Abstract

Linear immunoglobulin A bullous dermatosis (LABD) is a rare autoimmune subepidermal bullous disease. Children with blistering eruptions were first described in 1901, and LABD was recognized as a distinct entity in 1979. Because LABD’s clinical presentation is variable, diagnosing the condition exclusively based on clinical observation is difficult. Mucosal involvement can occur, with severe adverse consequences. Herein is presented a comprehensive case report of a woman who presented with LABD complicated with bilateral vision impairment.

Keywords: Blindness, eye, linear immunoglobulin A bullous dermatosis

Introduction

Linear immunoglobulin A bullous dermatosis (LABD) is a rare autoimmune subepidermal bullous disease. Children with blistering eruptions were first described in 1901, and LABD was recognized as a distinct entity in 1979. Because LABD’s clinical presentation is variable, diagnosing the condition exclusively based on clinical observation is difficult. Mucosal involvement can occur, with severe adverse consequences. Herein is presented a comprehensive case report of a woman who presented with LABD complicated with bilateral vision impairment.

Case Report

A 58-year-old female presented with itchy erythematous papules, plaques, and vesicles that started from the back and progressed to the four extremities 10 years ago. Skin rashes did not worsen with sun exposure. According to the patient, she underwent a skin biopsy and was diagnosed with bullous pemphigoid. She was treated with steroids, but her response was poor, prompting treatment discontinuation and loss to follow-up. The patient had lost vision in the left eye 2 years before this study and recently experienced decreased vision in the right eye. This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

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revealed trichiasis, cicatricial conjunctivitis, pannus ingrowth, notable fornix shortening, and a symblepharon in the left eye [Figure 1d]. Schirmer’s test results were negative. The ophthalmologist suspected an autoimmune disease and transferred the patient to the Department of Dermatology. She had generalized excoriated papules, plaques, and several urticaria-like wheals on the bilateral legs [Figure 1a]. Few vesicles were observed on the back [Figure 1c]. Skin biopsy revealed a subepidermal vesicle with neutrophils and eosinophils [Figure 2a and b]. Direct immunofluorescence (DIF) study showed linear immunoglobulin A (IgA) staining and weak granular C3 deposits in the basement membrane, with no immunoglobulin G deposits [Figure 2c and d]. Furthermore, indirect immunofluorescence (IIF), including anti-intercellular substance antibodies and anti-basement membrane zone antibodies, was negative. In addition, anti-Ro and anti-La antibodies were negative, and primary Sjögren’s syndrome was ruled out. Information retrieved from the patient’s clinical manifestations, histopathology, DIF, and IIF prompted LABD diagnosis. The patient was treated with dapsone, and skin lesions remarkably reduced within 2 weeks [Figure 1b]. Although conjunctival biopsy was necessary to confirm IgA deposition at the ocular tissue, which might have provided a more direct causality for the patient’s blindness, the patient was unwilling to perform the procedure. Dapsone treatment did not improve the patient’s vision, as evidenced by chronic and irreversible scarring of the right eye. As per the ophthalmologist’s suggestion, amniotic membrane transplantation in the right eye was performed, with improved visual acuity.

**Discussion**

LABD is a rare autoimmune disorder with low incidence and characterized by subepidermal vesicles with linear IgA deposition in the basement membrane.\(^5\) Adult-onset LABD frequently begins relatively late in life, occurring approximately between the age of 40 and 60 years.\(^5-7\) LABD skin manifestations are variable. Diagnosis should be considered when a patient presents tense blisters on healthy skin or within inflammatory plaques. Pruritus is a common symptom, with other cutaneous manifestations potentially mimicking dermatitis herpetiformis, bullous pemphigoid, pemphigus vulgaris, varicella, or vasculitis.\(^5\) Diagnosing the condition exclusively based on the observations of clinical manifestations is difficult. Skin biopsy and DIF study are essential to distinguish LABD from other subepidermal blistering diseases and confirm LABD diagnosis.

Although LABD pathogenesis is not well understood, humoral and cellular immunity may contribute to the disease. Several eliciting factors have been reported. A case report documented LABD induction by drug exposure, especially vancomycin.\(^8\) Reported genetic factors include the human leukocyte antigen (HLA) B8, HLA Cw7, HLA DR3, HLA...
DQ2, and tumor necrosis factor-2 allele.[7–9] In addition to skin involvement, the mucosa can also be affected; however, the incidence of mucosal involvement is variable. In Western countries, up to 80% of adult patients present mucosal lesions, contrarily to Taiwan, where the incidence of mucosal involvement is low (18%).[1,6] Oral and orbital mucosa are the most commonly affected mucosas. Blister formation, painful oral erosions, ulceration, gingivitis, and cheilitis may occur as oral LABD manifestations,[5,10] whereas ocular manifestations include intermittent itchiness, burning, redness of both eyes, increased ocular discharge, or foreign-body sensation.[9] Oral or ocular manifestations, although rare, may be the only LABD manifestations or may precede cutaneous symptoms. A case of predominant oral lesions for 5 years before the development of skin lesion has been reported.[10] The patient in the present case had oral manifestations for 6 months before skin eruptions developed. At such an early stage, diagnosis is difficult. Biopsy and DIF study can facilitate diagnosis. After 8 years of oral and cutaneous lesions, the patient lost vision in the left eye. She underwent thrice ophthalmological debridement interventions in the left eye, with an initial slight vision recovery after the first operation, but complete vision loss afterward. One case report described a patient with mild xerostomia and eye grittiness for 1 year and pruritic blisters on the trunk and extremities for 2 months. Antinuclear, anti-Ro/SSA, and anti-La/SSB antibodies were positive, but anti-DNA and serum complement levels were normal. Skin biopsy and DIF revealed linear IgA dermatosis. The report concluded that linear IgA dermatosis was a rare cutaneous manifestation of primary Sjögren’s syndrome. The patient in the present case had similar symptoms and clinical course. However, antinuclear, anti-Ro/SSA, and anti-La/SSB antibodies were within the normal ranges, ruling out Sjögren’s syndrome diagnosis.[11]

The first-line treatment for LABD is currently dapsone, starting at a low dose (<0.5 mg/kg/day in children and 25 or 50 mg/day in adults) and subsequently titrating upward over several weeks according to the patient’s response. LABD exhibits a good response to dapsone.[12] However, complications with dapsone treatment include hemolysis, methemoglobinemia, agranulocytosis, and dapsone hypersensitivity syndrome, which should be carefully considered. Hemolysis and methemoglobinemia specifically occur in patients with glucose-6-phosphate dehydrogenase deficiency. Moreover, dapsone hypersensitivity syndrome especially occurs in patients with HLA-B*13:01.[13] Therefore, complete blood count, liver enzymes, and glucose-6-phosphate dehydrogenase levels at baseline should be checked to prevent severe side effects.

After the patient was treated with dapsone, skin lesions remarkably reduced within 2 weeks. Due to stable chronic and irreversible scarring of the right eye, the patient’s vision did not improve with dapsone treatment. According to the ophthalmologist’s suggestion, amniotic membrane transplantation in the right eye was performed, with visual acuity improvement.

Thus, this report describes the case of a patient suffering from linear IgA dermatosis with ocular involvement and blindness. We aim to provide insightful differential diagnosis and disease manifestations to illustrate the importance of an accurate diagnosis and treatment.

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Ethical statement

Ethical approval for this study (IRB No. 201901530B0) was provided by the Institutional Review Board of Chang Gung Medical Foundation on 14 October 2019. The IRB agreed to waive the informed consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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