Linear IgA bullous dermatosis of childhood

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Abstract

A 4-year-old boy presented with blistering on his face and distal upper and lower extremities. Subepidermal blisters containing neutrophils and eosinophils visualized on histology supported the diagnosis of linear IgA bullous dermatosis of childhood (LABDC). The dermatosis presents with vesicles and tense blisters in an annular distribution, erythematous papules, and/or excoriated plaques. Histopathology shows subepidermal blisters with a neutrophilic infiltrate in the dermis, mainly concentrated at the tips of dermal papillae in the early stage of the disease, which can be mistaken for the pattern of neutrophilic infiltration as seen in dermatitis herpetiformis. Dapsone is the treatment of choice, which is started at a dosage of 0.5mg/kg/day. Linear IgA bullous dermatosis of childhood is a rare autoimmune disease that can be mistaken for other conditions with similar presentations but should always be considered in the differential diagnosis of children with blistering.

Keywords: bullous dermatosis, linear IgA, vesiculobullous

Introduction

Linear IgA bullous dermatosis of childhood (LABDC), also known as benign chronic bullous childhood dermatosis, is a rare chronic autoimmune disease characterized by linear deposits of IgA autoantibodies against antigens of the basement membrane.

Case Synopsis

A 4-year-old boy presented with a 5-week history of blistering on his face, hands (**Figure 1A**), knees, and feet (**Figure 1B**). Prior, he had been treated with antibiotics for bullous impetigo without improvement. Examination revealed multiple erythematous, partially-crusted nodules, bullae, and plaques on the dorsum of his hands, feet, knees, and perioral and gluteal regions. Histology showed subepidermal blisters containing neutrophils and eosinophils (**Figure 1C**), supporting the clinical diagnosis of LABDC. Direct immunofluorescence confirmed the diagnosis, revealing linear IgA deposits at the dermoepidermal junction (**Figure 1D**). Most recently, treatment was initiated with dapsone at 0.5mg/kg bodyweight, to which he responded well after four weeks (**Figure 2A**, **B**).

Case Discussion

Linear IgA bullous dermatosis of childhood is a rare dermatosis with an incidence of 1:500,000 and mainly occurs in children aged 2-5 years [1]. The clinical course of LABDC is shorter than in adults with fewer recurrences. In the majority of cases, the disease does not persist into adulthood [2]. The dermatosis presents with vesicles and tense blisters in an annular distribution, which may arise on the margin of former lesions and are sometimes described as “crown of jewels” or “string of pearls [3].” Other clinical signs are erythematous papules and excoriated plaques. In children, the lesions are

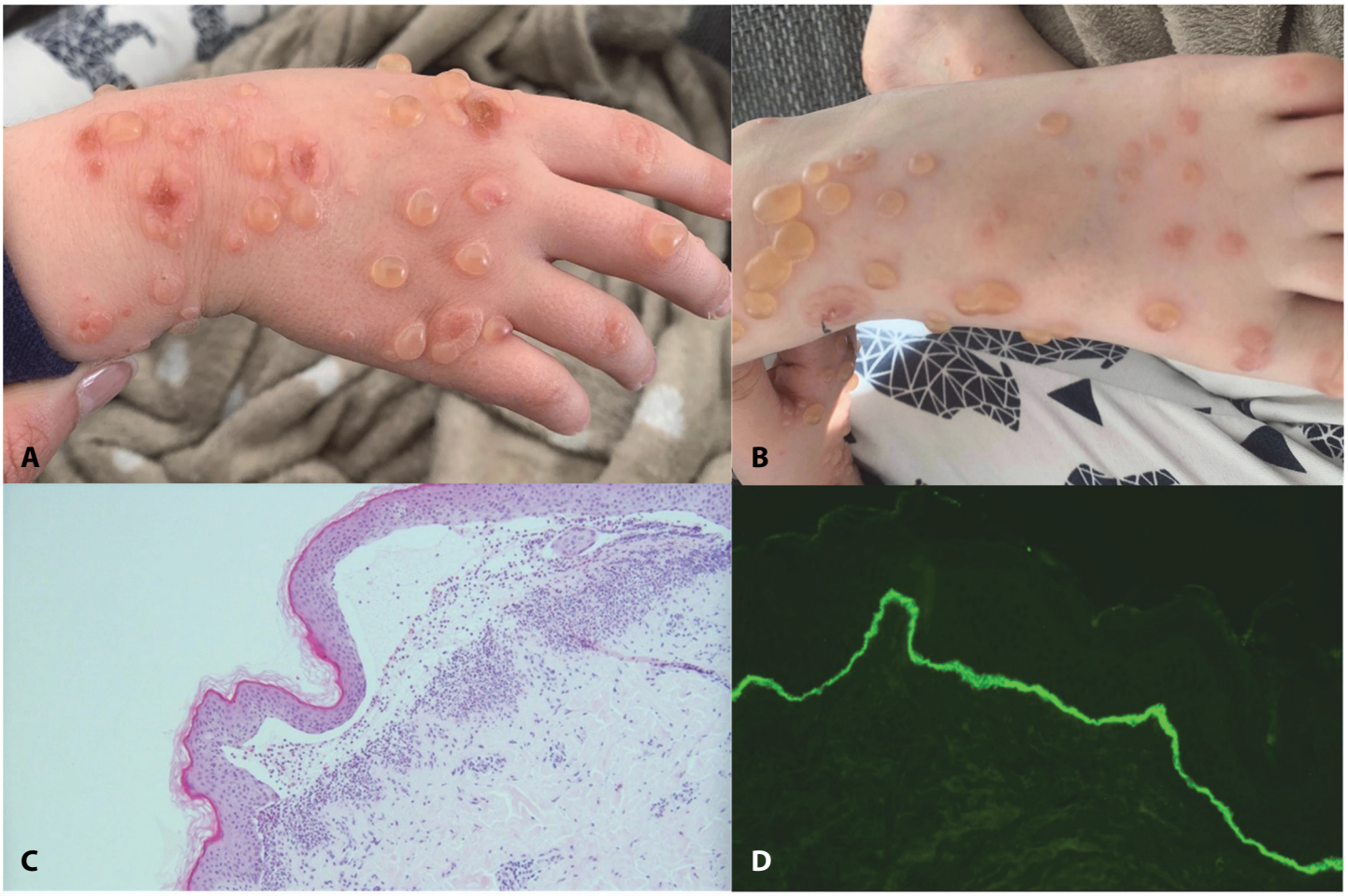

Figure 1. *Clinical presentation of the patient´s hand and feet; histopathological and Immunohistochemical findings.* ***A)*** *Right hand, and* ***B)*** *left foot showing tense blisters.* ***C)*** *H&E histopathology showing subepidermal blister and neutrophilic infiltration, 10×.* ***D)*** *Direct immunofluorescence showing a smooth, linear deposition of immunoglobulin A along the basement membrane, 10×.*

typically located on the limbs, lower abdomen, gluteal region, and face, sometimes with involvement of the oral mucosa [4]. Histopathology shows subepidermal blisters with a neutrophilic infiltrate in the dermis, mainly concentrated at the tips of dermal papillae in the early stage of the disease, which can be mistaken for the pattern of neutrophilic infiltration as seen in dermatitis herpetiformis. Linear IgA deposits along the basement membrane can be detected by direct immunofluorescence in normal and perilesional skin [3]. Serology is negative in about two-thirds of affected children [4]. Important clinical differential diagnoses of LABDC include bullous pemphigoid, dermatitis herpetiformis, hand-foot-and-mouth disease, bullous impetigo, and Stevens-Johnson syndrome/toxic epidermal necrolysis (SJS/TEN), [2]. Although considered idiopathic, LABDC may be triggered by antibiotics (e.g., amoxicillin) and anti-inflammatory drugs [5]. Additionally, an association between LABDC and ulcerative colitis, hematologic malignancies, and other autoimmune diseases has been reported [2]. Due to the rarity of this condition, treatment options are largely based on case reports rather than randomized controlled trials. Dapsone is the treatment of choice, which is also used in adults, and is sufficient as monotherapy in most cases. Initially a dosage of 0.5mg/kg/day is recommended, which can be gradually increased until symptoms are controlled, usually up to 2mg/kg/day [2]. Dapsone-induced methemoglobinemia has been reported as an adverse effect in one case [3]. It is also worth noting that LABDC is not an FDA-approved indication for the use of dapsone [6]. Due to potential side effects such as hemolysis or agranulocytosis, laboratory monitoring is required while on dapsone. Combination therapy with oral corticosteroids is often needed initially, although

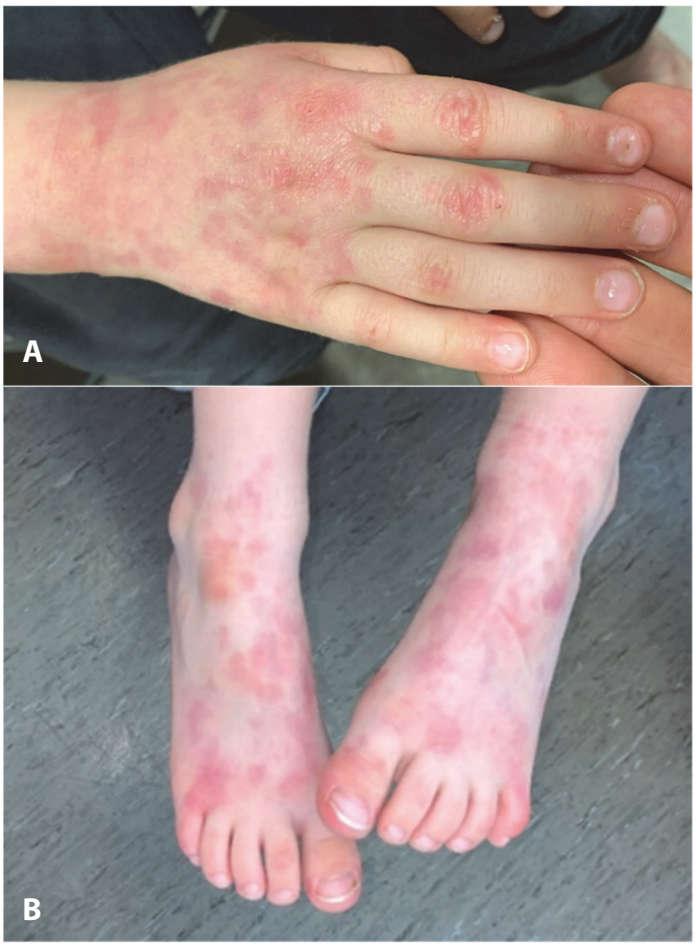

Figure 2. *Four weeks after treatment with dapsone was initiated the lesions on **A)** hands, and **B)** feet showed a clinical response.*

long term use in children should be avoided due to the side effect profile of corticosteroids. Systemic corticosteroid therapy has been given in combination with, before, or after dapsone therapy and has also been used as a monotherapy. Topical corticosteroids, most commonly clobetasol propionate, have also been used as a treatment option and cyclosporine eye drops can be administered to patients with ocular involvement [3]. Patients with glucose-6-phospate dehydrogenase deficiency can be treated with colchicine at a dosage of 0.6mg twice daily. Beta-lactam antibiotics can also be used in children, but tetracycline antibiotics should be avoided due to the risk of permanent tooth discoloration. Positive response to trimethoprim-sulfamethoxazole has also been reported but this medication has also been reported as a cause of the condition. If a culprit medication can be identified, discontinuing this medication has also been found to be sufficient in achieving resolution, usually within 2-6 weeks [2,7]. In other pediatric cases, LABDC usually spontaneously remits 2-4 years after initial onset. Thus, it is recommended that treatment medications be tapered periodically to evaluate for disease remission [7]. The reported average treatment duration is 26.2 months [3].

Conclusion

Linear IgA bullous dermatosis of childhood is a rare autoimmune bullous disease, often confused with similar diseases, which may lead to a delay in diagnosis and treatment. Linear IgA bullous dermatosis of childhood should be considered in the differential diagnosis of children with symptoms of hand-foot-and-mouth disease and bullous impetigo.

Potential conflicts of interest

Professor Navarini reports grants from EADV during the conduct of the study; grants and advisory consulting fees from AbbVie, advisory consulting fees from Almirall, advisory consulting fees from Amgen, grants and advisory consulting fees from Boehringer Ingelheim, advisory consulting fees from Eli Lilly, advisory consulting fees from Galderma, advisory consulting fees from Leo Pharma, advisory consulting fees and non-financial support from Janssen-Cilag, advisory consulting fees from Novartis, advisory consulting fees from Sanofi, advisory consulting fees from UCB, and advisory consulting fees from Biomed outside the submitted work.

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