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ORIGINAL ARTICLE

Churg-Strauss Vasculitis in a Patient Treated with Omalizumab

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Omalizumab is a new anti-IgE treatment for severe-persistent allergic asthma. In this case presentation, we report the clinical features of a patient with Churg-Strauss syndrome (CSS) diagnosed after five months of omalizumab treatment. Administration of anti-IgE quickly improved asthma symptoms and enabled the gradual reduction and suspension of systemic steroids. After the suspension of steroids, vasculitis became evident and CSS was diagnosed. Here, we report the clinical course of this patient to evaluate the efficacy of omalizumab in CSS.

Keywords Churg-Strauss syndrome, omalizumab, anti-IgE, asthma

INTRODUCTION

Allergic granulomatous angiitis, also known as Churg-Strauss syndrome (CSS), is an uncommon vasculitis of unknown etiology characterized by inflammatory necrotizing arteritis of the small vessels, eosinophilic infiltration, and extravascular granulomas (1, 2). CSS is a systemic disease, which may affect the lungs, skin, eyes and cardiovascular, gastrointestinal, and nervous systems (3–6). Common clinical manifestations include asthma, allergic rhinitis, skin lesions, muscle and joint pain, neuropathy, and gastrointestinal symptoms, such as abdominal pain, diarrhea, and bleeding (3–6). The disease usually affects young adults and has an unpredictable clinical course. Onset may be acute or mild. The most effective treatment for CSS is currently a combination of corticosteroids and immunosuppressants such as cyclophosphamide and azathioprine. Administration of steroids can delay diagnosis (7–9).

Here we describe a patient who manifested CSS after five months of treatment with omalizumab, a new drug for severe-persistent asthma (10–16). Before starting omalizumab, the patient had been treated with oral steroids for bronchial asthma for more than 15 years (16). Suspension of steroids, made possible by the new drug, probably allowed CSS to manifest. After diagnosis, it was decided to continue omalizumab on the basis of a case report in the literature (12) and a medical history of hitherto unrecognized signs of vasculitis.

CASE REPORT

A 47-year-old male nonsmoker had a history of asthma, allergic rhinitis, and sinusitis since 1987. He also occasionally complained of muscle and joint pain. The patient was treated with low-dose systemic steroids (prednisone 8 mg/day) for more than 15 years without achieving satisfactory control of asthma.

In November 2006, he was evaluated for anti-IgE treatment for severe-persistent allergic asthma. Omalizumab is a new drug included in the GINA guidelines for severe asthma (GINA, 2006). It blocks the allergic cascade by binding free IgE in serum and preventing it from binding to specific receptors. Omalizumab (375 mg) was administered subcutaneously (s.c.) every two weeks. Symptoms improved with a sharp reduction of dyspnea, wheezing, and coughing after only two weeks of treatment. Oral steroids were progressively reduced, but although good control of asthma was achieved, over four to six weeks the patient developed weakness, fever, muscle and joint pain, and multiple s.c. abdominal nodules.

The patient was hospitalized. X-rays of hands and feet were normal as were ultrasound scans of shoulders and knees. A chest high-resolution computed tomography (HRCT) scan showed bilateral pulmonary infiltrate. Bronchoscopy with bronchoalveolar lavage (BAL) showed 18% macrophages, 8% lymphocytes, 11% neutrophils, and 63% eosinophils. Lymphocyte phenotype was CD3⁺ 75%, CD4⁺ 26%, CD8⁺ 41%, CD19⁺ 0.4%, and CD4/CD8 0.63%. No infective agents were isolated in BAL. Blood (23%) and BAL (63%) eosinophil counts were elevated, suggesting vasculitis. Bronchial and skin biopsies confirmed intense eosinophilic perivascular infiltration indicative of CSS. Vasculitis was probably only discovered because of a tapering of steroid treatment, which had hidden the symptoms of CSS. Full medical history revealed mild symptoms of this syndrome, with muscle and joint pains, skin lesions, and rhinitis and sinusitis, since the onset of asthma. No neurologic or renal involvements were documented.

Omalizumab treatment was maintained according to the asthma protocol (375 mg every two weeks based on weight and serum levels of IgE). The patient was also treated with high-dose intravenous (i.v.) steroids and oral azathioprine, with a significant improvement in clinical condition and without side effects. Fever disappeared, together with chest and muscle pain. Peripheral hypereosinophilia dropped sharply to 5% after five days of this combination. Chest HRCT after three weeks of therapy showed a complete regression of

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pulmonary infiltrates. After two weeks, steroid therapy was progressively tapered to 16 mg prednisone; oral azathioprine was maintained at 100 mg/day.

The patient is regularly followed at Siena Regional Referral Centre for interstitial lung diseases. He is stable, his respiratory symptoms and quality of life are improving, and radiological findings do not reveal signs of vasculitis. No neurologic or renal manifestations occurred. Anti-IgE treatment has been very well tolerated without local or systemic side effects. Omalizumab therapy continues at the same dose together with 100 mg oral azathioprine and a low dose of oral steroids.

DISCUSSION

In the present case, CSS was diagnosed after five months of omalizumab therapy for asthma. When the patient developed symptoms of vasculitis, it raised the question of a side effect of anti-IgE therapy, which we immediately reported (10–13). Only two other similar reports were found in the literature: Winchester et al. reported a similar case of CSS in a patient treated with omalizumab and Giavina-Bianchi et al. proposed anti-IgE therapy in a CSS patient with severe asthma (12, 13). Our decision to continue omalizumab therapy was also supported by a history of signs of vasculitis predating anti-IgE treatment. Like Giavina-Bianchi et al., we, too, determined to evaluate the safety and effectiveness of anti-IgE treatment in asthma given with CSS vasculitis (12–14). Omalizumab given with steroids and azathioprine was well tolerated by our patient and seemed to improve asthma signs and symptoms. Obviously, we did not supply omalizumab alone in this patient because we did not know if this drug could control signs and symptoms of vasculitis in the absence of steroids and immunosuppressants.

CONCLUSION

Our case study suggests that it is important to exclude CSS in patients with severe-persistent asthma because protracted steroid therapy can hide signs of vasculitis (15) and omalizumab therapy could be worth of further studies on a larger population to evaluate its real efficacy in severe asthma with CSS (12–15).

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