Henoch-Schönlein Purpura Presenting With Anuria in an Adult

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Henoch-Schönlein purpura (HSP) is an immune complex–mediated systemic small vessel vasculitis that is most commonly described in children but may affect patients of any age. Our patient, a 91-year-old man, presented with anuria caused by IgA-mediated nephropathy; he later developed cutaneous leukocytoclastic vasculitis, thereby meeting the criteria for a diagnosis of HSP. This case is unique because of the patient's initial presentation with anuria, the possible underlying malignancy associated with his HSP, and his advanced age.

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Henoch-Schönlein purpura (HSP) is an immune complex–mediated systemic small vessel vasculitis that is most commonly described in children but may affect patients of any age. We present the case of a 91-year-old man with anuria caused by IgA-mediated nephropathy; he later developed cutaneous leukocytoclastic vasculitis, thereby meeting the criteria for a diagnosis of HSP. This case is unique because of the patient's initial presentation with anuria, the possible underlying malignancy associated with his HSP, and his advanced age.

Case Report

A 91-year-old man with type 2 diabetes mellitus presented to the emergency department in June 2006 with anuria, progressive dyspnea, mild confusion, and increased lower extremity edema of 3 days' duration. A review of systems was negative for abdominal pain, joint pain, dysuria, fever, chills, sweats, nausea, or vomiting. His medical history included mild hypertension, diabetes mellitus, benign prostatic hyperplasia treated with transurethral resection in 1999, and well-differentiated adenocarcinoma of the colon treated with laparoscopic resection in 1999. A gastrointestinal tract biopsy in May 2006 demonstrated moderate to poorly differentiated adenocarcinoma in the background of adenoma with high-grade dysplasia of the Vater ampulla that required stent placement.

On admission he was afebrile and in no acute distress. He had an apical grade 2/6 systolic ejection murmur. Coarse breath sounds were noted up to the mid lung fields with extensive rhonchi. His abdomen was soft and nontender with a well-healed midline abdominal scar. Stool guaiac was negative. He had bilateral lower extremity pitting edema. Peripheral pulses were full.

Laboratory studies on admission included the following values: white blood cell count, 19,000/μL (reference range, 4500–11,000/μL) with 90% neutrophils; hemoglobin, 11.7 g/dL (reference range, 14.0–17.5 g/dL); hematocrit, 36.1% (reference range, 41%–50%); platelets, 217×10^3/μL (reference range, $150–350\times10^3$/μL); sodium, 132 mEq/L (reference range, 136–146 mEq/L); potassium, 6.9 mEq/L (reference range, 3.6–5.0 mEq/L); chloride, 97 mEq/L (reference range, 102–109 mEq/L); bicarbonate, 19 mEq/L (reference range, 21–28 mEq/L); blood urea nitrogen, 78 mg/dL (reference range, 7–20 mg/dL); creatinine, 6.8 mg/dL (reference range, 0.6–1.2 mg/dL); glucose, 106 mg/dL (reference range, 70–110 mg/dL); and phosphorus, 8.0 mg/dL (reference range, 2.3–4.7 mg/dL). Liver and pancreatic enzymes as well as serum and urine protein electrophoresis were within reference range. A chest radiograph demonstrated hazy central and basilar opacity consistent with pulmonary edema and small bilateral pleural effusions. Computerized axial tomography of the abdomen without contrast revealed normal kidneys

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The authors report no conflict of interest.

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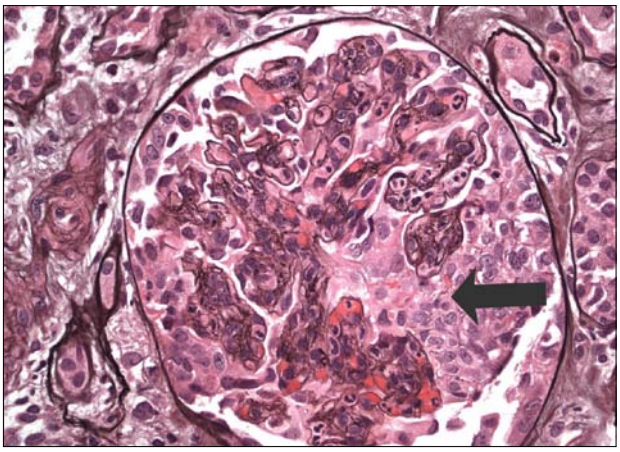

Figure 1. A glomerulus showed diffuse mesangial hypercellularity and obliteration of capillary lumina by endothelial cells and leukocytes. There is a cellular crescent within the Bowman space (arrow)(Jones methenamine silver, original magnification ×60).

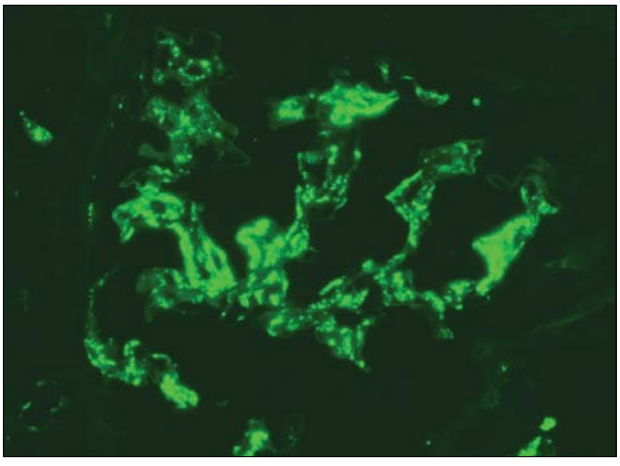

Figure 2. Indirect immunofluorescence microscopy showed strong mesangial staining for IgA (original magnification ×40).

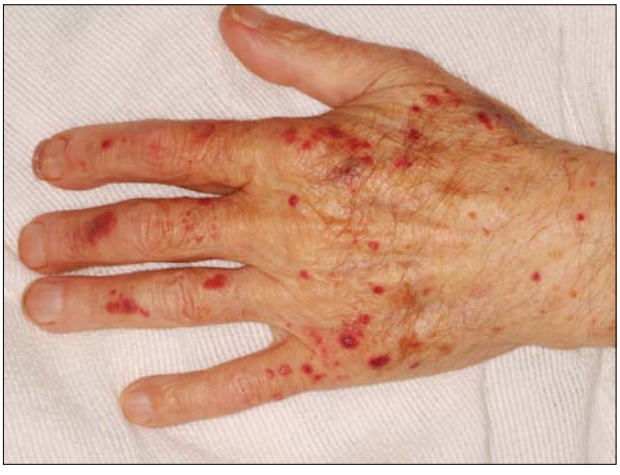

Figure 3. Red purpuric macules and papules with central necrosis on the left hand.

with no evidence of renal calculus or obstructive uropathy. Renal ultrasound showed echogenic kidneys consistent with medical disease without hydronephrosis or nephrolithiasis. The patient was admitted for emergent dialysis. The nephrology department was consulted and a renal biopsy was performed.

Renal Biopsy Findings—Light microscopy revealed 28 glomeruli; 23 were globally sclerotic. The nonsclerotic glomeruli showed diffuse mesangial proliferation and endocapillary hypercellularity (Figure 1). Four glomeruli showed prominent cellular crescents. Several glomeruli showed numerous intracapillary neutrophils. There was severe diffuse interstitial fibrosis and patchy tubular atrophy affecting 80% of the cortical area accompanied by a patchy mononuclear inflammatory cell infiltrate and interstitial edema. Arterial vessels showed moderate intimal fibrosis and medial sclerosis and no evidence of arteritis. There was no evidence of diabetic glomerulosclerosis.

Immunofluorescence microscopy demonstrated a mesangial and segmental glomerular capillary wall staining for IgA and C3 (Figure 2). Electron microscopy revealed immune-type electron-dense deposits in mesangial and subendothelial locations (not shown). The pathologic findings were consistent with IgA nephropathy, consistent with a diagnosis of HSP.

Hospital Course—On hospital day 5, the patient was started on 1 g of intravenous methylprednisolone acetate for 3 days; on day 6 he received a single dose (500 mg) of intravenous cyclophosphamide and the dermatology department was consulted to evaluate purpuric papules with central necrosis on the hands and feet that presented 3 days prior to consultation (Figure 3). A skin biopsy demonstrated leukocytoclastic angiitis. Direct immunofluorescence showed IgA and C3 deposition in the vessel walls. Immunostain of skin for prostate-specific antigen was negative. The skin lesions resolved but renal function did not return despite continued corticosteroid therapy; the patient was started on maintenance hemodialysis. During this hospitalization in June 2006, the patient underwent rebiopsy of the mass of the Vater ampulla, which showed adenoma with an extensive cautery artifact. Imaging demonstrated an enlarged prostate and his prostate-specific antigen level was found to be 8.6 ng/mL (reference range, <4.0 ng/mL), but a prostate biopsy was deferred. The patient was discharged on 60 mg of prednisone daily and maintenance hemodialysis. After 2 months he discontinued his dialysis and died in September 2006.

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Comment

Henoch-Schönlein purpura is an immune complex–mediated systemic small vessel vasculitis characterized by nonthrombocytopenic palpable purpura on the legs and buttocks, abdominal pain, hematuria, and arthralgia. The disease is most commonly described in children but may affect patients of any age.[1] According to the 1990 American College of Rheumatology criteria, the diagnosis of HSP is 87% sensitive and specific given the presence of at least 2 of the following parameters: palpable purpura, age less than 20 years at disease onset, bowel angina, and granulocytes in the arteriole and venule walls by biopsy.[2] The Chapel Hill Consensus Conference on the Nomenclature of Systemic Vasculitis later modified the definition of HSP: "a vasculitis with IgA-dominant immune deposits, affecting small vessels that typically involves the skin, gut, and glomeruli, and is associated with arthralgia or arthritis."[3] The main histologic features include leukocytoclastic vasculitis on hematoxylin and eosin staining as well as IgA and C3 deposition in the vessel walls on direct immunofluorescence.[4]

This syndrome was first described in the early 18th century by William Heberden and Robert Willan but was formally reported by Johann Schönlein in 1837. In 1868, Henoch[5] reported the first case of a patient with a constellation of colic, bloody diarrhea, arthralgia, and rash. In 1914, Osler[6] first associated this condition with allergy. Henoch-Schönlein purpura has since been described as an allergic vasculitis to various drugs; bacteria, especially β-hemolytic streptococci; viruses; and possibly foods.

IgA-associated cutaneous leukocytoclastic vasculitis is not unique to HSP. There are reported cases of IgA-associated vasculitis lacking the extracutaneous manifestations of HSP seen with IgA paraproteinemia,[7] autoimmune diseases,[8] inflammatory bowel disease,[9] malignancies, and antecedent mucosal-based infection.[10]

Our patient demonstrated the histologic features of leukocytoclastic angiitis on skin biopsy and IgA deposition within dermal blood vessels on direct immunofluorescence. A renal biopsy demonstrated IgA-mediated nephropathy as the cause of his anuria. With both cutaneous and renal disease involvement, he fulfilled the criteria for HSP according to the 1990 American College of Rheumatology definition. In addition, there are several unique aspects of our patient's case of HSP: (1) presentation with anuria, (2) possible malignancy-associated HSP, and (3) advanced age.

Nephritis is a frequent complication of HSP and is associated with a poor prognosis. Cases of patients with HSP dying of renal failure have been reported.[11] Patients who develop nephrotic syndrome complicated by hypertension, azotemia, oliguria, and/or hypoproteinemia are at increased risk for renal failure in HSP.[12] However, anuria is an unusual presenting sign of HSP or IgA vasculitis.

The cause of this patient's HSP remains unknown. He had a documented history of colon cancer, a benign mass removed from the Vater ampulla, and an enlarged prostate with an elevated prostate-specific antigen level that was suspicious for prostate cancer. Although he did not have a second documented malignancy during the hospital course described here, his presentation could be the result of paraneoplastic HSP.

Malignancy is a well-established cause of vasculitis.[13] The prevalence of neoplasia in adults with cutaneous or systemic vasculitis has been estimated to be 2.5% to 5.0%.[14,15] Myeloproliferative and lymphoproliferative tumors are 3 to 5 times more likely than solid tumors to be associated with vasculitis in general. However, solid tumors are more often associated with HSP than hematologic malignancies. The most common solid malignancies are non–small cell lung, prostate, and renal cancer.[13]

Several hypotheses have been proposed to explain paraneoplastic vasculitis: (1) the potential of malignant cells to act as neoantigens and elicit an immunologic reaction against similar blood vessel antigens, (2) abnormal production of antibodies, (3) decreased immune complex clearance, (4) dysregulated lymphocytes that cause a switch from IgM to IgA isotypes, and (5) aberrant production of inflammatory cytokines either by malignant cells themselves or through the release of tumor emboli.[16,17] Small vessel vasculitis can be both paraneoplastic and immune complex mediated, as evident by the numerous case reports of IgA-mediated paraneoplastic HSP.[13] Therefore, adults, especially men, presenting with IgA vasculitis or HSP in the absence of an identifiable cause should be worked up for underlying malignancy. Couzi et al[18] reported a case of malignancy-associated HSP in an 86-year-old man with documented concurrent prostate cancer; however, nonmalignancy-associated HSP was reported by Popitean et al[19] in a 91-year-old woman who developed colicky abdominal pain and purpura with no joint manifestations subsequent to a transient ischemic attack. According to a PubMed search of articles indexed for MEDLINE using the terms *Henoch-Schönlein purpura in adults* and *elderly*, our 91-year-old patient may represent the oldest documented case of suspected paraneoplastic HSP and the only case of HSP presenting with anuria.

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