INTERNAL MEDICINE

□ CASE REPORT □

Leukocytoclastic Vasculitis after Pneumococcal pneumonia in an Elderly Adult

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Abstract

Hypersensitivity vasculitis (HSV) has been used to describe several forms of vasculitis of small blood vessels, including Henoch-Schönlein purpura (HSP), mixed cryoglobulinemia, and allergic vasculitis, etc. HSP is a disease occasionally seen in childhood, and is characterized by dermatological and abdominal symptoms. Here, we report a rare case of HSV which showed a clinical course similar to HSP after pneumococcal pneumonia in an elderly adult. Generally, *Streptococcus pneumoniae* is the most common pathogen in adult community-acquired pneumonia. Therefore, it is critical to recognize HSV as one of the important complications after bacterial infection, especially *Streptococcus pneumoniae*.

Key words: hypersensitivity vasculitis, Henoch-Schönlein purpura, pneumococcal pneumonia

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Introduction

Hypersensitivity vasculitis (HSV) has been used to describe several forms of vasculitis of the small blood vessels, including Henoch-Schönlein purpura (HSP), mixed cryoglobulinemia, and allergic vasculitis, etc. The main clinical findings are palpable purpura, fever, and arthralgia. Renal involvement that is usually mild may be seen in some patients, being manifested by hematuria, and proteinuria. Currently, this disorder is typically caused by drugs that probably act as haptens to stimulate an immune response. Many medications and certain infections, such as hepatitis, chronic bacteremia, and HIV may be associated with this syndrome. Additionally, Henoch-Schönlein purpura (HSP) is a disease occasionally seen in childhood, mainly between the age of 5 and 15-years-old (1). HSP is characterized by both dermatological symptoms (ecchymosis, papular eruption and localized edema) and abdominal symptoms (abdominal pain and bloody stool) (2). Nephritis is another complication that can greatly influence the long-term prognosis. And some authors have reported (3-7) other causes of HSP, including hepatitis B, *Mycobacterium avium*-intracellulare complex, parvovirus, Mycoplasma and malignant disease. Here, we report a rare case of HSV which showed a clinical course similar to HSP after pneumococcal pneumonia. Some case reports (8-10) have described complications associated with pneumococcal infection, such as hemolytic uremic syndrome, pneumococcal keratitis, stroke-associated pneumonia and purpura fulminans. But no other cases of HSV complicated with pneumococcal pneumonia appear to have been reported. *Streptococcus pneumoniae* infection should be remembered as one potential cause of HSV, it sometimes shows the same clinical symptoms as HSP in adults, which has the potential to reach a more severe status than that observed in childhood.

Case Report

A 78-year-old Japanese man was admitted to our hospital with high fever, purulent sputum and general fatigue. Chest

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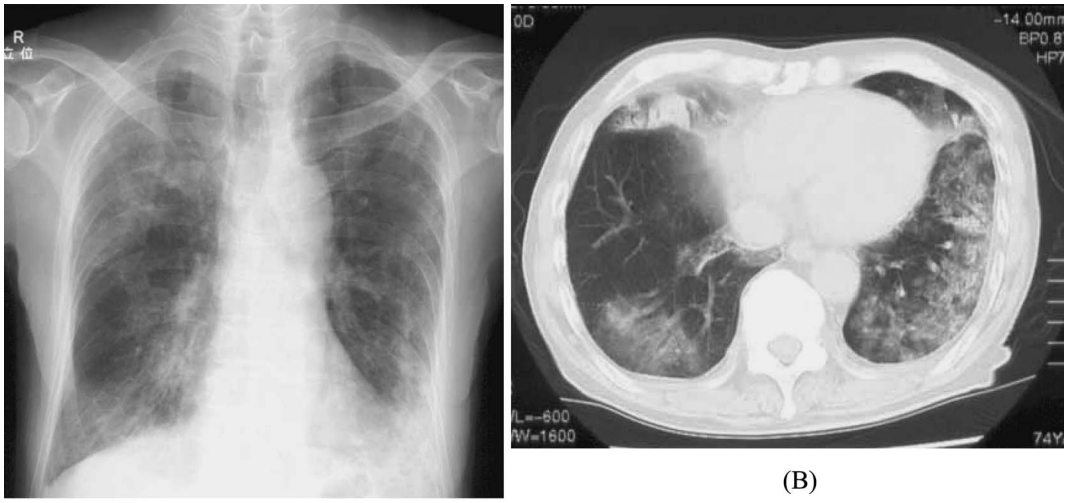

(A) (B)

Figure 1. **[Chest radiographic findings on admission]. (A) Chest radiography on admission showing diffuse multiple consolidation in bilateral lung fields. (B) Chest CT on admission showing bilateral consolidation in multiple lobes.**

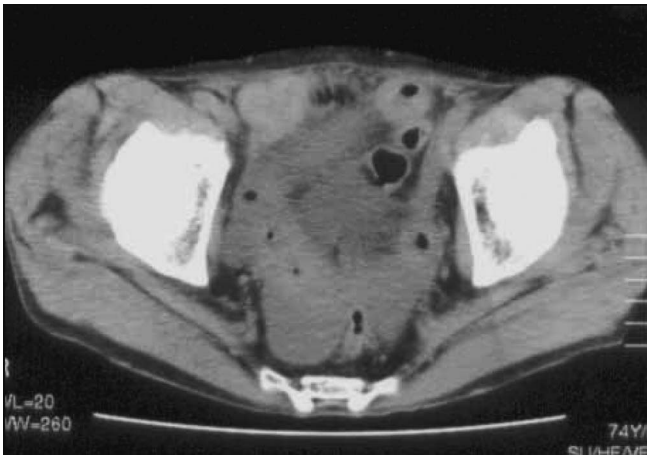

Figure 2. **Abdominal CT showing significant edematous change of the ileum (R).**

radiography (Fig. 1A) revealed bilateral multiple lung consolidation with air-bronchogram and chest computed tomography (CT) revealed consolidation in bilateral upper and lower lobes (Fig. 1B), with no pleural effusion or lymph node swelling. His body temperature was 37.8℃, heart rate was 86 beats/min and respiratory rate was 25 breaths/min. Blood pressure was 110/72 mmHg. At the time of admission, the patient displayed no purpura in the legs. Rhonchi were heard in the left lung. Abdominal examination was almost normal. The patient had a history of heavy drinking, and was an outpatient for alcoholic hepatitis at another hospital. Laboratory findings showed elevated serum levels of C-reactive protein (CRP), high erythrocyte sedimentation rate and hypoxia in room air. The following serological values were obtained: total protein, 6.9 g/dl; albumin, 3.8 g/dl; serum creatinine, 1.2 mg/dl; and blood urea nitrogen, 37.0 mg/dl. IgA levels were slightly elevated. Negative results were obtained for antinuclear antibody and rheumatoid factor. Serum complement prothrombin time and activated partial thromboplastin time were normal. Urinalysis yielded normal results. Positive results were obtained for streptococcal urine antigen testing and phagocytosed gram-positive cocci were detected in neutrophils, thus pneumococcal pneumonia was diagnosed. In addition, sputum and blood cultures also yielded *Streptococus pneumoniae*. The pneumonia was classified as a severe case based on the Community-Aquired Pneumonia Guidelines of the Japan Respiratory Society (11). Therefore, meropenem at 500 mg twice/day was administered for 10 days (Fig. 3), allowing clear improvement of physical, radiological and laboratory examinations. Bilateral knee joint pain, pretibial edema and multiple small purpura in the lower legs appeared suddenly 21 days later (Fig. 4). Skin biopsy was performed and leukocytoclastic vasculitis was diagnosed (Fig. 5). Subsequently, 5 days later, the patient developed acute abdominal pain with muscle defense and bloody stools, but no fever. Abdominal CT (Fig. 2) was performed, revealing local swelling of the small intestine that was considered in the diffrential diagnosis, based on clinical features, such as purpura, abdominal symptoms and pathological findings. He was kept at rest and stopped oral ingestion, and purpura and abdominal symptoms improved spontaneously within 7 days. No renal dysfunction or abnormalities on urinalysis were detected.

Discussion

Henoch-Schönlein purpura (HSP) is included in the category of hypersensitivity vasculitis (HSV) and it is important, although difficult, to distinguish HSV from other collagen diseases such as systemic lupus erythematosus is difficult. Given this diversity and the varying definition of this disease, the American College of Rheumatology in 1990 pro-

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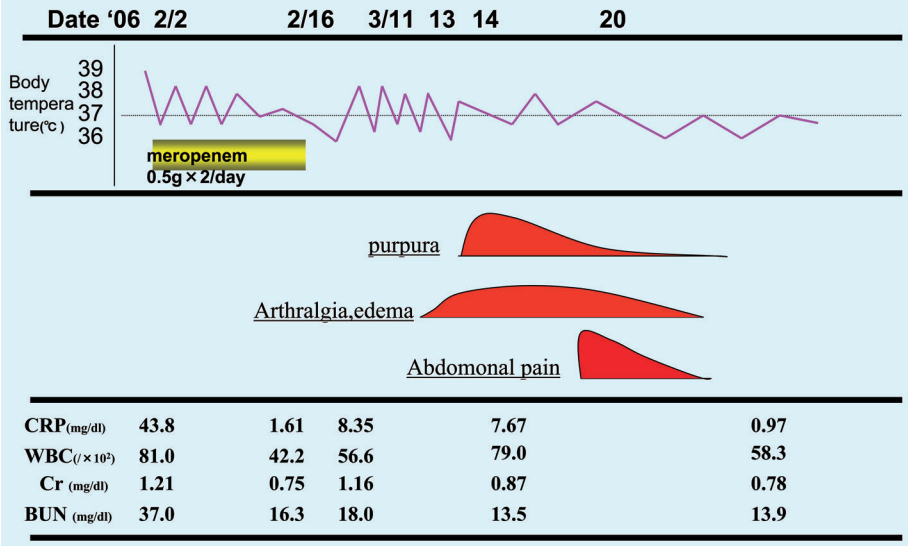


Figure 3. **Clinical course.**

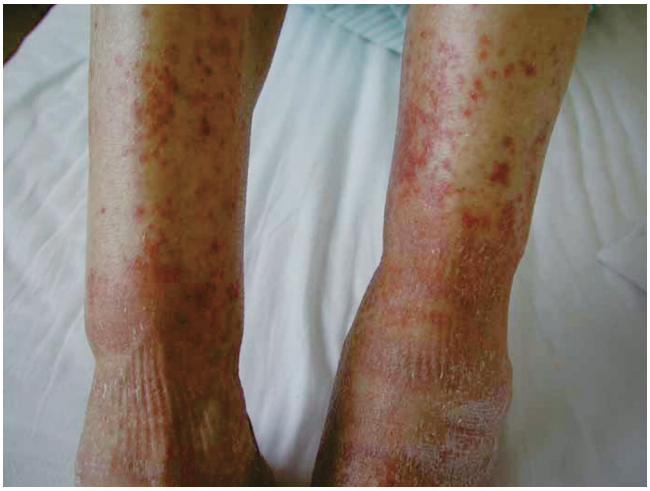
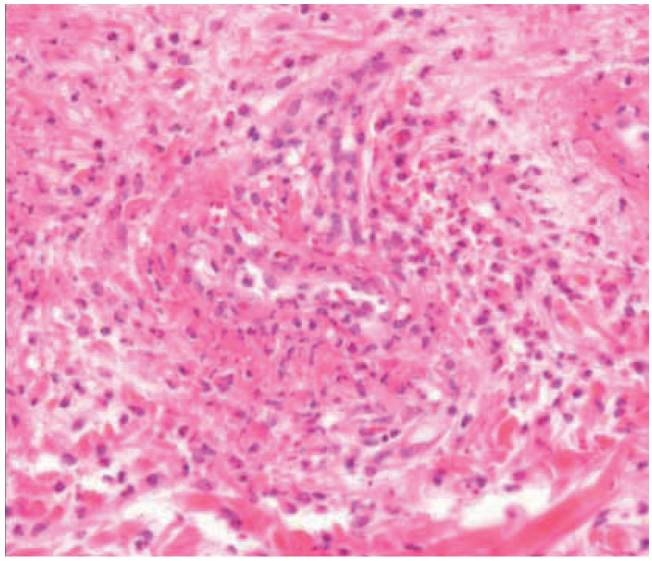


Figure 4. **Macroscopic view of the cutaneous vasculitis on the legs. Small purpura and edematous change in both lower legs.**



(H&E、×20)

Figure 5. **Microscopic findings showing leukocytoclastic vasculitis.**

posed the following five criteria (12); age at onset >16-years old, palpable purpura, maculopapular rash, biopsy of a skin lesion showing neutrophils around an arteriole. The presence of three or more of these criteria had a sensitivity and specificity for the diagnosis of HSV of 71 and 84%. These criteria alone could not precisely distinguish HSP from HSV. Consequently, Michel et al (13)suggested that the clinical criteria that can help to distinguish between these disorders includes palpable purpura, bowel angina, gastrointestinal bleeding, hematuria, age at onset <20-years-old, and no new medications. The presence of ≥3 of the six criteria yielded correct classification of HSP in 87% of cases in which a consensus of experienced clinicians concluded that was the correct diagnosis (13). The present case had 3 of these criteria (palpable purpura, bowel angina, gastrointestinal bleeding), so this case seemed to be diagnosed HSP. However, these findings were not to diagnose HSP, because it was difficult to deny a relationship with antibiotics use before palpable purpura, and the patient's age was so old. But it is rare, and interesting that pneumococcal pneumonia had caused HSV showing varied systemic symptoms such as HSP. Fortunately, renal failure did not occur in this case, but treatment was required due to acute abdominal pain and bloody stool. Occasionally, abdominal disease-induced HSP could result in a severe state, such as ileus and perforation leading to panperitonitis (14).

The precise cause of HSV is unclear. In this case, the relationship between pneumococcal infection and HSV, and antibiotics medication is clear because HSV occurred within days of *Streptococcus pneumoniae* infection and bacteremia. Many antigens have been implicated in triggering HSV, including viral and bacterial antigens including HSP (15).

Conceivably, HSV may be triggered by an antigen that stimulates the production of immune complexes, and caused by drugs that probably act as haptens to stimulate an immune response. In the present case, it is considered that antibiotic-pneumococcal pathogen caused an atypical immune response, production of an abnormal antibody and the formation of immunocomplex brought about HSV.

It is well known that pneumococcal pneumonia is the most common type of adult community-acquired pneumonias. Pneumococcal pneumonia that may be complicated by HSV should thus be treated carefully, because HSV sometimes shows a clinical course similar to adult HSP which has the potential to display a severe prognosis. Fortunately, the urinalysis results remained normal in the present case, and no repeated skin lesions were identified. But close follow-up of the patient will be continued to ensure that renal abnormalities do not develop.

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