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Case Report

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Acquired perforating dermatosis in childhood: clinical, dermoscopic and histopathological findings

Abstract

Acquired perforating dermatosis (APD) is an uncommon condition typically associated with diabetes mellitus and chronic kidney disease in adults on dialysis. Pediatric cases are rare. We report a 9-year-old girl with type 1 diabetes and chronic kidney disease on dialysis who developed pruritic papules on the shins. Clinical examination, dermoscopy and histopathology confirmed the diagnosis of APD. The patient improved with phototherapy and topical corticosteroids. This case highlights the need to consider APD in children with systemic comorbidities, the usefulness of dermoscopy in differentiating it from other papular dermatoses, and the role of supportive treatment to achieve symptomatic control.

Keywords: perforating dermatosis, pediatric, kidney disease, brownish papules, glucocorticoids

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Introduction

Acquired perforating dermatosis (APD) represents a group of cutaneous disorders characterized by transepidermal elimination of dermal material, most often keratin or collagen. It typically occurs in adults with long-standing diabetes mellitus and chronic kidney disease, particularly in patients undergoing dialysis.[1,2] The exact prevalence remains uncertain, but studies suggest that up to 10% of dialysis patients may be affected.[3]

Clinically, APD manifests as intensely pruritic papules and nodules, frequently distributed on extensor surfaces of the extremities. The lesions often develop central keratotic plugs or crusts and may ulcerate. Dermoscopy has emerged as a valuable diagnostic tool, allowing identification of white structures resembling milia, central crusting, and a surrounding brownish halo, which help differentiate APD from other papular dermatoses such as lichen planus or prurigo nodularis.[2,4]

Although usually seen in adults, rare pediatric cases have been described. These reports emphasize the need for heightened awareness among dermatologists, since early recognition may reduce unnecessary interventions and guide effective management.[5,6] We present the case of a 9-year-old girl with APD in the setting of diabetes mellitus and dialysis-dependent kidney disease.

Case presentation

A 9-year-old girl presented with a 2-year history of pruritic skin lesions on her shins. She was diagnosed with type 1 diabetes 4 years earlier and started dialysis 3 years ago. Physical examination revealed several brownish papules, some covered by crusts and others exhibiting superficial ulceration (Figure 1A). On dermoscopy, bright white dots coexisted with erythema surrounded by a brownish area (Figure 1B). Mucous membranes were spared. A skin biopsy was performed, and the diagnosis of acquired perforating dermatosis was established. Although cure was not possible due to the patient's medical comorbidities, she improved with phototherapy and occlusive glucocorticoids.

Discussion

APD is classically described in adults with diabetes mellitus and end-stage renal disease, but pediatric cases, though rare, confirm that this condition may also develop earlier in the presence of chronic systemic comorbidities.[1,3,5,6] The pathogenesis remains incompletely elucidated, yet several conceptual mechanisms have been proposed. Microangiopathy secondary to long-standing diabetes, accumulation of metabolic waste products in renal failure, repetitive scratching, and local trauma all contribute to transepidermal elimination of dermal connective tissue components, including keratin, collagen, and elastic fibers.[1,7,8] This conceptual framework helps explain why APD is often refractory to curative treatment and why therapeutic strategies are primarily directed toward symptom control rather than disease eradication.

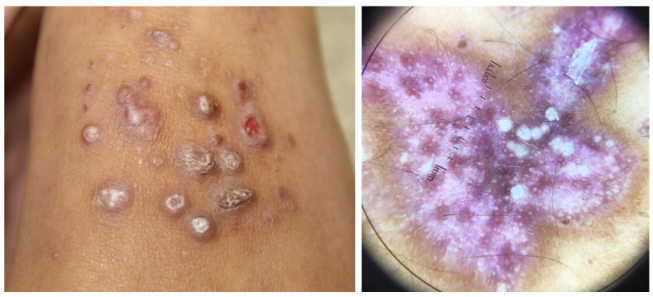

Figure 1 Acquired perforating dermatosis. **A:** brownish papules with central crusts and ulceration. **B:** bright white dots on an erythematous background surrounded by a brownish area (handheld dermatoscope).

Clinically, the disease poses a diagnostic challenge due to its similarity with other chronic pruritic dermatoses. The papules and nodules of APD may mimic lichen planus, eczema, perforating folliculitis, or prurigo nodularis. Dermoscopy therefore emerges not only as a practical diagnostic tool but also as a conceptual bridge between clinical morphology and histopathology. The identification of whitish dots corresponding to dilated follicular infundibula filled with keratin, surrounded by erythematous to brown halos, is highly suggestive of APD and aids in distinguishing it from other papular dermatoses.[2,4,9] In pediatric patients, this non-invasive method assumes even greater importance, given the limitations and ethical considerations of repeated biopsies.

Therapeutically, management is often unsatisfactory because treatment cannot modify the underlying systemic drivers. Conceptually, therapeutic goals are limited to pruritus relief and reduction of lesion

burden. Topical corticosteroids, keratolytics, antihistamines, and phototherapy remain the mainstay of treatment.[6,10] Narrowband UVB phototherapy, in particular, has been shown to reduce pruritus and improve quality of life by modulating local immune responses and keratinocyte proliferation.[10] Systemic therapies such as allopurinol or retinoids are reserved for refractory cases, reinforcing that APD should be managed as a chronic dermatosis associated with systemic disease rather than as an isolated skin condition.[9,10]

This case highlights three conceptual points. First, although rare in children, APD should be considered in the differential diagnosis of chronic pruritic papules in patients with diabetes and renal disease. Second, dermoscopy is not only diagnostically useful but conceptually reinforces the understanding of APD as a disorder of transepidermal elimination. Finally, therapeutic strategies should be framed in terms of supportive care, recognizing the systemic drivers that limit the possibility of cure. By situating our pediatric case within this conceptual framework, we reinforce the importance of early recognition and symptom-directed management, thereby broadening the clinical and theoretical understanding of APD across age groups.

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Conflict of interests

The authors declare there is no conflict of interest.

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