

**FIGURE 3.** On medium magnification, there is acantholytic dyskeratosis with concurrent keratinocyte vacuolar degeneration and hypergranulosis (hematoxylin and eosin,  $\times 100$  original magnification).

neoplasms, dermal fibrohistiocytic lesions, and inflammatory conditions. It can also be an incidental finding in otherwise normal-appearing skin.<sup>5</sup> However, to our knowledge, there has not been a report in the literature of GD with coexistent features of EHK.

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## Histopathological Aspects of Juvenile Plantar Dermatitis

### To the Editor:

The Juvenile Plantar Dermatitis (JPD) is a chronic condition, presenting as a lasting forefoot eczema in children at school age.<sup>1</sup> The histopathological

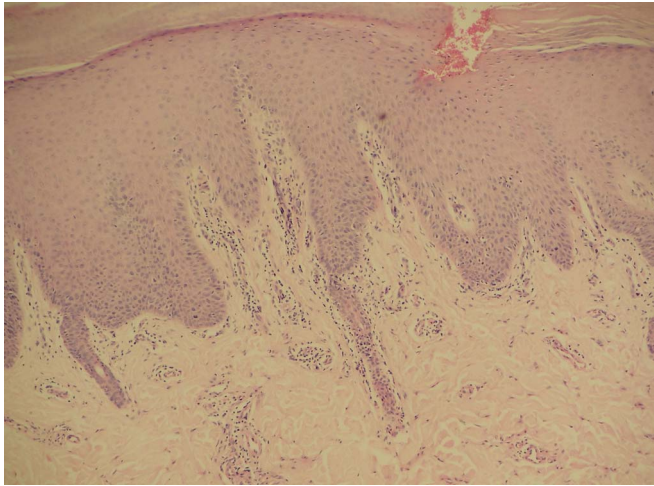
examination helps the clinical diagnosis, even without specific alterations for this condition.<sup>2</sup> This research aimed to analyze the histopathological findings associated with the clinical diagnosis of JPD; to assess if the affected eccrine sweat duct constitutes a histopathological pattern and if there is an association between the present inflammatory alterations in this structure and the clinical presentation of the disease.

We report a case series survey of 20 patients, from the Pediatric Dermatology Ambulatory from the Martagao Gesteira Pediatrics and Puericulture Institute in partnership with the Anatomy Pathology Service from the Hospital Universitário Clementino Fraga Filho, during 3 years (2008–2011), ranging from 4 and 15 year olds. All of them had clinical diagnosis for JPD and were submitted to mycological testing, allergic contact tests, and cutaneous biopsies. Of the 20 patients, 18 had an atopic background (12 with family and personal atopic history and 6 with only personal atopic history). There were no patients with diagnosis of psoriasis in the sample. The clinical aspect was classified as typical when it was composed of erythema, peeling, and shine on the forefoot and hallux with or without heels or hands being affected (Fig. 1) and atypical when there was exuberant hyperkeratosis or only a light peeling without



**FIGURE 1.** Typical clinical picture of juvenile plantar dermatitis with lamellar scaling, erythema, glazed appearance, and fissure on the anterior sole and heels (weight-bearing areas).

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**FIGURE 2.** Hyperkeratosis with parakeratosis, acanthosis, mononuclear dermal infiltrate inflammatory in the superficial dermis (stain type: hematoxylin–eosin, original magnification  $\times 10$ ).

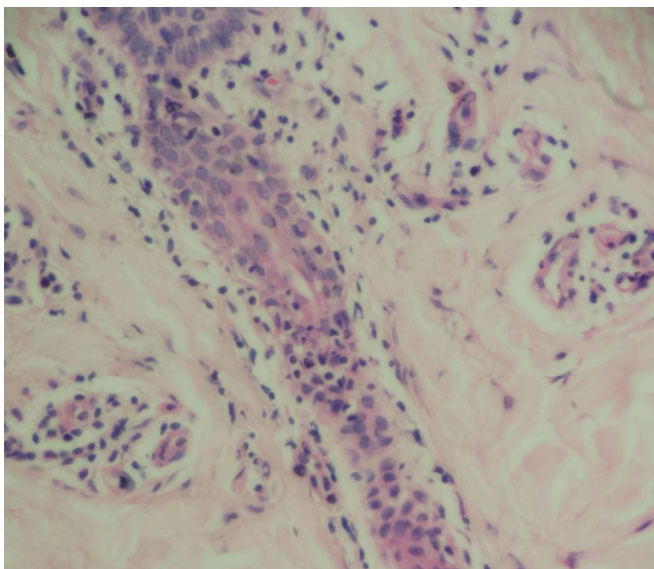
the glass-like shine or erythema or still when other areas of the plantar region were affected (instep, foot lateral aspect, or dorsal surface). The eccrine sweat duct was observed in all samples by means of serial histological sections. With regard to the eccrine duct inflammation, the samples were classified as affected eccrine duct: when the inflammation and/or spongiosis was seen at the eccrine duct topography, at its point of entry into epidermis (Figs. 2, 3), or at the acrosyringium; spared eccrine duct: when this structure was not involved in the inflammatory process. The statistical analysis

was performed by the  $\chi^2$  test for a sample and Fisher exact test, so as to verify the clinical–histopathological relationship.

Eleven patients showed typical clinical lesions. All the mycological tests were negative. The contact allergy tests were positive for 11 patients, 9 substances were found in shoes; meanwhile, the avoidance of these allergenic elements did not result in improvement of the condition. Subacute spongiotic dermatitis was observed in 5 cases (3 with an atypical clinical aspect and 2 with a typical one) 7 cases presented the chronic standard (2 with an atypical clinical aspect and

5 with a typical one); 6 cases showed a mixed inflammatory response pattern, spongiotic and psoriasiform (3 cases with an atypical clinical aspect and 3 cases with a typical one); and 2 cases with only minimum inflammatory alterations (1 case with an atypical clinical aspect and 1 case with a typical one). In the 9 atypical cases, the histopathological examination could not confirm any of the differential diagnosis or withdraw the diagnosis of JPD. Thirteen patients presented inflammatory of the acrosyringium or the eccrine duct's upper most part (Fig. 2) and in 7, the duct had been spared. Nine of the 13 patients with ductal inflammation showed typical clinical and 4 atypical clinical picture. Among those 7 cases with spared duct, 2 showed typical clinical forms and 5 atypical clinical forms. There was a predominance of eccrine duct involvement (65%) in the sample ( $\chi^2$  test for a sample,  $P = 0.18$ ), despite not statistically significant. However, there was a statistical tendency of this ductal inflammation to be present in the most typical clinical forms of JPD. The affected eccrine duct was reported in 5 of the 11 previously published studies where a histopathological examination was carried out. However, a minor part of those patients had been biopsied.<sup>3–5</sup> In the 11 studies mentioned, 38 patients correspond to the total amount of patients biopsied, of which 27 had involvement of the eccrine duct (71.1%). This proportion is similar to that found in our study because 13 (65%) of the 20 patients presented ductal inflammation (Fig. 2). Therefore, the inflammatory compromising of the eccrine duct at its uppermost part or at acrosyringium is compatible with what other authors had found.<sup>2–5</sup>

In conclusion, the histopathological findings of a spongiotic dermatitis agrees with the clinical aspect of an eczematous lesion, as described by other studies.<sup>2–4</sup> The histological picture is characterized by spongiotic dermatitis in general, subacute or chronic, and the eccrine duct inflammation may be a clue to the diagnosis, as the involvement of this structure had not been described in literature until now in other types of eczema.<sup>4,6</sup> The inflammation of the acrosyringium or the eccrine sweat duct at its epidermis starting edge tends to be present in the most typical clinical picture of JPD, although its importance in the etiopathogenesis of the



**FIGURE 3.** Exocytosis of lymphocytes at the point of entry of the eccrine duct into epidermis topography (stain type: hematoxylin–eosin, original magnification  $\times 40$ ).

disease remains unclear, and the absence of this finding can not rule out the diagnosis for this disease.

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