A 19-Year-Old Man Presenting with a Generalized Body Rash

Sanjay Kamboj, MD; Jeffrey D. Harris, BS; Shaminder Gupta, MD; Vashu Thakur, MD; Kathy Willis, MD; Carmen G.Espinoza, MD; Fred A. Lopez, MD

A 19-year-old man presented to the emergency department with a chief complaint of generalized body rash for two weeks. The rash began shortly after he initiated penicillin therapy for a sore throat diagnosed one week previously. He also complained of having dark urine and abdominal discomfort. His urinalysis revealed proteinuria and hematuria, and he was admitted for further evaluation and management. While in the hospital, he had an episode of hemoptysis. A renal biopsy was performed and revealed IgA deposition. In light of his systemic symptoms including rash and abdominal pain, he was diagnosed with Henoch-Schönlein purpura (HSP).

A 19-year-old man presented to the emergency department with the complaint of a rash over his body for 2 weeks. The rash started while he was taking oral penicillin for a sore throat. The rash was nonpruritic and started on his legs before spreading to his genitals, buttocks, abdomen, lower back, and arms. Diphenhydramine did not appear to improve the rash. The patient also developed pain and stiffness in his proximal and distal interphalangeal joints, dark-colored urine, and a dull pain in the lower abdomen. Fever, chills, chest pain, shortness of breath, nausea, and vomiting were absent. He reported a similar episode of rash 6 months previously which resolved spontaneously without treatment.

The patient had a questionable history of rheumatic fever in childhood though no details were available. He did not have any history of surgery, and his family history was noncontributory. The patient reported heterosexual relations with only one partner. He denied alcohol and illicit drug use, but smoked one-half pack of cigarettes daily for approximately 3 years. Medication use was restricted to naproxen as needed, and he denied any history of drug allergies.

CME INFORMATION

TARGET AUDIENCE

The May/June Clinical Case of the Month is intended for family physicians, general internists, general practitioners, emergency medicine physicians, pediatricians, dermatologists, radiologists, pathologists, and neurologists.

EDUCATIONAL OBJECTIVES

After reading this article, physicians should be able to identify and understand better the epidemiology, clinical presentation, diagnosis, and treatment of Henoch-Schönlein purpura.

CREDIT

The LSMS Educational and Research Foundation designates this educational activity for a maximum of one (1) hour of category 1 credit toward the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the educational activity.

DISCLOSURE

Dr. Kamboj has nothing to disclose.
Mr. Harris has nothing to disclose.
Dr. Gupta has nothing to disclose.
Dr. Thakur has nothing to disclose.
Dr. Willis has nothing to disclose.
Dr. Espinoza has nothing to disclose.
Dr. Lopez discloses that he is a member of the LSMS *Journal* Board and the LSMS *Journal* Editorial Board.

ORIGINAL RELEASE DATE 6/1/2003
EXPIRATION DATE 6/30/2004

Estimated time to complete this activity is 1 hour.

The patient's vital signs were unremarkable. He was alert and oriented to person, place, time, and situation and did not appear to be in acute distress. Only examination of the skin revealed abnormalities. A primarily macular rash with palpable purpura and fine nonblanching petechiae was appreciated over his entire body except for the chest.

Serum chemistries revealed a blood urea nitrogen level of 39 mg/dL(7-25 mg/dL) and serum creatinine of 4.0 mg/dL(0.8-1.6 mg/dL). Serum sodium, potassium, chloride, bicarbonate, and glucose were within normal limits. A complete blood count revealed a hemoglobin of 13.3 gm/dL (13.5-17.5 gm/dL), a hematocrit of 38.9% (40%-51%), a platelet count of 390,000/µl (130,000-400,000/µl), and a white blood cell count of 13,000/µl (6000-11000/µl) with a differential of 77% neutrophils (35%-65%), 17% lymphocytes (25%-35%), 5% monocytes (3%-10%), and 1% eosinophils (0%-4%). His antistreptolysin O (ASO) titer was 175 (< 231). Liver function tests demonstrated an albumin 2.8 g/dL (3.4-5.0 g/dL) and a globulin 4.4 g/dL (2.3-3.5 g/dL). Total protein, total and direct bilirubin, serum AST and ALT, and alkaline phosphatase were all within normal limits. The erythrocyte sedimentation rate was elevated at 70 mm/hr (0-20 mm/hr). The urine analysis revealed a specific gravity of 1.020, ph 5.0, and evidence of proteinuria and hematuria. His rapid plasma reagin test was non-reactive. Work-up for gonococcoccal and chlamydial infections was negative. The electrocardiogram and chest radiograph at admission were normal.

The patient was admitted with a presumed diagnosis of vasculitis, and high dose oral prednisone therapy was initiated. Work-up included a renal ultrasound, which showed no abnormalities, and a 24-hour urine collection revealed 5 grams of protein. On hospital day number three, the patient developed shortness of breath and hemoptysis. A ventilation-perfusion lung scan was not suggestive of pulmonary embolism, and the chest x-ray was consistent with pulmonary hemorrhage. Serum complement C3, complement C4, IgG, and IgM levels were within the normal ranges.

The patient improved clinically and was transferred to a tertiary care center for further evaluation. He had no further episodes of hemoptysis, and the rash began to resolve. His serum IgA level was elevated at 765 mg/dL (75-374 mg/dL). A skin biopsy revealed leukocytoclastic vasculitis with inflammation of the vessel wall and extravasation of erythrocytes (see Figure). A renal biopsy revealed mesangial glomerulopathy with focal interstitial nephritis, segmental glomerular thrombosis, scar formation, and crescents. Mesangial IgA (as well as IgG and C3) deposition was demonstrated by immunofluorescence microscopy, confirming the diagnosis of Henoch-Schönlein purpura. Prednisone therapy was continued at discharge with plans for close follow-up in the outpatient clinic.

DISCUSSION

In 1837, Johann Schönlein first described "peliosis rheumatica," a syndrome of acute purpura and arthritis in children.[1,2] In 1874, Eduard Henoch further characterized this syndrome with the addition of nephritis and abdominal pain, resulting in its current eponym of Henoch-Schönlein purpura (HSP).[1,2] HSP is a small vessel vasculitis that can affect individuals of any age with a reported range of 6 months to 86 years of age.[2] Children less than 10 years of age account for about 90% of reported patients, and boys appear to be more frequently affected than girls.[2] Epidemiologic data suggest an annual incidence of approximately 13.5-18/100,000 children (135-180 cases/million/year), and a much lower incidence of 1.2 cases/million/year is estimated in adults.[1,3,4] The peak incidence of the disease is reported in the winter and spring months.[1,3] The exact etiology of the disease is unknown, but an upper respiratory tract infection preceding the presentation of HSP is reported by two-thirds of the patients, an observation first recognized by Schönlein that suggests infection as a possible precipitant of disease.[2,3]

CLINICAL PRESENTATION

The small vessel vasculitides include Wegener's granulomatosis, Churg-Strauss arteritis, microscopic polyarteritis, hypersensitivity vasculitis, essential cryoglobulinemic vasculitis, vasculitis associated with connective tissue disorders and HSP. HSP primarily affects the skin, kidneys, gastrointestinal tract, and joints, though other organs such as the lung and brain may be involved.[2,3,5] Patients typically have palpable purpura present over the extensor sur-

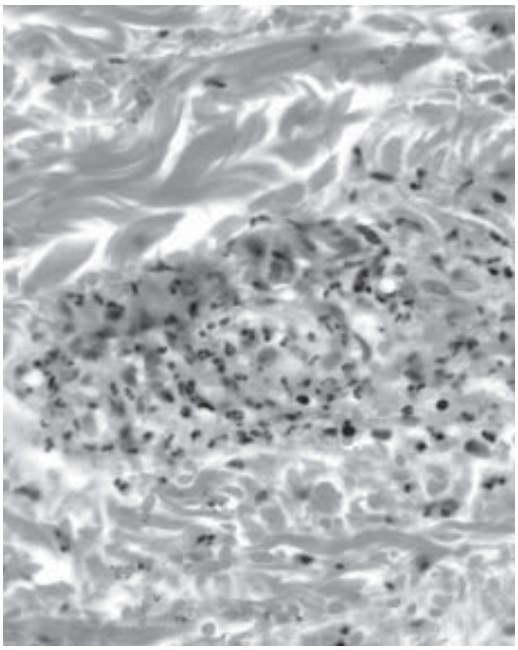

Figure. Biopsy of the purpuric skin rash exhibiting a leukocytoclastic vasculitis characterized by small blood vessels with endothelial swelling, neutrophils in the vessel walls with nuclear dust, and extravasated erythrocytes.

faces of the extremities.[6] This purpura may be extensive and confluent over the arms, legs, trunk, and other dependent areas. Though our patient had involvement of the small joints of the hand, 60%-84% of patients have joint involvement which more typically involves the ankles and knees.[3] Up to 76% of patients may have gastrointestinal involvement which manifests as bleeding, nausea, vomiting, and/or abdominal pain.[6] Bowel edema and ischemia have been implicated as possible causes of abdominal pain, often described as colicky in nature.[6] The kidneys are involved in 20%-100% of cases, most commonly presenting as hematuria and possible proteinuria.[3] Adults are more likely to have renal involvement while children are more likely to manifest involvement of the gastrointestinal tract. Though not common, CNS manifestations may include seizures, paresis, and coma.[3] In addition, hemoptysis secondary to pulmonary involvement has been reported.[6]

DIAGNOSIS

In 1990, the American College of Rheumatology published criteria to differentiate HSP from other vasculitides.[1] The criteria include palpable purpura, age of onset 20 years or younger, diffuse abdominal pain or ischemia of the bowel with gastrointestinal bleeding, and granulocytes in the walls of biopsy-associated venules or arterioles. Two or more of the four criteria are necessary to establish the diagnosis and have a reported sensitivity of 87.1% and specificity of 87.7 %.[1] The diagnosis is confirmed by skin or renal biopsy in the presence of characteristic clinical features of rash, abdominal pain, renal disease, and/or arthralgias. Skin biopsy material reveals a nonspecific leukocytoclastic vasculitis, which also can be seen in other types of hypersensitivity vasculitis. The demonstration of IgA deposition in the skin or kidney by immunofluorescence microscopy provides diagnostic evidence of HSP.[2] In addition, serum IgA levels are often increased in patients with HSP.[1, 2] Though IgA deposits can be observed in skin and kidney material from patients with primary IgA nephropathy, the presence of systemic manifestations of rash, abdominal pain, and joint pains in patients with HSP differentiates it from primary IgA nephropathy.[5,7]

TREATMENT

In most patients, HSP is usually a self-limiting disease lasting approximately one month.[2, 3, 6] The efficacy of therapy remains unclear and not well-established. The use of corticosteroids may be beneficial in patients with abdominal pain and severe joint pain.[2,3] If severe or progressive renal disease (hematuria, more than 50% crescents, impaired glomerular filtration rate, nephrotic syndrome) develops, patients can be treated with corticosteroids and cytotoxic agents such as cyclophosphamide or azathioprine.[2,8] Plasmapheresis and immunoglobulin therapy also have been reported in the management of patients with advanced renal disease.[9,10] Evolution to chronic renal failure is rare, but renal transplantation is an option for these patients.

About one-third of the patients will have recurrence of one or more symptoms from 2 weeks to 18 months after resolution of disease.[2] Prognosis of HSP appears to be most directly correlated with renal involvement.[2,3] Patients with renal manifestations of HSP need long-term follow-up as renal disease can manifest many years later.[8] Less than 1% mortality and less than 5% significant chronic morbidity have been reported with HSP.[3,11]

REFERENCES

1. Mills JA, Michel BA, Bloch DA, et al. The American College of Rheumatology 1990 criteria for classification of Henoch-Schönlein purpura. *Arthritis Rheum* 1990; 33:1114-1121.
2. Saulsbury FT. Henoch-Schönlein purpura in children: Report of 100 patients and review of the literature. *Medicine* 1999; 78: 395-409.
3. Tizard EJ. Henoch-Schönlein purpura. *Arch Dis Child* 1999; 80:380-383.
4. Watts RA, Carruthers DM, Scott DGI. Epidemiology of systemic vasculitis: Changing incidence or definition? *Seminars in Arthritis and Rheumatism*; 1995; 25:28 -34.
5. Andreoli SP. Chronic glomerulonephritis in childhood: membranoproliferative glomerulonephritis, Henoch-Schönlein purpura nephritis, and IgA nephropathy. *Ped Clin North Am* 1995; 42:1487-1503.
6. Vasculitides A. Polyarteritis nodosa, microscopic polyangitis, and the small-vessel vasculitides. In: *Primer on the Rheumatic Diseases,* 12th Edition. Klippel JH (editor). Atlanta, Georgia: Arthritis Foundation; 2001: 385-391.
7. Donadio JV, Grande JP. IgA nephropathy. *N Engl J Med* 2002; 347:738-748.
8. Thervet E, Pillebout E, Guillevin L. Outcome after childhood Henoch-Schönlein purpura. (Letter). *Lancet* 2003; 361:81-82.
9. Hattori M, Ito K, Konomoto T, et al. Plasmapheresis as the sole therapy for rapidly progressive Henoch-Schönlein purpura nephritis in children. *Am J Kidney Dis* 1999; 33:427-433.
10. Hamidou MA, Pottier MA, Dupas B. Intravenous immunoglobulin in Henoch-Schönlein purpura. *Ann Intern Med* 1996; 125:1013-1014.
11. Stewart M, Savage JM, Bell B, McCord B. Long term renal prognosis of Henoch-Schönlein Purpura in an unselected childhood population. *Eur J Pediatr* 1988; 147:113-115.

CME QUESTIONS

To earn CME credit, read the preceding CME article and complete the registration, evaluation, and answer form on page 175. Mail or fax the registration, evaluation, and answer form to the Educational and Research Foundation. Answers must be postmarked or faxed prior to June 30, 2004. Participants must attain a minimum score of 75% to receive credit.

For each question, choose the one answer that is most correct.

1. Henoch-Schönlein purpura is
   a) A large-vessel vasculitis that includes other vasculitides such as Takayasu arteritis and giant cell arteritis.
   b) A small-vessel vasculitis that includes other vasculitides such as Wegener's granulomatosis, Churg-Strauss arteritis, microscopic polyarteritis, hypersensitivity vasculitis, and essential cryoglobu-linemic vasculitis.
   c) A medium-sized-vessel vasculitis that includes polyarteritis nodosa and Kawasaki disease.
   d) None of the above.

2. All of the following are commonly affected in HSP except
   a) skin.
   b) kidney(s).
   c) gastrointestinal tract.
   d) joints.
   e) heart.

3. True or False? All patients with HSP require treatment with immunosuppressive agents such as corticosteroids.

4. All of the following are true statements about Henoch-Schönlein purpura except
   a) HSP occurs more frequently in adults than children.
   b) An upper respiratory tract infection preceding the presentation of HSP is reported by two-thirds of patients.
   c) The demonstration of IgA deposition in the skin or kidney by immunofluorescence microscopy is characteristic.
   d) The presence of systemic manifestations of rash, abdominal pain, and joint pains helps differentiate HSP from primary IgA nephropathy.
   e) HSP is typically a self-limited disease.

Sanjay Kamboj, MD is a house officer in the Department of Internal Medicine at Louisiana State University School of Medicine in New Orleans. **Jeffrey D. Harris, BS** is a medical student at the University of Saint Eustatius School of Medicine in Westminster, Massachusetts. **Shaminder Gupta, MD** is a postdoctoral fellow, Section of Nephrology at Louisiana State University School of Medicine in New Orleans. **Vashu Thakur, MD** is Professor of Medicine, Section of Nephrology at Louisiana State University School of Medicine in New Orleans. **Kathy Willis, MD** is Chief Medical Resident in the Department of Internal Medicine at Louisiana State University School of Medicine in New Orleans. **Carmen Espinoza, MD** is Professor in the Department of Pathology at Louisiana State University School of Medicine in New Orleans. **Fred A. Lopez, MD** is Assistant Professor of Medicine, Department of Medicine, Louisiana State University School of Medicine in New Orleans.

The **Clinical Case of the Month** is a regular educational feature presented by the Louisiana State University Department of Medicine in New Orleans. Medical students, residents, postdoctoral fellows, and faculty collaborate in the preparation of these discussions.