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Case report

Intestinal pseudo-obstruction as the initial presentation of systemic lupus erythematosus in a 13-year-old girl

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= Abstract =

Intestinal pseudo-obstruction (IPO) is a rare and poorly understood manifestation of systemic lupus erythematosus (SLE), especially in children. The characteristic clinical feature of IPO is obstruction without an identifiable obstructive lesion. The authors a 13-year-old girl whose first symptom of SLE was IPO. The patient presented with a 3-day history of nausea, bilious vomiting, abdominal distention, and no bowel movement. Simple abdominal radiographs revealed mild dilatation with partial air-fluid levels in the small intestine. Abdominal CT and methylcellulose small bowel studies showed massive ascites, engorgement of the small mesenteric vessels, pleural effusion, and diffuse bowel wall thickening of the gastric antrum, duodenum. and jejunum. The delayed passage of contrast for 15 days after the methylcellulose small bowel studies was suggestive of decreased bowel motility. Laboratory findings were positive for ANA, anti-double-stranded DNA, anti-Smith and lymphopenia. After 10-day treatment with high-dose corticosteroids, the symptoms improved. IPO associated with SLE should be considered in the differential diagnosis for patients presenting with symptoms of intestinal obstruction. Early recognition of IPO in SLE and appropriate therapy are important for prevention of complications and unnecessary surgery. This case raises awareness among pediatricians that although rare, IPO can be the presenting symptom of SLE in children. (Korean J Pediatr 2008;51:655-659)

Key Words : Intestinal pseudo-obstruction, Systemic lupus erythematosus

Introduction

Systemic lupus erythematosus (SLE), a connective tissue disorder of unknown cause, is characterized by autoantibodies and the resulting inflammatory damage to target organs including the kidneys, bone marrow and the central nervous system. The initial presentation may be atypical such as with parotitis, abdominal painx, transverse myelitis or dizziness. Although gastrointestinal symptoms are observed in about 50% of SLE, intestinal pseudo-obstruction (IPO) has been rarely reported as the initial manifestation of SLE, especially in children[1]. Mok et al[2] reported 18 cases of IPO associated with SLE. The diagnosis of IPO is made when the clinical features of intestinal obstruction are present without an identifiable obstructive lesion. It is important to make an early and accurate diagnosis of IPO, because timely administration of steroid therapy will prevent unnecessary exploratory laparotomy and bowel infarction. We report a 13-year-old girl whose first symptom of SLE was IPO and ureterohydronephrosis.

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Case Report

A 13-year-old girl presented to our institution with a 3-day history of nausea, bilious vomiting (10 episodes a day), acute abdominal pain, abdominal distension and no bowel movement in April 2007. She also complained of two episodes of hematemesis for 1 day. The medical history was unremarkable but she gained 3 kg recently. Abdominal examination revealed generalized tenderness of the abdomen with hypoactive bowel sounds but no rebound tenderness. The abdomen was moderately distended with shifting dullness. The liver was not palpable and pitting edema was not found. Simple abdominal radiographs revealed mild dilatation

with partial air-fluid levels in the jejunum (Fig. 1). The esophagogastroduodenoscopy showed erosion of the esophageal mucosa at the gastroesophageal junction, erythematous patches of gastric fundic mucosa, due to the forceful vomiting, and edematous duodenal mucosa. Abdominal ultrasonography and computed tomography (CT) revealed massive ascites, diffuse bowel wall thickening of the duodenum and jejunum and mildly thickened folds of the gastric antrum (Fig. 2 A, B). The abdominal CT also showed engorgement of the small mesenteric vessels (Fig. 2 C), mild right hydronephrosis, a small amount of pleural effusion in the left hemithorax, and a right ovarian teratoma. Methylcellulose small bowel studies showed multiple regular thickened folds with a stacked coin appearance and thumb print appearance involving the gastric antrum, duodenum and jejunum. Paracentesis yielded exudates with 260/μL white blood cells (44% polymorphonuclear leukocytes, 4% lymphocytes, 52% monocytes) and 200/μL red blood cells with a protein of 4500 mg/dL, glucose 123 mg/dL and LDH 1332 U/L. The complete blood cell counts revealed a leukocyte count of $5.8\times10^3/mm^3$ with 13% of lymphocytes (754 lymphocyte/mm^3), hemoglobin 11.6 g/dL with a positive direct Coombs′ test and platelet count $197\times10^3/mm^3$. The coagulation studies were within the normal range. The C_3 level 33.2 mg/dL (normal 90-180 mg/dL), C_4 level 4.3 mg/dL (normal 10-40 mg/dL) and CH50 2.9 U/ mL (normal 23-46 U/mL) were decreased. The antinuclear antibody (ANA) was >1:640 and the homogenous and speckled pattern (normal <1:80). The anti-Smith was 39.8 U/ mL (normal <25 U/mL),

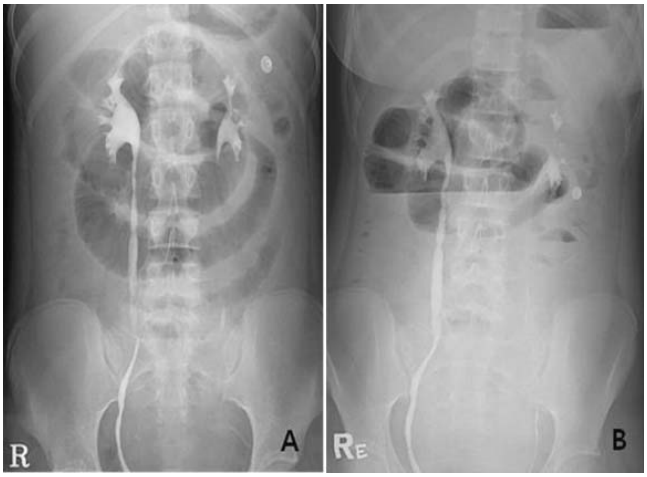

Fig. 1. Simple abdomen in supine (A) and upright (B) positions taken after contrast-enhanced abdominal CT on admission shows mild dilatation with air-fluid levels in the proximal jejunum, thickened folds of the jejunum, and mild dilatation of the opacified right renal collecting system and ureter.

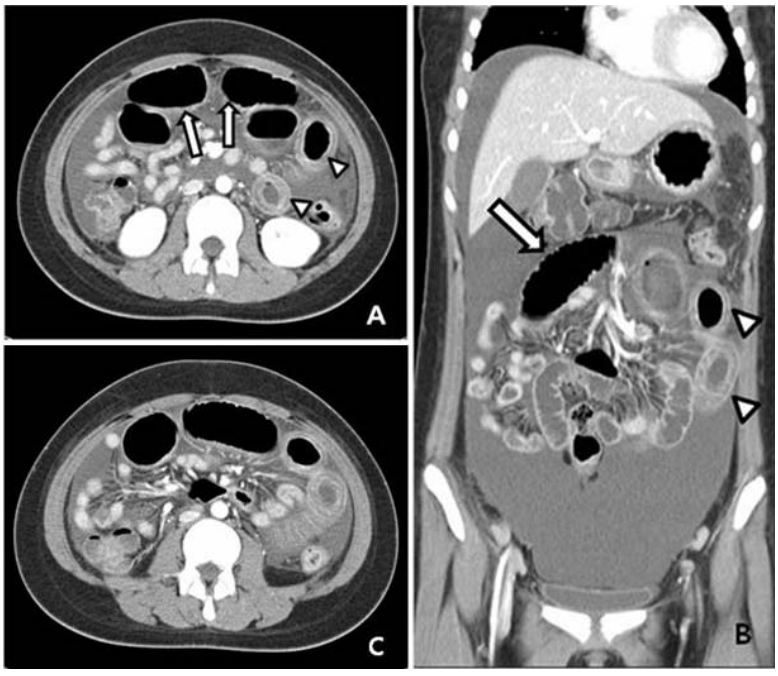

Fig. 2. Contrast-enhanced abdominal CT on admission. Axial (A) and coronal reformed (B) images reveal diffuse bowel wall thickening of the jejunum with the target sign (arrow head), mildly dilated jejunal loops (arrow), and massive ascites. The axial image (C) shows the engorged mesenteric vessels.

anti-double strand DNA antibodies 63 IU/mL (normal <35 IU/mL) and P-antineutrophil cytoplasmic antibody (ANCA) were positive. Lupus anticoagulant (LAC), anti-RNP, anti-SSB/SSA, anti-Jo, anti-SCL 70, immunoglobulin (Ig) M and Ig G anticardiolipin antibodies (ACA), and anti-phospholipid antibodies were negative. The erythrocyte sedimentation rate was 30 mm/hr (normal 0-20 mm/hr) and C-reactive protein was <0.3 mg/dL. A routine urinanalysis demonstrated active urinary sediment with 2+ protein. The 24-hour urine studies showed non-nephrotic range proteinuria with a total of 4.86 mg/m^2/hr protein (176 mg/24hr) and a decreased creatinine clearance of 56.1 mL/min/1.73m^2 (normal 80-120 mL/min/1.73m^2). The stool was positive for occult blood and negative for acid-fast staining. The serum concentration of IgG of 1780 mg/dL (normal 570-1,570 mg/dL) was elevated. The tuberculin skin test and serum PCR for tuberculosis were negative. Other laboratory findings were non-contributory.

We started treatment with oral furosemide and spironolactone (2 mg/kg/day) and intravenous omeprazole (2 mg/kg/day) to manage the ascites and gastroduodenitis. The patient had nothing by mouth with nasogastric decompression for 1 day and parenteral nutrition was then started. The symptoms were unabated after treatment. Multiple nodules on the dorsum of fingers were noted on hospital day 3 (Fig. 3). On hospital day 6, with the impression of IPO secondary to SLE, intravenous methylprednisolone was administered and oral feeding resumed gradually. A follow-up abdominal CT scan after 10 days of treatment revealed remarkable improvement of the thickened stomach folds and small bowel loops, and the ureterohydronephrosis and pleural effusion had markedly reduced ascites. The patient was discharged on oral methylprednisolone on hospital day 14. At the 2-month follow-up, the gradual steroid dose reduction was uneventful.

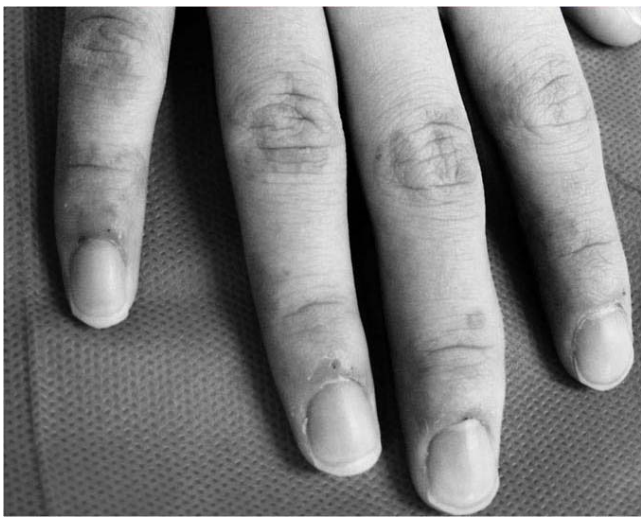

Fig. 3. On hospital day 3, the case presented multiple shallow nodules on the dorsum of the fingers.

Discussion

SLE is most prevalent in the 20-40 age group, with a female-to-male ratio of 8:1 and half of the cases described are Asian. However, in 15-20% of patients, the diagnosis is made during childhood[3]. We report the case of a 13-year-old girl with SLE who manifested IPO as her initial presentation. This patient met four out of eleven criteria for the diagnosis of SLE according to the American College of Rheumatology, including serositis (pleural effusion and peritonitis), positive ANA, immunological findings (positive anti-double stranded DNA and positive anti-Smith antibodies) and hematological abnormalities with lymphopenia[4].

Gastrointestinal manifestations of SLE include mesenteric vasculitis, inflammatory bowel disease, pancreatitis, and less common is the presentation with IPO[1]. Cacoub et al.[5] described the first case of a patient with SLE who presented with IPO in 1993. IPO is defined as a small bowel obstruction without identification of mechanical causes. IPO can be the initial presentation or the manifestation of relapse in a lupus patient. Two studies describe new cases and review the medical literature[2, 6]. In one-half of these patients, IPO was associated with the diagnosis of SLE.

The etiology of IPO can be categorized into primary and secondary causes. IPO is usually secondary to an underlying disorder affecting neuromuscular function, including connective tissue disorders and opiate drugs[2]. We could exclude the secondary causes such as drugs, previous surgery and an underlying neurological disease based on the medical history, family history and physical examination.

The pathophysiology of IPO with SLE remains unclear, but several hypotheses have been proposed. One suggests that a generalized vasculitis involving inflammatory fibrinoid deposits affects the smooth muscle of the intestine, leading to small bowel obstruction[7, 8]. The fact that IPO is associated with active lupus parameters such as low C_3 and C_4 levels, positive anti-double stranded DNA and a good response to immunosuppressive treatment suggests an immune complex mediated etiology[2, 6]. The other proposed mechanism of IPO is smooth muscle dysmotility affecting the muscularis propria. The high association between IPO and

ureterohydronephrosis, as described in other reports[9, 10], suggests a smooth muscle dysmotility due to a primary neuropathy or myopathy, or secondary to either an immune complex mediated vasculitis or common autoantibody against the smooth muscle. We could not investigate these possibilities, as our patient did not have surgery. The findings of the endoscopic gastric and duodenal mucosal biopsies were not specific and showed only chronic gastritis and duodenitis.

The differential diagnosis of IPO associated with SLE includes inflammatory bowel disease, intestinal perforation, bacterial peritonitis, gastrointestinal ischemia, and other connective tissue diseases[11]. Our case presented with classic symptoms of IPO, including abdominal pain, abdominal distension, bilious vomiting, constipation, and radiographic images of gaseous small bowel distension without obstruction. Manometry of the esophagus and small bowel was not performed. However, the delayed passage of contrast, for 15 days after methylcellulose small bowel studies, suggested bowel dysmotility. We excluded inflammatory bowel disease and mechanical obstructive disease by the radiographic images, endoscopy, laboratory findings, and pathology results. The patient did not fulfill the criteria for other connective tissue diseases such as scleroderma, dermatopolymyositis or overlap syndromes that have been reported in association with IPO by clinical and physical findings. The abdominal CT showed a right ovarian teratoma with an intact capsule. Ascites and peritonitis are rarely caused by rupture of an ovarian teratoma because of the thick capsule usually present[12]. A laparoscopic removal of the ovarian teratoma is planned once the patient is stable.

This patient also had other gastrointestinal manifestations including esophagitis and gastroduodenitis. Skin involvement has been reported in 72-85% of lupus patients. Cutaneous lesions of the digits in SLE are polymorphous, not frequently investigated and often considered as vasculitis[13]. The patient presented shallow multiple nodules on the dorsum of fingers noted on hospital day 3.

High dose steroids remain the treatment of choice in patients with IPO and ureterohydronephosis secondary to SLE[14]. A follow-up abdominal CT showed improved IPO and ureterohydronephrosis after treatment initiation. The high rate of reversibility of symptoms and radiological findings, with medical treatment, has also been demonstrated in previous cases[2]. In addition, the prokinetics such as octreotide, metoclopropamide or erythromycin may be helpful for gut motility by pharmacologic stimulation[7].

The prognosis of IPO associated with SLE is not well defined. Hien Nguyen et al.[7] suggested that IPO secondary to SLE might require long-term immunosuppression for sustained remission. Mok et al.[2] reported that the mortality of IPO secondary to SLE is 27.8%. The main causes of death were related to sepsis from immunosuppression and other major organ involvement of SLE. The progression of SLE is usually more severe in children than in adults. This inverse correlation between the severity of the disease and the age of diagnosis is well known for SLE[15]. Symptoms and signs accumulate over time in patients with SLE. IPO as the initial presentation of SLE in childhood is rare.

The case reported here should raise awareness among pediatricians, that although rare, pseudo-obstruction can be the presenting symptom of SLE in children. Making the diagnosis may be difficult even with the aid of imaging studies. There have been reports of patients with SLE who underwent exploratory laparotomy due to acute abdominal pain with peritoneal irritation[2]. Delayed recognition of this life-threatening problem may result in potentially fatal bowel infarction and perforation. Early diagnosis and therapy is essential to prevent complications and unnecessary surgery.

한 글 요 약

장 가성 폐쇄로 진단된 전신 홍반 루푸스 1예

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조기영 · 길태영 · 안혜미 · 이선화* · 서정완

전신 홍반 루푸스는 다양한 증상으로 발현되는 자가면역질환이다. 위장관 증상도 질환의 경과 중에 나타날 수 있으나, 장 가성 폐쇄로 처음 진단되는 경우는 소아에서 매우 드물다. 장 가성 폐쇄는 원발성 또는 속발성으로 장의 평활근이나 신경계에 이상이 있어 해부학적 원인 없이 장폐쇄의 증상과 징후가 나타나는 것이며, 장폐쇄로 인하여 수술을 하였다는 보고도 있다. 그러나 장 가성 폐쇄가 전신 홍반 루푸스에 속발한 경우 장간막 혈관의 폐쇄와 장괴사로 진행하기 전에 조기에 진단하고 치료하면 합병증을 예방하고 수술을 피할 수 있다. 저자들은 장 가성 폐쇄의 증상으로 내원한 13세 여아에서 전신 홍반 루푸스를 진단하여, 불필요한 수술을 피하고 조기에 치료한 증례를 경험하였기에 문헌 고찰과 함께 보고하는 바이다.

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