Common Variable Immune Deficiency Associated with Pemphigoid

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ABSTRACT

CASE: 73-year-old female with a history of Common Variable Immunodeficiency (CVID) diagnosed on serum electrophoresis by her primary care provider. Serum immunoglobulins were low with IgG level 194 mg/dL (reference range 700-1600 mg/dL), IgA <8 mg/dL (reference range 70-400 mg/dL), and IgM 15 mg/dL (reference range 40-230 mg/dL). Antibody titer response to the pneumococcal vaccine was inadequate. She presented to her dentist with a ten-month history of bleeding and painful oral mucosa. At the time of evaluation, she had a visible ulcer of her right buccal mucosa which was biopsied. Pathology report of the biopsy demonstrated mucous membrane pemphigoid.

LITERATURE REVIEW: CVID is a common primary humoral immunodeficiency of adulthood characterized by reduced levels of at least two serum immunoglobulins isotypes, recurrent infections, and impaired antibody response to polysaccharide antigens. CVID has been associated with a variety of autoimmune diseases, the most common being hemolytic anemia and immune thrombocytopenia purpura, but other autoimmune diseases described include rheumatoid arthritis, pernicious anemia, primary biliary cirrhosis, thyroiditis, Sicca syndrome, systemic lupus, and inflammatory bowel disease. Pemphigoid is an autoimmune blistering disease that has not previously been reported to be associated with CVID.

UNIQUE ASPECTS OF THE CASE: Pemphigoid has been seen in another acquired immunodeficiency disorder, such as HIV. This is the first case of pemphigoid associated with CVID.

RECOMMENDATIONS: Pemphigoid should now be considered as an autoimmune condition that can be associated with CVID.

CONCLUSIONS: The pathogenesis of autoimmune diseases in patients with CVID are poorly understood. Due to this association of autoimmune disease, CVID, and this case, pemphigoid should be considered as one of the many autoimmune diseases that may be encountered in CVID. We report the first case of pemphigoid associated with CVID.

Lab test	Results	Reference Range
IgG	194 mg/dL	700-1600mg/dL
IgA	<8 mg/dL	70-400 mg/dL
IgM	15 mg/dL	40-230 mg/dL
CD3%	68%	59-87%
CD3 absolute	1.265 x 10^9/L	0.71-4.18 x 10^9/L
CD3+ CD4+ %	42%	29-57%
CD3+ CD4+ absolute	0.781 x 10^9/L	0.35-2.74 x 10^9/L
CD3+ CD8+ absolute	0.465x 10^9/L	0.08-1.4910^9/L
CD4/CD8 ratio	1.68	1.0-3.5
CD3-CD16+ CD56+ %	14%	0-18%
CD3-CD16+ CD56+ absolute	0.26	0.0-0.86
CD19%	18%	6-19%
CD19 absolute	0.335x 10^9/L	0.07-0.91x 10^9
CD3+ CD4- CD8- %	4.0%	0.0-4.0%

INTRODUCTION

Common variable immune deficiency (CVID) is a primary humoral immunodeficiency of adulthood characterized by reduced levels of at least two serum immunoglobulins isotypes and impaired antibody response to polysaccharide antigens. These immunologic defects predispose the patient to recurrent respiratory tract infections, such as recurrent sinusitis, otitis media, bronchitis, and pneumonia. [1,2]

CVID is associated with a wide variety of autoimmune diseases with the most common being autoimmune hemolytic anemia and immune thrombocytopenia purpura, but other autoimmune complications occur including rheumatoid arthritis, pernicious anemia, primary biliary cirrhosis, thyroiditis, sicca syndrome, systemic lupus, and inflammatory bowel disease.[3] Skin manifestations that have been reported to be associated with CVID include pyoderma gangrenosum[4] and necrotizing granulomas.[5] Pemphigoid, a chronic autoimmune blistering disease of the oral mucosa and eyes, has been reported in association with HIV, it has not been reported to be associated with CVID.[6,7] We report the first case of pemphigoid associated with CVID.

CLINICAL PRESENTATION

A 73-year-old female with a history of CVID presented to her dentist with a ten-month history of bleeding and painful oral mucosa. At the time of evaluation, she had a visible ulcer of her right buccal mucosa which was biopsied. Direct immunofluorescence of the buccal mucosa biopsy demonstrated strong linear deposition of both IgG and C3 at the basement membrane zone confirming mucous membrane pemphigoid. The patient did not have any other systemic manifestations. She was prescribed topical dexamethasone. Within several weeks the patient's symptoms improved.

DISCUSSION

Mucous membrane pemphigoid is a subset of pemphigoid that affects the oral cavity and eyes. It has a proposed autoantibody-induced complement-mediated mechanism that results in the detachment of basal cells from the basement membrane.[6] Treatment is based on the site involved and severity of symptoms with more localized lesions being treated with topical steroids while more significant lesions are treated with systemic steroids.[6]

The pathogenesis of autoimmune disease in patients with CVID are poorly understood as how autoantibodies can be made against specific tissues in a state of impaired immunity is unclear, but nonetheless autoimmune disease affects 20 to 25 % of patients and is often the first manifestation.[3] The development of an autoimmune disease in a patient with recurrent infections should trigger the provider to evaluate for an immunodeficiency disorder.

Due to the association of autoimmune disease, CVID, and this case, pemphigoid should be considered as one of the many autoimmune diseases that may be encountered in CVID. This association has never been previously documented. We report the first case of pemphigoid associated with CVID.

CONCLUSIONS

- CVID is a rare, heterogeneous, primary humoral immunodeficiency.
- CVID is associated with an autoimmune disease in 20-25% of cases and with certain skin conditions including pyoderma gangrenosum and necrotizing granulomas.
- We describe the first case report of pemphigoid associated with CVID.

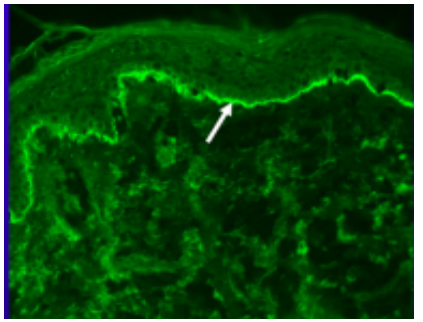

Figure 1. Linear deposition of C3 and IgG along the basement membrane zone.

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