

Brief communications

Leukocytoclastic vasculitis and common variable immunodeficiency: Successful treatment with intravenous immune globulin

Gemma Sais, MD, Antonio Vidaller, MD, Octavio Servitje, MD,
Anna Jucglà, MD, and J. Peyrí, MD *Barcelona, Spain*

Common variable immunodeficiency (CVI) is a heterogeneous group of immunologic disorders characterized by hypogammaglobulinemia and recurrent bacterial infections. In spite of the impaired production of antibodies that defines this disease, a variety of autoimmune disorders are frequently associated.¹ Treatment of CVI includes administration of antibiotics and γ -globulin replacement. Passive immunization in patients with hypogammaglobulinemia led to the knowledge of the important role of intravenous immunoglobulin (IVIG) in immunomodulation.

We report a case of severe leukocytoclastic vasculitis in a patient with CVI. Treatment with IVIG controlled both diseases. We have found only one previous report of association between CVI and vasculitis in the reviewed literature.

CASE REPORT

A 66-year-old woman with a history of recurrent herpes simplex virus-1 and repeated bacterial infections of the sinopulmonary tract was referred for evaluation of a chronic purpuric eruption involving the legs. Successive cropping of cutaneous lesions had started 2 years earlier; no drugs could be incriminated. She had been given oral prednisone (0.5 mg/kg/day) for 2 months without experiencing any improvement.

On physical examination, there was a severe eruption of confluent palpable purpura on the lower extremities (Fig. 1). No other clinical abnormality was found. A biopsy specimen of one lesion showed a neutrophilic infiltrate around and within the dermal vascular walls, nuclear dust, extravasation of red cells, and deposits of fibrin. Direct immunofluorescence examination demonstrated deposition of IgG, IgA, and C3 in the cutaneous

Abbreviations used

CVI: Common variable immunodeficiency
IVIG: Intravenous immunoglobulin

vessels. The diagnosis of cutaneous leukocytoclastic vasculitis was confirmed.

Erythrocyte sedimentation rate was 10 mm. White blood cell count was 4280/mm³ (5% eosinophils, 71% neutrophils, 18% lymphocytes, and 7.2% monocytes). Platelet count was 270,000/mm³. Blood chemistry was normal. The γ -globulin level was decreased (5.5 gm/L). Albumin level was normal. Results of urinalysis were negative. Chest roentgenogram and electrocardiogram disclosed no abnormality. The tuberculin reaction was negative. Results of serologic determinations for human immunodeficiency virus, cytomegalovirus, toxoplasmosis, Epstein-Barr virus, herpes simplex virus-IgM, syphilis, *Salmonella*, and *Brucella* species, and hepatitis B and C were negative. Antistreptolysin O values were less than 200 IU. Quantitation of serum immunoglobulins showed a decreased level of IgG, 1.5 gm/L (range, 9.2 to 17.8 gm/L); IgA, 0.4 gm/L (range, 0.5 to 4.3 gm/L); and IgM 0.8 gm/L (range, 0.9 to 2.8 gm/L). The result of the complement study was normal. Cell surface analysis of T and B cells and T-cell subset showed CD19, 2% (6% to 12%); CD3, 83% (68% to 80%); CD4, 30% (39% to 52%); CD8, 44% (24% to 37%); CD4/CD8, 0.75 (1.05 to 2.15). Results of tests for cryoglobulins, rheumatoid factor, antinuclear antibodies, anti-DNA, anti-Ro, anti-La, anti-cardiolipin, and antineutrophil cytoplasm antibodies were negative. Results of bone marrow examination were normal. The patient was diagnosed with coexistent CVI and cutaneous leukocytoclastic vasculitis. IVIG treatment with Polyglobin, 300 mg/kg body weight every 3 weeks, was started. The average serum IgG level reached was 7 gm/L. The administration of IVIG also improved the vasculitic disease. Twenty-four hours after the administration of IVIG, the purpuric eruption had not progressed. All preexistent vasculitic lesions cleared within 10 days. During 1.5 years of assessment and without any additional therapy, the patient has only had one episode of purpura. This relapse was concurrent

From the Department of Internal Medicine and the Department of Dermatology, Hospital Prínceps d'Espanya, Universitat de Barcelona.

Reprint requests: Gemma Sais, MD, Taquígraf Garriga, 98-100, 4-2, 08029 Barcelona, Spain.

J Allergy Clin Immunol 1996;98:232-3.

Copyright © 1996 by Mosby-Year Book, Inc.

0091-6749/96 \$5.00 + 0 1/54/62013

with a reduction of IgG levels to 5.5 gm/L, caused by a delay in the infusion of immunoglobulin.

DISCUSSION

Leukocytoclastic vasculitis is a small-vessel vasculitis characterized by infiltration of polymorphonuclear leukocytes, with presence of nuclear dust, extravasation of erythrocytes, and fibrinoid necrosis. Patients are usually first seen with palpable purpuric lesions, but systemic involvement may develop. The disorder may be associated with infection, cryoglobulinemia, drug intake, malignancy, and a variety of autoimmune diseases.²

CVI is a primary immunodeficiency that can be diagnosed in the sixth decade of life.¹ Although patients with hypogammaglobulinemia frequently have associated autoimmune diseases,¹ we have only found one previous report of association between CVI and vasculitis (polyarteritis nodosa).³ The administration of IVIG in patients with immunodeficiencies led to the knowledge of the role of this new therapy in immunomodulation,⁴ and its use in immunologic or autoimmune diseases is now being tried. Moreover, IVIG infusion is a well established therapy for Kawasaki disease and immune thrombocytopenic purpura. In addition to Kawasaki disease, other vasculitic processes have been treated with IVIG, including mild cases of systemic vasculitis⁵ and one case of Churg-Strauss syndrome,⁶ although the mechanisms for the beneficial effect of this therapy are not well defined. In most forms of vasculitis there is some evidence that antigen-antibody complexes participate in the pathogenesis of vascular damage, and the manipulation of the idiotype network by IgG antiidiotypic antibodies from IVIG infusion may be of benefit in the vasculitic syndromes. The attenuation of the acute complement-dependent immune damage, the reduction in the secretion of some cytokines, and the correction of T-cell abnormalities, observed after IVIG administration, could also ameliorate the vasculitic lesions.⁴ In this case IVIG infusion resulted in successful control of the chronic leukocytoclastic vasculitis, which the patient had experienced for 2 years. We believe that the association between CVI and vasculitis may be related to the complex dysfunction in humoral and cellular immunity demonstrated in these patients,¹ as well as to the greater susceptibility to infections



FIG. 1. Palpable purpuric lesions on the legs.

that they present. IVIG could have a beneficial effect on both factors.

REFERENCES

1. Cunningham-Rundles. Clinical and immunologic analyses of 103 patients with common variable immunodeficiency. *J Clin Immunol* 1989;9:22-33.
2. Fauci AS, Haynes BF, Katz P. The spectrum of vasculitis: clinical, pathologic, immunologic and therapeutic considerations. *Ann Intern Med* 1978;89:660-76.
3. Yoshida N, Takahashi K, Kurozumi H, Hyodo Y, Yocota S. A case of hypogammaglobulinemia associated with polyarteritis nodosa presenting a variety of symptoms in childhood. *Ryumachi* 1990;30:119-25.
4. Dwyer JM. Manipulating the immune system with immunoglobulin. *N Engl J Med* 1992;326:107-16.
5. Jayne DRW, Davies MJ, Fox CJV, Black CM, Lockwood CM. Treatment of systemic vasculitis with pooled intravenous immunoglobulin. *Lancet* 1991;337:1137-9.
6. Hamilos DL, Christense J. Treatment of Churg-Strauss syndrome with high-dose intravenous immunoglobulin. *J Allergy Clin Immunol* 1991;88:823-4.