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SHORT COMMUNICATION

Resolution of juvenile idiopathic arthritis–associated uveitis after development of common variable immunodeficiency

R. AMER, G. BAMONTE, J.V. FORRESTER

Department of Ophthalmology, Aberdeen Royal Infirmary, Foresthill - Scotland

PURPOSE. *To describe the occurrence of common variable immunodeficiency (CVID) in a patient with juvenile idiopathic arthritis (JIA) and JIA-associated uveitis.*

METHODS/RESULTS. Case report. *A 29-year-old woman was followed-up since the age of 10 years because of right eye JIA-associated recurrent anterior uveitis. She was treated with steroids and immunosuppressants with good control of uveitis and arthritis. At the age of 17 years, she did not experience any further relapse of uveitis or arthritis and both diseases were considered to be in remission. Concomitantly, she started to have recurrent infections and later she underwent splenectomy because of autoimmune hemolytic anemia and thrombocytopenia. Liver biopsy disclosed granulomatous hepatitis. She was ultimately diagnosed with CVID at the age of 23 years when her blood tests revealed neutropenia and severe panhypogammaglobulinemia. She has been treated since then with intravenous immunoglobulins with good control of the disease. Since the development of CVID, she has had no relapses of uveitis or arthritis during a follow-up period of 12 years.*

CONCLUSIONS. *Common variable immunodeficiency (CVID) is the most common primary immunodeficiency where defective antibody formation is the most common feature with B-cell differentiation failure. Ocular complications have been rarely documented and included bacterial conjunctivitis, retinal vasculitis and multifocal choroiditis. We herein report on the occurrence of JIA-associated uveitis as a comorbid manifestation of CVID.*

We speculate a role for B cells in the pathogenesis of JIA and JIA-associated uveitis here, as this patient had total remission of both conditions with the onset of CVID. (Eur J Ophthalmol 2007; 17: 666-8)

KEY WORDS. *Uveitis, Juvenile idiopathic arthritis, Common variable immunodeficiency*

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INTRODUCTION

Common variable immunodeficiency (CVID) is the most common primary immunodeficiency. It is characterized by low levels of the immunoglobulins and the occurrence of recurrent infections. Autoimmune phenomena are seen in 20% of patients. Malignancies also occur at increased incidence (1, 2).

Ocular involvement related to CVID has been rarely reported in the literature, most cases bearing an infectious origin (3).

We report the case of a patient who developed CVID years after being diagnosed with juvenile idiopathic arthritis (JIA) and uveitis. After onset of CVID, the arthritis and uveitis resolved.

Case report

A 29-year-old woman had been diagnosed at 3 years of age with seronegative, oligoarticular, antinuclear antibody (ANA)–positive JIA.

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She was referred to the Aberdeen Uveitis Tertiary Referral Service at 10 years of age with recurrent right anterior non-granulomatous uveitis of 6 months' duration. Right eye visual acuity (VA) was 20/100; keratic precipitates and anterior chamber cells were evident; she had posterior synechiae, posterior subcapsular cataract, and cystoid macular edema. Left eye VA was 20/20; it was quiet and remained so during this study period. She had raised titers of ANA (1:640).

She was treated with topical and oral steroids and subsequently cyclosporine. Good control of JIA and uveitis was achieved until cyclosporin-related intestinal toxicity at 13 years of age necessitated withdrawal of her medications with partial recovery. She developed chronic diarrhea with malabsorption and she needed parenteral feeding during the following 3 years.

Recurrent relapses of JIA and uveitis from the age of 14 years required further immunosuppression with prednisolone and methotrexate. Due to poor response to the latter drug, cyclosporine was reintroduced at the age of 16 years but gastrointestinal adverse reactions again prompted withdrawal of all medications.

Unexpectedly, she did not experience any further relapse of uveitis or arthritis and both diseases were considered to be in remission at the age of 17 years. Right eye VA was hand motions due to dense cataract and macular atrophic changes. Cataract extraction was considered but declined.

Concomitantly at age 17 years, she started to have recurrent infections including leg cellulitis, pneumonia, and cystitis. At 20 years of age, she underwent splenectomy because of autoimmune hemolytic anemia and thrombocytopenia. Liver biopsy disclosed granulomatous hepatitis. Sarcoidosis was suspected but Kveim test and the level of serum angiotensin converting enzyme did not confirm it.

She was ultimately diagnosed with CVID at age 23 years when her blood tests revealed neutropenia and severe panhypogammaglobulinemia.

She has been treated since then with intravenous immunoglobulins with good control of the disease. Since the development of CVID, she has had no relapses of uveitis or arthritis during a follow-up period of 12 years.

DISCUSSION

We report on the occurrence of JIA-associated uveitis as a comorbid manifestation of CVID. Ocular complications in patients with concomitant CVID have been rarely documented. Bacterial conjunctivitis is common (3). Retinal vasculitis and multifocal choroiditis have been described (4, 5). Anterior granulomatous uveitis and non-caseating conjunctival granulomas have been reported in patients with CVID and sarcoidosis-like syndrome (6). On the other hand, arthritis is one of the autoimmune phenomena associated with CVID. Cunningham-Rundles and Bodian described the occurrence of nine cases of rheumatoid arthritis among a group of 248 patients with CVID, four of them with the juvenile form of the arthritis. However, there was no mention of the time of arthritis onset in relation to the immune deficiency or of the autoantibody profile in these patients (1). There is little evidence in the literature of JRA presenting before the onset of CVID (7). To our knowledge this is the first case of coexistent JIA-associated uveitis and CVID. Following development of CVID the uveitis and synovitis relapses ceased. Complete remission of systemic JRA concomitant with the development of CVID was also reported by Uluhan et al (7).

The etiology of CVID is debated. Defective antibody formation is the most common feature with B-cell differentiation failure; however, diverse abnormalities in the number and function of both B and T cells have been described (2). It is possible to speculate a role for B cells in the pathogenesis of JIA and JIA-associated uveitis here, as this patient had total remission of both conditions with the onset of CVID. A study by Wouters et al, which evaluated the immunophenotypic profiles of circulating lymphocytes in 41 patients with different JIA types, showed that all patients had hypergammaglobulinemia consistent with B-cell hyperactivity (8). This further clarifies the natural history of resolution of JIA and JIA-associated uveitis with the onset of CVID.

The authors have no proprietary interest.

Reprint requests to:
Radgonde Amer, MD
Department of Ophthalmology
University of Aberdeen
Foresterhill
AB 25 2ZD, UK
radgonde.amer@abdn.ac.uk

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