinburgh: Scottish Intercollegiate Guidelines Network (SIGN). 2009.

O. Yuguero,<sup>a,\*</sup> J.M. Casanova,<sup>b,c</sup> A. Manonelles,<sup>c,d</sup> P. Godoy<sup>c,e</sup>

<sup>a</sup> Atención Primaria, Región Sanitaria de Lleida, Lleida, Spain

<sup>b</sup> Sección de Dermatología, Hospital Universitario Arnau de Vilanova de Lleida, Lleida, Spain

<sup>c</sup> Facultad de Medicina, Universidad de Lleida, Lleida, Spain

<sup>d</sup> Servicio de Microbiología, Hospital Universitario Arnau de Vilanova de Lleida, Lleida, Spain

<sup>e</sup> Unidad de Vigilancia Epidemiológica de Lleida, Agencia de Salud Pública de Cataluña, Lleida, Spain

\* Corresponding author.

E-mail address: [oriol.yuguero@gmail.com](mailto:oriol.yuguero@gmail.com) (O. Yuguero).

## Koebner Phenomenon in a Patient With Lichen Sclerosus Following a Jellyfish Sting: An Exceptional Morphology<sup>☆</sup>



### Fenómeno de Koebner en un liquen escleroso tras una picadura de medusa: una morfología excepcional

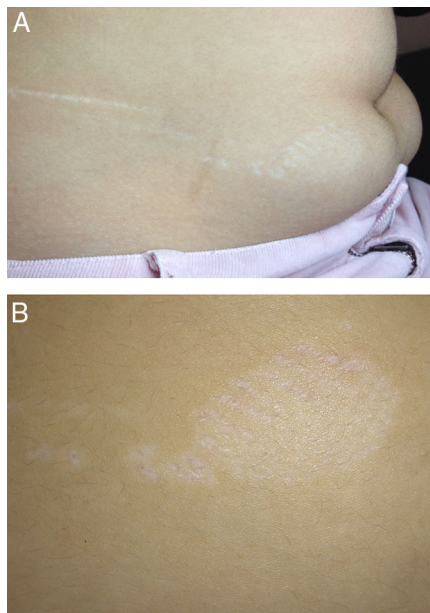
Lichen sclerosus is a chronic inflammatory disease that has a particular affinity for the anogenital region. Only 6% of

patients present solitary extragenital lesions, although this percentage can rise to 15% during childhood.<sup>1</sup>

We present the case of a patient with lichen sclerosus lesions following a jellyfish sting in the context of Koebner phenomenon.<sup>2</sup>

The patient was a 13-year-old girl with an unremarkable family history who consulted for a whitish, atrophic, and pruriginous plaque on the vulva and gluteal cleft, together with whitish indurated papules spread throughout the trunk. A skin biopsy revealed orthokeratotic hyperkeratosis in the epidermis, with hydropic degeneration and atrophy of the basal layer, in addition to edema and homogenization of collagen. The patient was treated with topical tacrolimus and her lesion improved considerably after 4 months. One year later, while asymptomatic, she was stung by a jellyfish. Papules and plaques appeared in a linear pattern (17 cm long) on the right abdomen. These were clinically compatible with lichen sclerosus lesions (Fig. 1A) and very probably originated as a result of Koebner phenomenon (Fig. 1B). The

<sup>☆</sup> Please cite this article as: Pérez-López I, Garrido-Colmenero C, Blasco-Morente G, Tercedor-Sánchez J. Fenómeno de Koebner en un liquen escleroso tras una picadura de medusa: una morfología excepcional. *Actas Dermosifiliogr.* 2015;106:238-239.



**Figure 1** Complete and more detailed frontal view. A, Papular plaques in a linear pattern (17 cm) on the right abdomen. B, Whitish atrophied plaque (maximum diameter of 5 cm) at the edge of the lesion.

patient refused a second skin biopsy, since she was receiving treatment with topical tacrolimus and was progressing favorably. She now has small active lesions on the genital region.

Lichen sclerosis can occur at any age, although the peak incidence is noted in childhood and after the menopause.<sup>2</sup> It most commonly appears on the anogenital region and, even though it is not unusual for it to be accompanied by extragenital lesions, involvement of these areas alone is very infrequent. The etiology of lichen sclerosis is unknown. Possible causes include a hormonal disorder, autoimmune mechanisms, infection (eg, human papilloma virus, hepatitis C, *Borrelia burgdorferi*), genetic factors associated with various HLA subtypes, and repeated insults associated with the appearance of new lesions due to the Koebner phenomenon that is typical of lichen sclerosis.<sup>3,4</sup> Koebner phenomenon is caused by damage to the dermis and, especially, the epidermis, which is the main event in its development. This event causes an increase in levels of CD4 lymphocytes, cytokines, and adhesion molecules that could lead to the appearance of lesions that are typical of associated diseases, such as, in the present case, lichen sclerosis.<sup>4</sup> The lesions of lichen sclerosis are typically ivory-white papules and macules that are clearly defined and can coalesce to form plaques, as occurred in the case we report. Furthermore, the presence of dilated pilosebaceous openings containing keratin plugs, purpura, and telangiectasia are usually characteristic signs.<sup>3,4</sup> The differential diagnosis for the case we present included lichen planus, lichen

simplex chronicus, vitiligo, and lichen planus-like lesions. Bullous diseases affecting the mucosa, pemphigoid, and intraepithelial neoplasms of the penis and vulva should be taken into consideration in anogenital lichen sclerosis.<sup>5,6</sup>

Our case is exceptional because of the way the lesions appeared and their morphology, since the mark left by the jellyfish tentacles was visible. Jellyfish stings usually cause acute local reactions characterized by a burning sensation and pruritus. The lesions are most often erythematous papules or papulovesicles and may be accompanied by regional vascular and lymphatic reactions.<sup>7</sup> Although less frequent, delayed reactions are not uncommon; the most frequent reactions are keloids, pigmented striae, lichenified lesions, granuloma, ulceration, and necrosis.<sup>8</sup> Gangrene, fat atrophy, and retractile scars are less typical, although they have been reported in the literature.<sup>8</sup> In the case we report, the lesions were clinically compatible with lichen sclerosis, although they had taken on the morphology of the tentacles of the jellyfish that had stung the patient, thus constituting another potential late complication that should be taken into account in the differential diagnosis of jellyfish stings.<sup>8</sup>

## References

- Lagerstedt M, Karvinen K, Joki-Erkkilä M, Huotari-Orava R, Snellman E. Childhood. Lichen sclerosis—a challenge for clinicians. *Pediatr Dermatol*. 2013;30:444–50.
- Monteagudo Sánchez B, León Muiños E, Labandeira García J, Ginarte Val M, Used Aznar MM. Liquen escleroso con lesiones extragenitales y genitales. *An Pediatr (Barc)*. 2006;64:397–8.
- Fistarol SK, Itin PH. Diagnosis and treatment of lichen sclerosis: An update. *Am J Clin Dermatol*. 2013;14:27–47.
- Monteagudo B, Cabanillas M, Bellido D, Suarez-Amor O, Ramirez-Santos A, de la Cruz A. Liquen escleroso y atrófico en el lugar de inyección de insulina: fenómeno de Koebner inusual. *Actas Dermosifiliogr*. 2010;101:563–5.
- Funaro D. Lichen sclerosis: A review and practical approach. *Dermatol Ther*. 2004;17:28–37.
- Murphy R. Lichen sclerosis. *Dermatol Clin*. 2010;28:707–15.
- Abellaneda C, Navarra R, Martín-Urda MT, Gómez M. Medusa ¿picadura o tatuaje? *Actas Dermosifiliogr*. 2012;103:243–4.
- Ghosh SK, Bandyopadhyay D, Haldar S. Lichen planus-like eruption resulting from a jellyfish sting: A case report. *J Med Case Rep*. 2009;3:7421.

I. Pérez-López,\* C. Garrido-Colmenero, G. Blasco-Morente, J. Tercedor-Sánchez

*Unidad de Gestión Clínica de Dermatología Médico Quirúrgica y Venereología, Hospital Universitario Virgen de las Nieves, Granada, Spain*

\*Corresponding author.

*E-mail address:* [ipl\\_elmadrono@hotmail.com](mailto:ipl_elmadrono@hotmail.com)

(I. Pérez-López).