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1578-2190/

Isomorphic Morphea in a Girl Motorcyclist☆

Morfea con distribución isomórfica en una niña motociclista

To the Editor:

Localized scleroderma, also known as morphea, is a fibrosing and inflammatory disease of the skin and underlying tissues. It is the most common type of scleroderma in childhood, with an incidence of 3.4 cases per 1 000 000 children per year.[1] Linear morphea is the most frequent presentation. The etiology and pathogenesis of this condition remain unknown, although the interaction between inflammatory, fibrotic, and vascular factors seems to play a fundamental role. It has also been suggested that local trauma can lead to the appearance of lesions.[2]

A 9-year-old girl with no medical history of interest reported asymptomatic skin lesions on both thighs that had gradually extended to the abdomen. The lesions had first appeared 1 year earlier. A closer examination of the patient's history revealed that she was a competitive motorcyclist who had been training for approximately 10 hours per week for the previous 2 years wearing a very tight motorcycle suit. Physical examination revealed hyperpigmented plaques with pearly areas on the anterior-medial aspect of both thighs (Fig. 1A). The lesions were distributed symmetrically and extended upward toward the trunk (Fig. 1B). There were no findings suggestive of systemic scleroderma. Given the suspicion of morphea, we performed a skin biopsy, which revealed thickening and compaction of collagen fibers at the level of the reticular dermis and a mild superficial and deep perivascular lymphoplasmacytic infiltrate. A blood analysis with biochemistry, complete blood count, and autoimmunity testing revealed no significant findings. Based on clinical, analytical, and histological findings, the diagnosis was morphea that could have been caused by local injury. The patient was treated with systemic corticosteroids at 0.5 mg/kg/d (subsequently tapered) and methotrexate 10 mg weekly for 18 months. The induration resolved and only the hyperpigmentation persisted (Fig. 2).

While the etiology and pathogenesis of localized scleroderma are unknown, several case studies in the scientific

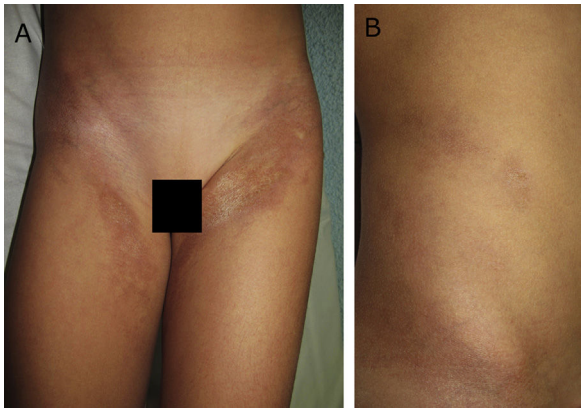

Figure 1 Hyperpigmented plaques with pearly areas that are indurated on palpation on the anterior-medial aspect of both thighs (A) and the right flank (B).

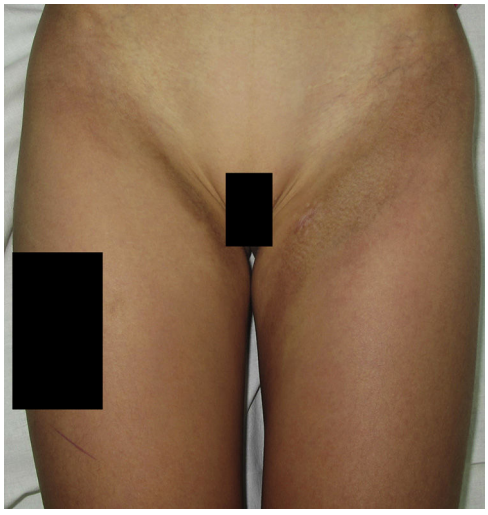

Figure 2 Residual hyperpigmentation without sclerosis after treatment with oral corticosteroids and methotrexate.

☆ Please cite this article as: Abadías-Granado I, Feito-Rodríguez M, Nieto-Rodríguez D, de Lucas-Laguna R. Morfea con distribución isomórfica en una niña motociclista. 2019;110:509–510.

literature report potential precipitating factors for both morphea and systemic sclerosis, such as friction caused by clothing, herpes zoster infection, vibration, and injury before onset of morphea.[3–6] Vaccination is a key cause in children and has been well documented in the literature, with deep morphea and generalized morphea reported after vaccination against hepatitis B, bacille Calmette-Guérin, diptheria-tetanus-pertussis, and measles-mumps-rubella.[7–9] There have also been suggestions of an isotopic and isomorphic distribution depending on the appearance of the lesions in areas of skin injury in chronic sclerotic-type graft-vs-host disease,[10] a process that is similar to morphea. The isotopic phenomenon is defined as the appearance of a new skin disease at the site of a previous, now healed, lesion or skin disease and with which there is no association. In contrast, the isomorphic phenomenon refers to the appearance of lesions of a previous skin disease on skin that had been subjected to injury. In this sense, in 2014, Grabell et al.[2] published a study on the role of skin injury in the distribution of morphea lesions. The authors reported that 16% of patients with localized scleroderma associated onset and location with a previous injury, with chronic friction from clothing and surgery being the most common triggers of the isomorphic and isotopic phenomena, respectively. They also reported that isotopic lesions were more severe in clinical terms and in terms of their impact on quality of life.

We present a case of morphea affecting the lower limbs and trunk of a girl who trained as a professional motorcyclist, thus suggesting that the condition was triggered by friction resulting from tight clothing and, possibly, vibration from the motorcycle, given the isomorphic distribution of the lesions. While the underlying mechanism has yet to be clarified, the injury itself seems to be associated with release of cytokines and growth factors in the damaged tissue,[10] which may play a role in the development of morphea. This new case highlights the importance of the association between skin injury and localized scleroderma, not only in terms of pathogenesis, but also in terms of therapy, since these patients should avoid elective procedures or repeated skin injuries such as friction.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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