

Intestinal Pseudo-Obstruction in Systemic Lupus Erythematosus: A Case Report and Review of the Literature

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Abstract: Intestinal pseudo-obstruction (IPO) is a rare but dangerous complication of systemic lupus erythematosus (SLE) when the patient has no other manifestations except gastrointestinal symptoms. We performed 1 patient with a 2-month history of recurrent vomiting and abdominal distension. She admitted past surgical histories of cesarean section and appendectomy. A physical examination revealed tenderness in the right lower abdominal on palpation and bowel sounds were weak, 2 to 3 bpm. An x-ray and CT of her abdomen showed intestinal obstruction. The initial diagnosis was adhesive intestinal obstruction. She received surgical treatment because her symptoms had gradually become more frequent and persistent. But she vomited again 2 weeks later after the surgery. Further immunology tests indicated that she had an IPO secondary to SLE. We treated the patient with methylprednisolone pulse for 3 days and followed by prednisone orally. The patient had a good response. Complete remission was achieved on 8 years follow-up.

The importance of IPO secondary to SLE lies in an early diagnosis. After the diagnosis is established, immunosuppressive therapy should be the initial and first-line treatment, and surgical intervention is often disappointing and should be carefully avoided. It is necessary to enhance awareness of doctors to IPO secondary to SLE.

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Abbreviations: ALB = albumin, anti-dsDNA = anti-double-stranded-DNA antibodies, CRP = C-reaction protein, CT = computed tomography, IgM = immunoglobulin M, IPO = intestinal pseudo-obstruction, SLE = systemic lupus erythematosus.

INTRODUCTION

Systemic lupus erythematosus (SLE) is a chronic autoimmune disorder characterized by production of autoantibodies directed against nuclear and cytoplasmic antigens, affecting several organs. The prevalence rate of SLE was estimated to be 30 to 70 cases per 100,000 persons in china.¹ Clinical presentations are various depending on involved organs. The primary gastrointestinal symptoms were only 3.6% of patients with SLE.² Gastrointestinal symptoms mostly include abdominal pain, vomiting, diarrhea and/or constipation,

abdominal distension, and weight loss. Intestinal pseudo-obstruction (IPO) is a rare but dangerous complication of SLE. We report a rare case of a patient with IPO secondary to SLE who was misdiagnosed and had a surgery because of the sole gastrointestinal symptoms. We compare our new case with the results of a literature review (39 previously reported cases) and discuss the main characteristics, diagnosis, treatment, and outcome of IPO secondary to SLE.

PATIENTS AND METHODS

Patient and Literature Review

We performed a PubMed (National Library of Medicine, Bethesda, MD) search using the terms "(Systemic lupus erythematosus) AND Intestinal pseudo-obstruction," retrieving all articles published in English up to August 2014. We combined these data with the new case reported here to describe in depth the IPO secondary to SLE.

Statistical Methods

Quantitative data were expressed as median and range, and qualitative data as numbers and percentages. The chi-square test was used to compare misdiagnosis and efficacy between groups, differences with *P*-values less than 0.05 were considered significant.

CASE REPORT

In January 2006, a 42-year-old woman presented with a 2-month history of recurrent vomiting, several times a day, the vomit was food and gastric juice, accompanied by abdominal distension and 7 kg weight loss. She admitted past surgical histories of cesarean section and appendectomy. Vital signs and physical examination were normal, with the exception of tenderness in the right lower abdominal on palpation and bowel sounds were weak, 2 to 3 bpm. Initial bloods tests revealed hypoproteinemia (ALB: 27 g/L) and hypokalemia (K⁺: 2.4 mmol/L). An x-ray and CT of her abdomen showed intestinal obstruction. Gastroscopy and colonoscopy were normal.

The patient was commenced on standard internal medical treatment for 2 weeks, but her symptoms had gradually become more frequent and persistent. She received surgical treatment. Slightly adhesive intestinal obstruction was observed during the operation, but it seemed that her slightly adhesive intestinal obstruction couldn't lead to so serious symptoms.

The patient remained symptom-free for 2 weeks until she vomited again. Her endocrine laboratory tests were normal. Immunology laboratory tests revealed the following abnormalities: CRP: 0.92 mg/dL (0–0.8 mg/dL), IgM: 17 mg/dL (63–277 mg/dL), C3: 28.2 mg/dL (83–193 mg/dL), C4: 10 mg/dL (12–36 mg/dL), anti-histone antibody and anti-dsDNA antibody were positive, antinuclear antibody was positive, titer of 1:400, nuclear membrane type. Immunology tests supported a diagnosis of SLE.³ An x-ray and CT of her abdomen showed

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IPO. We treated the patient with 1 g of methylprednisolone pulse for 3 days and followed by prednisone 1.5 mg/kg/day orally. Three days later, her abdominal symptoms rapidly reverse, and 4 weeks later, her symptoms were complete resolved. The corticosteroid was tapered and low dosage of the drug was administered continuously. Eight years passed, the patient has remained symptom-free.

RESULTS

Comparison With Literature

IPO secondary to SLE is rare: we identified 39 cases in the literature. Including the new case, IPO secondary to SLE has been reported in 37 female,^{4–24} and 3 male,^{15,25,26} yielding a female to male sex ratio of 12.3. Mean age of the patients at diagnosis was 32.5 (10–57) years. Epidemiologic characteristics of these 40 cases are summarized in Table 1.

Clinical Features and Diagnosis

Gastrointestinal symptoms of IPO secondary to SLE conclude abdominal pain (80%), vomiting (78%), diarrhea and/or constipation (70%), abdominal distension (63%), and weight loss (33%).

Hypoactive/absent bowel sounds (53%) and abdominal tenderness (28%) were the most commonly described in abdominal physical examination. However, some cases did not describe the physical examination, and thus hypoactive/absent bowel sounds and abdominal tenderness may be underestimated. 39 patients had other symptoms of other systems except digestive system, only 1 case (our new case) had the sole symptoms of digestive system. In all the 40 cases, 16 (40%) patients were misdiagnosed.^{4,5,8–10,12,15,16,24,26} Gastrointestinal symptoms were the initial manifestation of SLE in 16 patients,^{4,8–10,12,15,16,22,24,26} 11 cases (69%) of them were misdiagnosed.^{8,10,12,15,16,24,26} While only 5 cases (21%) were misdiagnosed in other 24 patients.^{4,8,9,22,25} The patients whose initial manifestation was gastrointestinal symptoms were more likely to be misdiagnosed ($P < 0.001$). Clinical features observed in the 40 cases are summarized in Table 2.

Treatment and Outcomes

Surgical Treatment and Outcomes

Eleven patients (28%) received surgical treatment as the initial treatment,^{10,15,16,26} all of them were relapsed after surgery, and 6 of them relapsed in several weeks, 2 patients relapsed in 1 year after surgery, the others did not describe the exact time. When the diagnosis of IPO secondary to SLE was established, all the patients received corticosteroids treatment and had a good response to the corticosteroids treatment.

Notably, 10 patients (63%) had a surgery in patients whose initial manifestation were gastrointestinal symptoms,^{8,10,15,16,24–26} 6 patients had an unnecessary surgery,^{15,16,25} and 3 patients had once more unnecessary surgery because of

TABLE 1. Epidemiologic Characteristics in 40 Patients

Characteristics	No. (%)
Female	37 (93%)
Age at diagnosis, yr; mean (range)	33 (10–57)
Age \leq 40 yr	27 (68)

TABLE 2. Clinical Features in 40 Patients

Feature	No. (%)
Gastrointestinal symptoms	
Abdominal pain	32 (80)
Vomiting	31 (78)
Diarrhea and/or constipation	28 (70)
Abdominal distension	25 (63)
Weight loss	13 (33)
Abdominal physical examination	
Hypoactive/absent bowel sounds	21 (53)
Abdominal tenderness	11 (28)

misdiagnosis.^{8,15,26} Only 1 patient received surgery because of small bowel perforation.¹⁵ After the diagnosis was established, all of the 10 patients received corticosteroids treatment and had a good response.

Drug Treatment and Outcomes

Corticosteroids (methylprednisolone and prednisone) were used as the initial and first-line immunosuppressive therapy in 27 patients (68%),^{4–9,11,12,14,15,17–21,22–25} 18 of them were given pulses of high dose corticosteroids (500 mg or 1000 mg/day),^{5,6,9,11–14,18–21,22,23,25} and 9 patients were discharged on 1 to 2 mg/kg/day methylprednisolone or prednisolone.^{4,7,8,15,17,21,24} Twenty-two (81%) of them had a good response to corticosteroids. Five patients (19%) were ineffective.^{9,14,20,23,25} After failure of corticosteroids treatment, 2 patients received surgical treatment and followed by immunosuppressive therapy,^{9,25} 1 patient received intravenous cyclophosphamide (750 mg),²³ 1 patient received tacrolimus,¹⁴ 1 patient lost follow-up.²⁰ All the 4 patients who received treatment had a good response.

Cyclophosphamide was used in 8 cases (20%),^{4,5,11,14,19} 6 of them were used in combination with corticosteroids.^{4,11,14,19} Two patients who received only cyclophosphamide had a good response.⁵

Other drugs, such as Prokinetic drugs (10%),^{5,17,21} Hydroxychloroquine (5%),^{7,9} and Octreotide (5%),^{5,21} were always used in combination with corticosteroids. It is difficult to conclude whether these drugs were effective because the patients also received immunosuppressive therapy. Treatments administered in the 40 cases are summarized in Table 3.

TABLE 3. Initial Treatment in 40 Patients

Initial treatment	No. (%)
Surgery	11 (28)
Drugs	29 (73)
Corticosteroids	27 (68)
Other immunosuppressant	
Cyclophosphamide	8 (20)
Azathioprine	2 (5)
Other drugs	
Prokinetic drugs	4 (10)
Hydroxychloroquine	2 (5)
Octreotide	2 (5)

DISCUSSION

IPO and protein losing enteropathy are the most common identifiable gastrointestinal complications of SLE, though other reasons such as superior mesenteric venous thrombosis, pancreatitis, peritonitis, and liver impairment could also occur in SLE.²⁷ Including the new case, 40 cases of IPO secondary to SLE have been reported so far, 39 patients had other symptoms of other systems except digestive system. In the new case we reported here, IPO was her initial and sole manifestation.

IPO is defined as small bowel obstruction that occurs in the absence of mechanical or obstructive factors. The pathogenesis in SLE-related IPO remains unclear but the most probable underlying pathophysiology is of intestinal vasculitis of the visceral smooth muscles leading to damage and hypomotility.¹² Causes of IPO can be categorized into primary and secondary causes. Smooth muscle disorders, including familial visceral myopathy and sporadic visceral myopathy, are rare primary causes of IPO. Connective tissue disorders such as progressive systemic sclerosis, SLE, and dermatomyositis are secondary causes of IPO. Other rare secondary causes of IPO include progressive muscular dystrophy, amyloidosis, diffuse lymphoid infiltration, Parkinson disease, myxedema, pheochromocytoma, and opiate drugs.²⁸

IPO can present as abdominal pain, vomiting, diarrhea and/or constipation, abdominal distension, and weight loss. When the condition worsens, patients may have episodes of severe nausea, vomiting, pain, and distension with x-ray picture that looks like a bowel blockage.

Gastrointestinal symptoms as the initial manifestations of SLE are non-specific, so the diagnosis is difficult. There were 16 patients whose initial symptom was gastrointestinal symptom. Eleven of them were misdiagnosed and 8 patients had the unnecessary surgery because of misdiagnosed. The main differential diagnosis of IPO in our patient who was eventually diagnosed with SLE was adhesions from her histories of cesarean section and appendectomy. Slightly adhesive intestinal obstruction was observed during the surgery, but it seemed that her slightly adhesive intestinal obstruction couldn't lead to so serious symptoms. The patient vomited again 2 weeks later after the surgery, immunology tests were positive and glucocorticoid therapy was effective. All of these indicated that she had an IPO secondary to SLE.

There is no cure for SLE, but reasonable treatment can alleviate especially for the early cases. In the 40 cases, 29 patients accepted immunosuppressant as the initial treatment, and 24 of them had a good response. While 11 patients accepted surgery, and all of them relapsed after surgery. Compared with surgical treatment, immunosuppressant has a better efficacy ($P < 0.001$). Patients should accept immunosuppressive therapy, which should be gradually tapered. Most of them can rapidly reverse and avert unnecessary surgery.

CONCLUSION

The importance of IPO secondary to SLE lies in an accurate diagnosis and corresponding treatment strategy. Immunosuppressive therapy should be the initial and first-line treatment. Surgical intervention and repeated invasive procedures is often disappointing and should be carefully avoided. Physician awareness and accurate diagnosis could positively affect outcomes of this syndrome, avoid complications, bring about resolution of symptoms, and avoiding unnecessary surgical intervention.

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