Int J Clin Exp Pathol 2016;9(12):13015-13020
www.ijcep.com /ISSN:1936-2625/IJCEP0037126

Case Report

Gastrointestinal mucosal lesions in an adult with Henoch-Schonlein purpura presenting as intestinal tuberculosis: a case report

Li Cao[1], Yun Wang[1], Qiaozhen Guo[1], Dean Tian[1], Congyi Wang[2], Bin Cheng[1]

Departments of [1]Gastroenterology and Hepatology, [2]The Center for Biomedical Research, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

Received August 2, 2016; Accepted September 1, 2016; Epub December 1, 2016; Published December 15, 2016

Abstract: Henoch-Schonlein purpura (HSP) is a leukocytoclastic vasculitis mediated by IgA deposition that occurs mostly in children. This report describes a young woman with HSP, who presented with cutaneous and gastrointestinal manifestations of this disease. Endoscopy revealed deep annular ulcerations in the terminal ileum and ileocecal valve regions, as well as diffused erythema throughout the gastrointestinal tract. Although ileitis occurs in patients with HSP, ulceration in the terminal ileum and ileocecal valve regions is virtually pathognomonic for intestinal tuberculosis, especially in young adults from China. The findings in this patient indicate the importance of including HSP in the differential diagnosis of ileitis suggestive of intestinal tuberculosis.

Keywords: Henoch-Schonlein purpura, intestinal tuberculosis, terminal ileitis, differential diagnosis, endoscopy

Introduction

Henoch-Schonlein purpura (HSP) is seen most frequently in children and is characterized by the classic tetrad of palpable purpura, arthritis or arthralgia, and renal and gastrointestinal involvement. This systemic leukocytoclastic vasculitis is mediated by IgA deposition in small vessels of any organ. Severe gastrointestinal (GI) involvement is less common in adults than in children [1]. In some patients, abdominal pain precedes the rash, which rendered the initial diagnosis of HSP difficult [2]. Digestive endoscopy with biopsy appears to be the most useful diagnostic procedure to assess GI involvement of HSP. However, endoscopic manifestations, especially terminal ileitis, in adults with HSP mimic intestinal tuberculosis (ITB), raising questions whether steroids should be employed for optimal treatment. To our knowledge, HSP presenting as ITB has been rarely reported, and little is known about the approaches for differential diagnosis. This report describes an adult with HSP mimicking ITB on endoscopy. Following a definitive diagnosis of HSP, this patient was treated with systemic steroids, resulting in complete remission within 2 weeks. The patient was initially noted with multiorgan involvement, especially outside of the typical age range for HSP, and appropriate intervention therapies reduced organ damage and the incidence of severe complications.

Case report

A 20-year-old female undergraduate student was admitted to Tongji hospital with a 10-day history of lower abdominal pain, severe vomiting and hematochezia. The pain was spasmodic and non-radiating, and could be relieved by administration of diclofenac sodium suppositories. Three days after the above manifestations, she developed a low-grade fever. She had no family or personal history of gastrointestinal or autoimmune disease. Colonoscopy, which was performed at the referring hospital, revealed multiple deep ulcerations in the ileocecal valve region and erosions in the rectum, findings suspicious for ITB.

On admission to Tongji hospital, her vital signs were normal. Hypogastric tenderness could be elicited upon deep palpation. Her stool was positive for occult blood. Routine blood tests

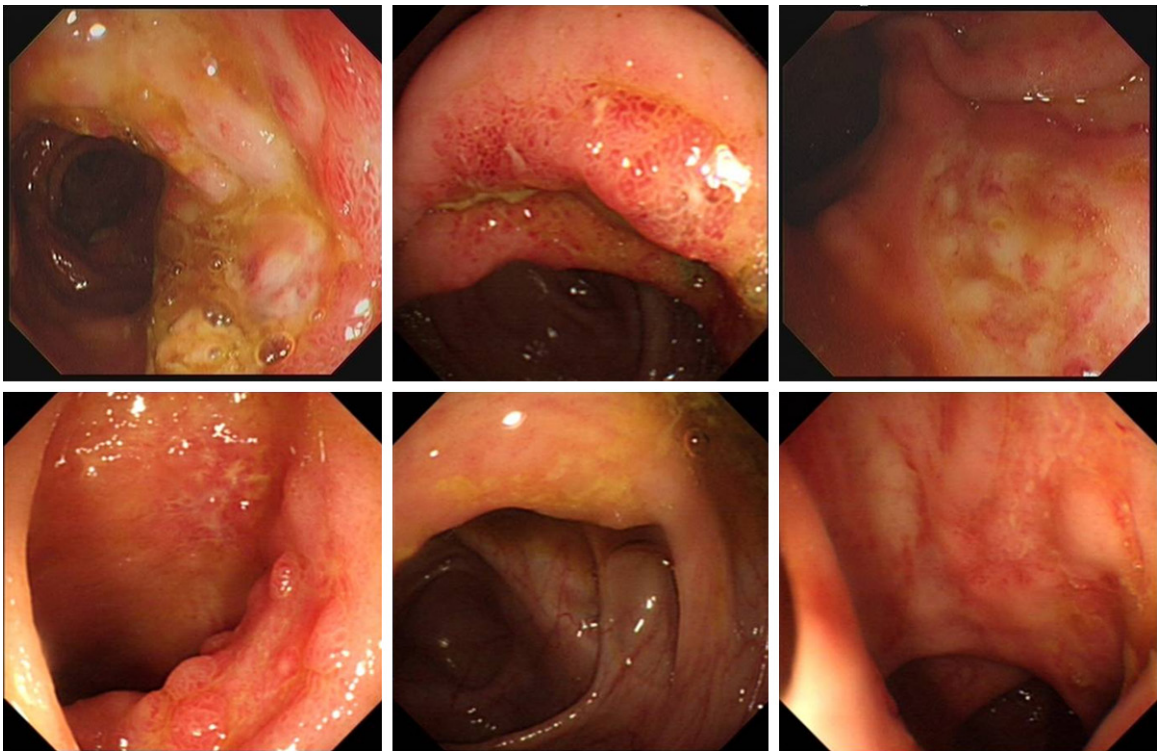

Figure 1. Representative colonoscopic findings from this patient: before administration of steroids (upper panel) and after administration of steroids for 2 weeks (lower panel). Views show the terminal ileum (left panels), ileocecal valve (center panels) and sigmoid colon (right panels). Deep, annular ulcerations can be seen throughout the terminal ileum and ileocecal valve region before steroid treatment. Most of the mucosal lesions in the colon improved greatly after steroid administration.

revealed leukocytosis and elevated levels of inflammatory markers, including C-reactive protein concentration (59 mg/L) and erythrocyte sedimentation ratio (32 mm/H). Urinalysis showed no evidence of proteinuria or hematuria. She was negative for antineutrophil cytoplasmic antibody (ANCA) and anti-myeloperoxidase (MPO) antibodies. After admission, this patient experienced progressively greater abdominal pain, often at night. The pain could not be relieved by any antispasmodic agents, diclofenac sodium or opium analgesics. Repeated physical examination showed distension of her abdomen with diffuse tenderness but no rebound pain, and her bowel sounds were hypoactive.

Repeat colonoscopy revealed diffuse congestive mucosal lesions and deep annular ulcerations throughout the terminal ileum and colon (**Figure 1**). Gastroscopy showed multiple congestive erythemas in the fundus, angle and body parts of the stomach as well as in the proximal and distal duodenum (**Figure 2**). Biopsy samples of the gastric and intestinal mucosa showed leukocytoclastic vasculitis with diffuse inflammation and perivascular neutrophil and monocyte infiltration, as well as large numbers of red blood cells inside the submucosal small vessel (**Figure 3**). Small bowel enhanced computed tomography was next performed to evaluate the extent of gastrointestinal tract involvement, and revealed scattered areas of mucosal lesions extending from the jejunum to the rectum. On hospital day 3, the patient began to experience palpable purpurea on both of her lower extremities. Treatment with antihistamines resulted in steady improvements of the rash over time, but her abdominal pain was aggravated during her hospitalization.

Given that this patient was also manifested characteristics relevant to HSP; she was treated with intravenous steroids. Her symptoms began to resolve within 3 days. Fifteen days after admission, gastroscopy and colonoscopy showed healing of most of the original mucosal

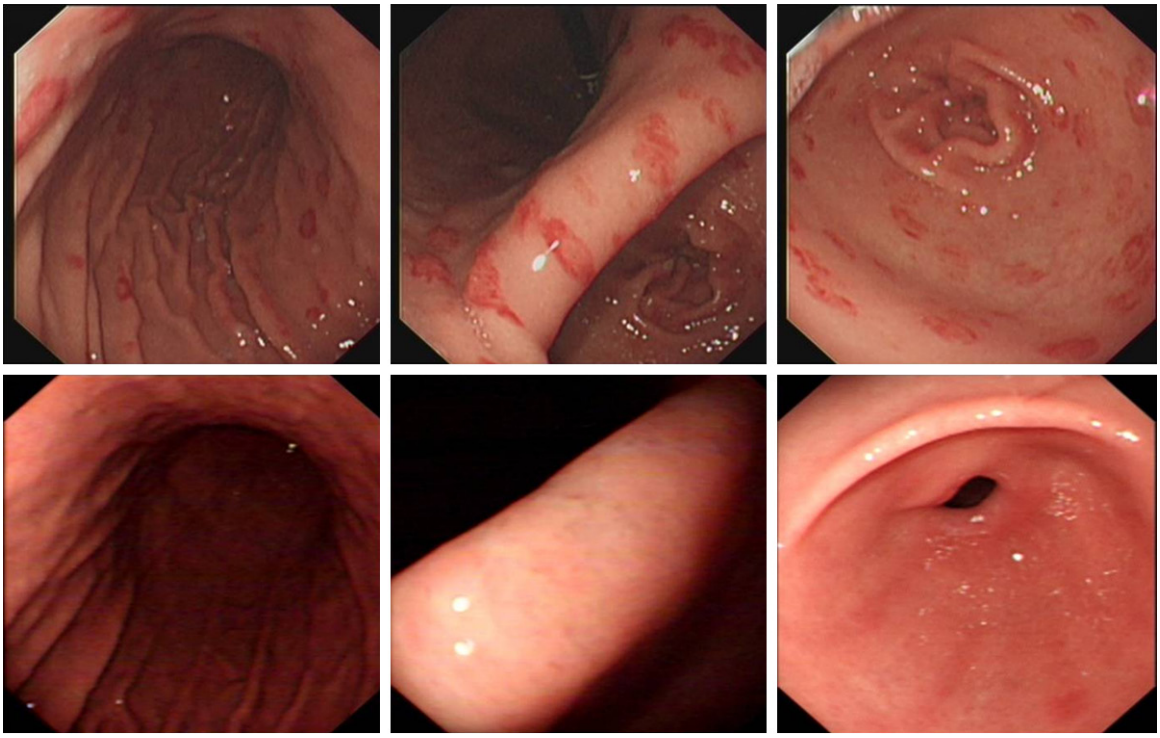

Figure 2. Representative gastroscopic findings from the same patient: before administration of steroids (upper panel) and after administration of steroids for 2 weeks (lower panel). Views show the fundus of the stomach (left panels), gastric angle (center panels) and gastric antrum (right panels). Small ring-like petechiae, diffuse mucosal congestion and hemorrhagic erythema were observed throughout the stomach before steroid treatment. These mucosal lesions quickly disappeared after steroid administration.

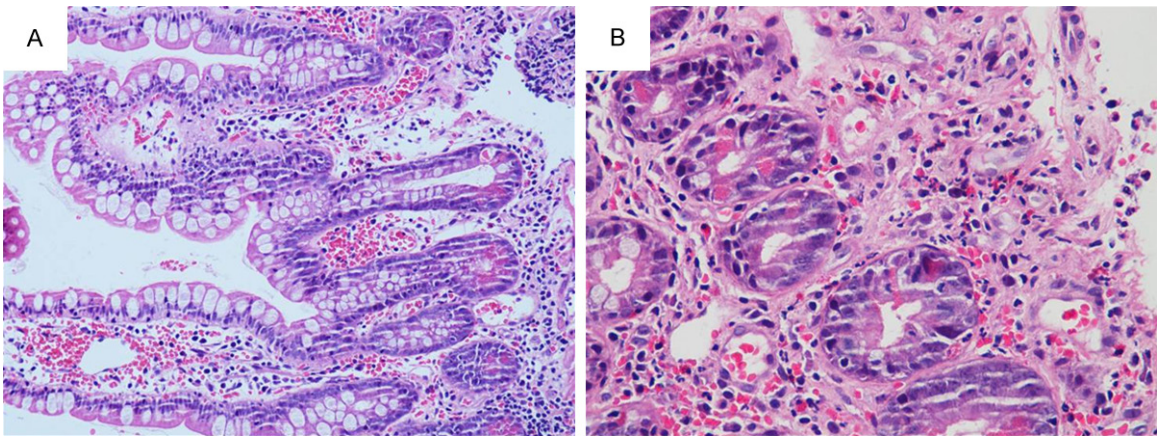

Figure 3. Histopathology of HSP involvement in the intestine, revealing leukocytoclastic vasculitis. A. Swollen endothelial cells in the intestinal small vessel with infiltration of neutrophils (H&E, original magnification ×20). B. Leukocytoclastic vasculitis with diffuse inflammation and perivascular neutrophil and monocyte infiltration, as well as large numbers of red blood cells inside the submucosal small vessel (H&E, original magnification ×40).

lesions and ulcerations in the terminal ileum and colon (**Figures 1**, **2**). A follow-up after one month of her discharge, she was symptom-free. Urinalysis showed no evidence of hematuria, and her stool was negative for occult blood.

Discussion

HSP is characterized by the nonthrombocytopenic palpable purpura, poly-arthritis, abdominal pain and renal disease. It is considered as a

Table 1. Comparative Clinical Features of HSP, ITB and CD

	HSP	ITB	CD
Age group	3-12 y	15-50 y	Bimodal 15-30 y and 60-70 y
Ethnicity	White, Asian	Asian, African	White, Black
Gastrointestinal manifestation			
Abdominal pain	Entire abdomen	Right lower quadrant	Right lower quadrant
Severity of pain	Severe	Mild to moderate	Mild to moderate
Ulcerative lesions on EGD	All segments of the GI tract	Mostly in terminal ileum and cecum	All segments of the GI tract
Features of ulceration	Multiple, superficial	Deep, annular, rodent-like	Longitudinal, aphthoid
Fissures			X
Fever		Low	Low-moderate
Arthralgia/Arthritis	X		X
Rash			
Skin ulcers	X		X
Erythema nodosum			X
Palpable purpura	X		
IgA nephritis	Frequent		Rare
Biopsy pathology	Small vessel vasculitis	Tuberculous granuloma	Non-caseating granuloma

HSP, Henoch-Schonlein purpura; ITB, intestinal tuberculosis; CD, Crohn's Disease.

systemic small-vessel, leukocytoclastic vasculitis mediated by IgA, presenting with various symptoms and involving various organs [3]. Although first described in 1801, the associations of skin lesions, arthralgia, and gastrointestinal and renal involvement were not described until much later [4]. HSP can occur in all age groups and both sexes, but predominantly affects males and is most frequently observed in children. The exact etiology and pathogenesis of HSP remain unclear, and no specific laboratory test to reach its clinical diagnosis has thus far been identified. Similar to IgA nephropathy, HSP is thought to be a dysfunction of the immune system, triggered by factors such as bacterial and viral infections, medications, vaccination and tumors [5]. As the resulting chronic disease is due mainly to renal involvement, kidney function should be monitored closely. Clinically, HSP is diagnosed based on symptoms, signs and histopathological findings. New diagnostic criteria proposed by the European League Against Rheumatism (EULAR) and the Pediatric Rheumatology Society (PReS, 2006) recommend the inclusion of a palpable purpura for determining HSP [6].

Gastrointestinal involvement is common in adult-onset of HSP, occurring in up to 85% of patients. It is thought to be caused, at least in part, by IgA deposits on small vessel walls and neutrophil chemotaxis in the gastrointestinal tract [7]. Colicky abdominal pain is the most common symptom of gastrointestinal manifestations. Other symptoms include nausea, vomiting, hematemesis, melena, and hematochezia [8]. Rare gastrointestinal symptoms in patients with HSP include intussusception, intestinal perforation, ischemic necrosis of the intestine, massive gastrointestinal bleeding, hemorrhagic ascites with serositis, pancreatitis, and biliary cirrhosis [9]. Mucosal lesions can develop anywhere within the GI tract. Characteristic endoscopic findings include small ring-like petechiae, diffused mucosal congestion, and hemorrhagic erythema. The duodenum and small intestine are regarded as the most frequently involved sites [10]. Although many adults with HSP experience severe renal disease [11], while the patient described in this report presented with extensive and severe gastrointestinal mucosal lesions absent of renal involvement.

In most patients with HSP, skin lesions often precede gastrointestinal manifestations. Nevertheless, in approximately 25% of patients, palpable purpura occurs after gastrointestinal symptoms, rendering it difficult to differentiate HSP from other causes of acute abdominal pain, including inflammatory bowel diseases such as Crohn's disease (CD) and ulcerative colitis, and chronic mesenteric ischemia [9]. To date, very few adult patients with HSP have presented with terminal ileitis [12]. Terminal ileitis, characterized by ulcers and erosion in

the terminal ileum or adjacent segments of the intestine, is often caused by CD. Indeed, several patients with HSP, who showed abdominal manifestations prior to cutaneous lesions, were initially diagnosed with CD and even underwent emergency surgery for the latter [13]. In contrast, ulcerations in the terminal ileum and ileocecal valve region are virtually pathognomonic for ITB. In addition, intestinal *Mycobacterium tuberculosis* infection, rather than CD, is more frequent in China than in Western countries. Because our patient presented with slight fever, abdominal pain, hematochezia and multiple annular ulcerations in the terminal ileum and ileocecal area, as determined by colonoscopy, she was initially suspected of having ITB, before the emergence of cutaneous symptoms. Very rarely, HSP may coexist with tuberculosis [14], making the differential diagnosis of HSP accompanied by terminal ileitis very important and necessary, especially in differentiating this condition from ITB and other diseases such as CD. To our knowledge, this report is the first to diagnostically compare HSP and ITB.

The histological presence of caseous necrosis granuloma in biopsy tissue or the demonstration of acid-fast bacilli (AFB) on a smear or histological sections can establish the diagnosis of ITB, although in practice, these signs are difficult to determine [15]. Rather, the diagnosis of ITB in Chinese patients is based on typical clinical manifestations, pathognomonic endoscopic features, positive T-spot results and/or effective responses to empirical short-term anti-TB chemotherapy [16]. Clinically, HSP and intestinal tuberculosis vary considerably. HSP mostly affects children, whereas ITB more frequently affects young adults. Both HSP and ITB are more common in Asians than in western individuals, whereas CD showed a marked predominance in white and black populations. Moreover, endoscopy plays a crucial role in the detection of gastrointestinal luminal mucosal lesions and provides clues in the differential diagnosis of HSP and ITB. HSP is characterized endoscopically by diffused mucosal congestion, hemorrhagic erythema and superficial ulcers in the upper gastrointestinal tract and/or small intestine, whereas ITB is characterized by annular, transverse or rodent-like ulcers in the terminal ileum and ileocecal valve regions [17]. Colonoscopic findings in our patient may, therefore, explain the initial diagnosis of ITB. Later gastroscopy, however, revealed diffused mucosal congestion and hemorrhagic erythema throughout the upper GI tract, establishing a diagnosis of HSP. As it may be difficult to differentiate CD from ITB [18], **Table 1** summarizes the epidemiology and clinical features of HSP, ITB and CD.

The treatment of HSP is mainly supportive and symptomatic including intravenous fluids and nonsteroidal anti-inflammatory drugs. Treatment with corticosteroids remains controversial, as steroids are usually considered for more complicated conditions such as renal, central nervous system (CNS) or intestinal involvement [19]. However, early administration of corticosteroids has shown general beneficial effects [20]. Administration of steroids to our patient, who had intensive and severe GI mucosal lesions, relieved her symptoms including severe abdominal pain and vomiting. Steroids may reduce intestinal wall edema, resulting in the rapid improvement of GI symptoms. As treatment with steroids can exacerbate tuberculosis, the latter must be ruled out definitively prior to steroid administration.

In conclusion, the diagnosis of HSP is difficult, especially when gastrointestinal symptoms precede skin lesions. In some patients, the endoscopic presentation of HSP is characterized by terminal ileitis mimicking ITB or other diseases. Although pathologic examination can lead to their differentiation, these two conditions can be distinguished by their skin manifestations, complications and responses to different treatments. Prompt and early diagnosis of HSP can help in designing a proper therapeutic strategy, reducing the occurrence of severe complications and improving long-term prognosis.

Disclosure of conflict of interest

None.

Address correspondence to: Dr. Bin Cheng, Department of Gastroenterology and Hepatology, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430030, China. Tel: +86-27-87686142; Fax: +86-27-83662832; E-mail: b.cheng@tjh.tjmu.edu.cn

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