

Acral Purpuric Plaques in a Woman With Asthma: A Case of Allergic Granulomatosis Angiitis

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Allergic granulomatosis angiitis (AGA) is a rare systemic vasculitis of unknown etiology. Most patients are adults in their third to fourth decade of life. The combination of asthma, eosinophilia, and necrotizing vasculitis is almost invariably present. Cutaneous lesions are found in up to 70% of the patients and include nodules, hemorrhagic lesions, and erythema multiformelike lesions. We provide a case report of a 30-year-old woman with asthma who presented with acral purpuric plaques and was diagnosed with AGA.

Allergic granulomatosis angiitis (AGA), also known as Churg-Strauss syndrome, is a rare systemic vasculitis characterized by the presence of asthma, eosinophilia, pulmonary infiltrates, neuropathy, sinus abnormalities, and extravascular eosinophils on tissue examination. Cutaneous findings are seen in up to two thirds of the patients and include dermal nodules, hemorrhagic lesions, and erythema multiformelike lesions. The “classic” Churg-Strauss granuloma (CSG), originally described in cases of AGA, is neither sensitive nor specific for this entity. A case of AGA presenting as purpuric plaques limited to acral skin is presented. Since no histopathologic marker for AGA exists, the diagnosis should be reached on clinicopathologic, hematologic, and radiologic grounds.

Case Report

A 30-year-old white woman with an 8-year history of asthma presented with painful plaques of 7 days’



FIGURE 1. Painful purpuric plaques on the medial aspect of the fifth toe.

duration on her feet and hands. The initial lesion appeared on her left fifth toe as a red painful plaque. A diagnosis of cellulitis was made, and cephalexin was prescribed for 7 days without benefit. New lesions developed on another toe, as well as on the hands. Abdominal pain and fever also were noted. The patient was admitted with the presumptive diagnosis of septic vasculitis.

Physical examination revealed a normotensive patient with a fever of 102°F. Tender purpuric plaques and papules on the left fifth and fourth toes were seen (Figure 1). Similar lesions were noticed on the volar aspect of the left and right hands. Nails and mucosae were normal.

Results of laboratory studies revealed a leukocyte count of $27 \times 10^9/L$; eosinophils, 51%; erythrocyte sedimentation rate, 61 mm/h; and serum IgE, 2726 IU/mL (normal, 0 to 180 IU/mL). Tests for anti-nuclear antibodies and antineutrophil cytoplasmic antibodies (ANCA) gave negative results. Renal function tests and urinalysis results were unremarkable. Serial blood cultures failed to grow organisms. A chest roentgenogram showed bilateral pulmonary

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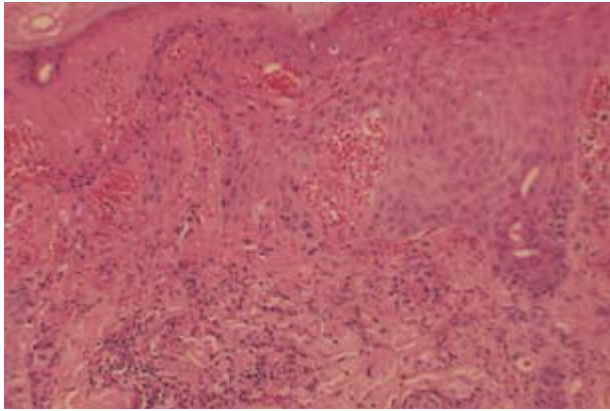


FIGURE 2. Small vessel leukocytoclastic vasculitis of papillary and reticular dermal vessels (H&E, original magnification $\times 10$).

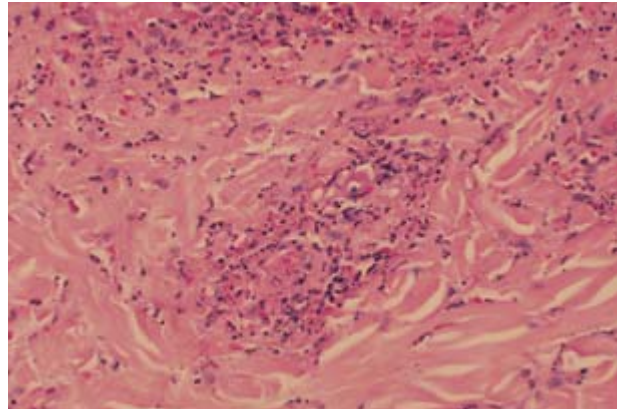


FIGURE 3. Small vessel leukocytoclastic vasculitis with occasional eosinophils (H&E, original magnification $\times 40$).

interstitial infiltrates. A transthoracic echocardiogram showed moderate pericardial effusion.

A biopsy specimen from a purpuric plaque on the left hand showed fibrinoid degeneration of papillary and mid-dermal vessel walls; a mixed-cell infiltrate of neutrophils, eosinophils, and lymphocytes in vessel walls; leukocytoclasia of neutrophils; and extravasated red blood cells, consistent with leukocytoclastic vasculitis (Figures 2 and 3). No extravascular necrotizing granulomas were found. A diagnosis of AGA was made. The patient was started on oral prednisone (40 mg daily) and cimetidine.

Peripheral eosinophilia and abdominal pain resolved after 7 days. Asthma, abdominal pain, and cutaneous lesions did not recur after a 3-month follow-up period.

Comment

AGA is a systemic vasculitis first described in 1951.¹ The mean age of onset is 38 years (range, 15–70 years) with a male-to-female ratio of 2:1. Diagnostic criteria as defined by the American College of Rheumatology² include asthma, eosinophilia of more than 10% on a differential white blood cell count, nonfixed pulmonary infiltrates on roentgenographic examination, mono- or polyneuropathy, paranasal sinus abnormalities, and a blood vessel with extravascular eosinophils. Other features include fever, leukocytosis, abdominal pain, bowel perforation, arthralgia, arthritis, pericarditis, coronary artery vasculitis, hypertension, and renal failure.

Skin lesions, seen in two thirds of the patients, include nodules, hemorrhagic lesions, and erythema multiformelike lesions; less common presentations include macular erythema, facial edema, ulcers, nail-fold infarctions, papulovesicles, and livedo reticularis.³

Histopathologic findings include necrotizing vasculitis of small arteries and venules (often indistin-

guishable from that in hypersensitivity angiitis and polyarteritis nodosa [PAN]’); PAN-like lesions; and CSGs.⁴ The latter represent areas of extravascular basophilic fibrillar necrosis with leukocytoclastic debris surrounded by granulomatous infiltrate of lymphohistiocytes and eosinophils. These granulomas correlate well with dermal or subcutaneous nodules but not with other clinical presentations of the disease.⁵ In one series, CSGs were seen in only 50% of skin specimens.⁶ In another series, CSGs were found in 73% of the tissues sampled. Furthermore, CSGs are not specific for AGA as they have been described in cases of Wegener’s granulomatosis, systemic PAN, lupus erythematosus, rheumatoid arthritis, lymphoproliferative disorders, and other chronic inflammatory processes.⁷ To avoid further confusion, use of the terms “extravascular necrotizing granuloma” or “Winkelmann’s granuloma,” instead of CSG, has been suggested.

The etiology of AGA is unknown. Immunoglobulins and complement have been found in vessel walls, and fibrinogen has been detected in extravascular granulomas. Elevated serum IgE levels suggest a hypersensitivity response.⁸ Eosinophil cationic protein may be produced in situ and mediate tissue toxicity.⁹ ANCA may play a pathogenic role. Antibodies against myeloperoxidase or p-ANCA are found in about 70% of cases with AGA.¹⁰ P- and c-ANCA were not detected in our patient.

The differential diagnoses include Wegener’s granulomatosis, PAN, and hypereosinophilic syndrome. Patients with Wegener’s granulomatosis or PAN may display tissue or peripheral eosinophilia, but asthma is unusual; in cases where asthma is found, peripheral eosinophilia is not seen. Severe renal disease, commonly seen in patients with Wegener’s granulomatosis and PAN, is unusual in AGA. Finally, several features of the hypere-

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osinophilic syndrome overlap with AGA (eg, pulmonary infiltrates; cardiovascular, gastrointestinal, and cutaneous involvement; eosinophilia; elevated IgE levels). In hypereosinophilic syndrome, however, cutaneous lesions are nonvasculitic and thrombotic rather than vasculitic or granulomatous. Systemic corticosteroids are the treatment of choice in AGA.¹¹ Less than 20% of the patients require concomitant cytotoxic drugs. Most fatalities in AGA are due to myocardial infarction and congestive heart failure.³

In conclusion, AGA is a systemic vasculitis of unknown etiology. Skin findings are present in up to two thirds of the cases. The "classic" CSGs are neither sensitive nor specific for AGA. Since no single histopathologic marker of AGA exists, the diagnosis should be reached on clinicopathologic, hematologic, and radiologic grounds.

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