

Case Report

Acute torsion of wandering spleen in a 17-year-old girl

Maoqing Jiang¹, Ping Chen², Xinzhong Ruan¹, Xianwang Ye¹, Qiuli Huang¹

Departments of ¹Radiology, ²Nephrology, Ningbo First Hospital, Zhejiang, China

Received May 15, 2015; Accepted July 6, 2015; Epub July 15, 2015; Published July 30, 2015

Abstract: The acute torsion of wandering spleen is a very rare disease characterized by acute abdominal pain. Without early surgical intervention, wandering spleen can lead to splenic infarction or rupture. However, early clinical diagnosis is very difficult, so imaging modalities play an important role. We present a case of acute abdominal pain due to torsion of the wandering spleen in a 17-year-old girl, diagnosed by computed tomography and effectively managed by splenectomy for splenic infarction.

Keywords: Wandering spleen, splenectomy, splenic infarction

Introduction

Wandering spleen is an uncommon medical entity and often an incidental, asymptomatic finding of acute abdomen in the emergency department. It is characterized by excessive mobility and displacement of the spleen of its normal location in the left hypochondrium, due to a lack of fixation and unduly long splenic pedicle. Few case series have been reported, and clinical experience of this condition is rare. Recognition of this medical condition can help avoid any confusion with acute abdomen of other etiologies. The diagnosis can be confirmed by imaging techniques, such as CT and MRI [1, 2]. Treatment of wandering spleen depends on the clinical presentation and the functional reservoir of the spleen. Splenectomy was performed in our case for splenic infarction.

Case report

A 17-year-old girl was admitted to the emergency department with two days history of intermittent lower abdominal pain that had increased in the last 6 hours prior to admission without nausea, vomiting, or genitourinary complaints. The pain was colicky in nature without radiation. She had no history of trauma or injury. She had noticed an abdominal mass for about six months. The size of the mass had remained

static, but from time to time it became painful for the last two days.

On admission, the patient presented with general condition, no fever, BP 130/70 mmHg and 76 bpm. Laboratory data showed neutrophilia (68%), leukocytosis (11.5/ μ L), and a hemoglobin level of 12.6 g/dL. Her renal, liver function, amylase and lactate were within normal limits.

The CT showed a large homogeneous soft tissue mass of size 12 cm \times 8.5 cm \times 20 mm in the pelvis and lower abdomen (**Figure 1C**). It also showed the 'whirl sign' of twisting vascular tissue over the lower abdomen (**Figure 1A**), and accompanying report noted marked twisting of the small bowel mesentery mimicking volvulus (**Figure 1B**). Intravenous contrast CT showed the spleen in the pelvis is global splenic ischemia, with no enhancement in either arterial or venous phase (**Figure 1D** and **1E**). There was also mild right pelvic effusion, very likely due to an obstructive effect from the mass. The spleen was not visualized in the left upper abdomen.

An urgent exploratory laparotomy was made that evidenced a giant, congestive and twisted spleen, with signs of ischemia (**Figure 2A**). Splenectomy was performed due to no viability of the spleen was found. The histological study showed congestive splenomegaly with no neoplastic infiltration and presence of cystic formations at hilar level (**Figure 2B**). The postopera-

Acute torsion of the wandering spleen

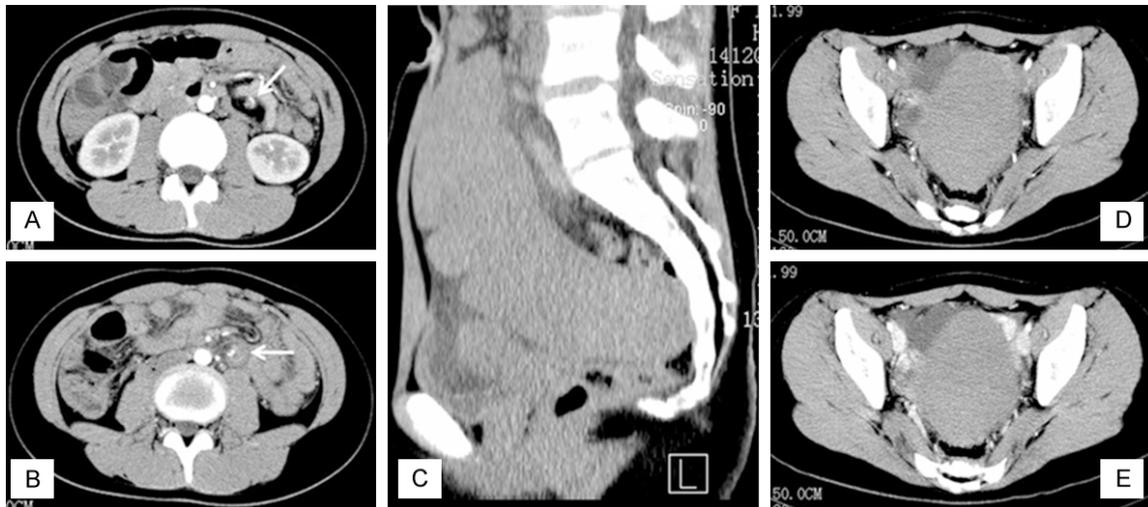


Figure 1. Contrast-enhanced CT at the plevic and lower abdomen in a 17-year-old girl. A and B. Axial CT films showing 'whirl sign' (white arrow) from twisting of vascular pedicle. C. Sagittal reconstructed CT image demonstrates a lobulated, enlarged spleen, which lies in the pelvis and lower abdomen. D and E. Axial CT image in the arterial phase and venous phase shows a homogenous, unenhanced mass (twisted wandering spleen) in the plevic and the right lower quadrant contains a small fluid collection.

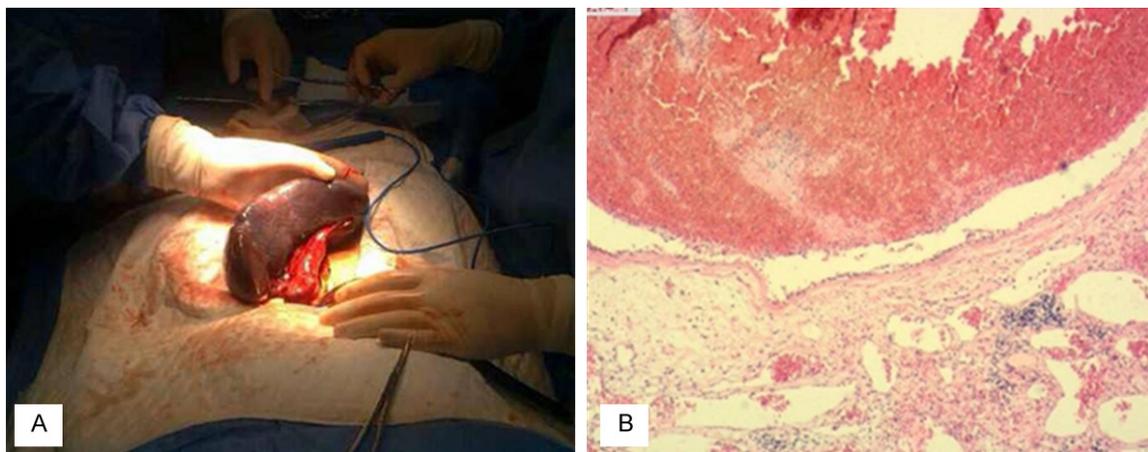


Figure 2. A. Clinical photo taken during the operation shows a huge ischemic spleen. B. The histopathological features presents blood sinus expansion and congestion of the splenic tissue, a large number of red blood cells leakage and little inflammatory cells infiltration, Original magnification $\times 10$.

tive course was uneventful and the patient was discharged home on postoperative day five.

Discussion

Wandering spleen is a rare clinical entity, in which the spleen is free to move from its anatomic position to the lower abdomen or pelvis. It can present as a painful abdominal or pelvic mass, or as acute surgical abdomen due to torsion, hemorrhage, or cyst formation [3]. In a recent review of 238 patients by Soleimani and

his colleagues [4], 73% and 67% of cases presented with abdominal pain or an abdominal mass respectively. Wandering spleen usually presents between ages 20 and 40 and is approximately 10 times more common among women [6], likely owing to acquired hormonal effects on the splenic ligaments [7]. Torsion of the wandering spleen around the vascular pedicle could lead to ischaemia and infarction and has been described with an incidence of less than 0.2% [5].

Acute torsion of the wandering spleen

The clinical presentation of wandering spleen is variable. Asymptomatic patients may present with a palpable mass in the lower abdomen or it may be incidentally detected on routine imaging study, but the diagnosis is often delayed until torsion occurs [8]. Lower abdominal pain is the most common symptom resulting from the acute, intermittent, or chronic splenic pedicle torsion [8]. Splenic pedicle torsion is a surgical emergency and may quickly progress to infarction if not treated.

Clinical diagnosis is difficult for the lack of symptoms. The precise preoperative radiologic diagnosis and assessment are crucial because the surgical options of splenopexy or splenectomy depend on the viability of the spleen. CT is the preferred study for diagnosing a wandering spleen when torsion is suspected clinically. Characteristic findings include an absence of the spleen in its normal position, and a soft tissue mass resembling the spleen elsewhere in the abdomen, mostly in the lower abdomen or pelvic cavity. The whirl sign of the splenic pedicle is specific for splenic torsion. A homogeneous, unenhanced mass is diagnostic for a wandering torsed spleen. Given to our case, with confirmed splenic torsion and infarction, the decision was made to proceed with immediate splenectomy as the safest and most efficient approach to stabilization and treatment.

Disclosure of conflict of interest

None.

Address correspondence to: Dr. Qiuli Huang, Department of Radiology, Ningbo First Hospital, 59 Liuting Road, Haishu District, Ningbo, Zhejiang Province, P.R. China. Tel: +86-13867810460; Fax: +86-574-87085093; E-mail: huang_qiuli@126.com

References

- [1] Ho CL. Wandering spleen with chronic torsion in a patient with thalassaemia. *Singapore Med J* 2014; 55: e198-200.
- [2] Clark JK, Gorman J, Lee MH, Barbick BC, Marks RM. Dynamic MRI in the diagnosis and post surgical evaluation of wandering spleen. *J Radiol Case Rep* 2014; 8: 15-22.
- [3] Richman M, Hiyama DT, Wasson E. Wandering spleen. *Surgery* 2014; 155: 728.
- [4] Soleimani M, Mehrabi A, Kashfi A, Fonouni H, Buchler MW, Kraus TW. Surgical treatment of patients with wandering spleen: report of six cases with a review of the literature. *Surg Today* 2007; 37: 261-269.
- [5] Hussain M, Deshpande R and Bailey ST. Splenic torsion: a case report. *Ann R Coll Surg Engl* 2010; 92: W51-52.
- [6] Le K, Griner D, Hope WW, Tackett D. Splenic torsion requiring splenectomy six years following laparoscopic Nissen fundoplication. *JLS* 2012; 16: 184-188.
- [7] Gilman RS, Thomas RL. Wandering spleen presenting as acute pancreatitis in pregnancy. *Obstet Gynecol* 2003; 101: 1100-1102.
- [8] Priyadarshi RN, Anand U, Kumar B, Prakash V. Torsion in wandering spleen: CT demonstration of whirl sign. *Abdom Imaging* 2013; 38: 835-838.