A Rare Case of Splenic Torsion with Sigmoid Volvulus in a 14-Year-Old Girl

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Abstract- Wandering spleen is an uncommon entity in adults and has been described only rarely with sigmoid volvulus, that rarely affects children and adolescents. It is usually described in adults.Wandering spleen characterized by the abnormal location of the spleen, caused by incomplete fusion of the four primary splenic ligaments, allowing the spleen to be mobile within the abdomen.The wandering spleen can lead to torsion and subsequent splenic infarction or rupture. Clinical suspicion plus urgent investigation and intervention are important. We present a rare clinical case of acute abdomen due to torsion of wandering spleen and volvulus of sigmoid in a 14-year-old girl presented with painful periumbilical mass. Detorsion of sigmoid occurred while undergoing exploratory laparotomy and splenectomy was performed. The possibility of torsion and its complication like gastric, pancreas tail and colon volvulus should be kept in mind in the differential diagnosis of the acute abdomen to avoid serious complications.

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Keywords: Wandering; Spleen-splenic; Torsion-sigmoid; Volvulus-splenectomy

Introduction

Wandering spleen is a rare clinical entity founding that is more common in a woman aged between 20-40 years (1). It is characterized by excessive mobility and lack of a proper place of the spleen from its normal position to the diaphragm, colon, and retroperitoneum, it can be found in any part of the abdomen (2). Incidence ranges between 0.2-0.5 percent (3).

Wandering spleen may lead to splenomegaly, splenic infarction, varicose and hemorrhage (1-2-4). In this environment, ultrasonography is a standard investigation for diagnosis. However, where available CT-scan, MRI, Angiography, Scintigraphy scan and Doppler scanning are used to confirm the diagnosis (1-5). Torsion of its long pedicle is the most common complication, and it presents as an acute abdomen emergency. This is sometimes associated with other manifestations like gastric or pancreatic volvulus (1-2-4). We present a case of a young female with a wandering spleen in pelvic and sigmoid volvulus presented with acute abdomen.

Case Report

A 14-year-old young girl presented with abdominal pain at the Imam Khomeini hospital emergency outpatient department. The pain had started from two days ago. She was admitted to gynecology department because she had a history of vaginal discharge and ovarian cyst.

The patient had periumbilical pain. Pains nature was: sharp, sustained, positional, and local and without radiation to any region. The pain was not related to eating.

She denied the previous history of trauma, constipation, and urinary symptoms. She said the history of same complained seven days and two months ago. She didn't have gas passing and defecation for 48 hours. There was no evidence of a family history and a history of drug use.

Examination revealed a young girl in painful distress, not pale and icteric, not ill and toxic and not febrile. Blood pressure was: 110/80 mmHG. Respiratory rate was: 21 and the oral temperature was: 37/2 Chest examination was normal, but she had mild abdominal distention with a periumbilical and inferior part of the abdomen, tenderness, and fullness, without rebound tenderness.

Pelvic and rectal examination did reveal nothing significant.

Laboratory findings on admission were WBC=14800 cells/mcL. Urea, creatinine, electrolytes, urine analysis

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and other full blood count were done, and all were within normal range. Beta-HCG was done too and was negative.

But after 36 hours she had 38.2 centigrade oral temperature and WBC count increased.

Supine and upright abdomen and chest X-ray were abnormal. In abdominal X-ray, large gas-filled sigmoid colon and dilated sigmoid loop with its apex in either the left upper quadrant of the abdomen were observed (Figure 1).

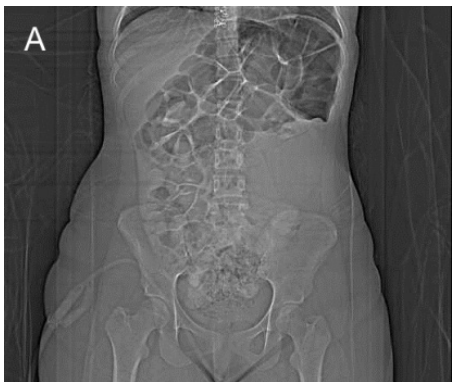

Figure 1. Large gas filled sigmoid colon and dilated sigmoid loop

Radiologic examination included an abdominal sonogram and computed tomography.

Abdominal ultrasound revealed spleen dimension of approximately 15*13 cm, slightly larger than normal size. Suspected multi cyst mass and free fluid collection in the pelvic cavity about diameter 8 cm was observed. This finding could be due to ovarian cyst perforated or perforated appendicitis. No adnexal mass was seen, and the uterus was normal in size and shape. The recommended that further investigation of the cause of splenomegaly.

Subsequent computerized tomographies were reported as showing the spleen was not visualized in its normal position and show the mass with the vascular pedicle in the lower abdomen (Figure 2). If an incomplete obstruction was not relieved by medical managements, with supportive care and medical resuscitation, within about 24 hours of clinical presentation, the patient is strongly for emergency surgery to relieve the mechanical obstruction, so the patient was taken to the operative room with a preoperative diagnosis of torsion of a wandering spleen and complete obstruction.

Emergency laparotomy was performed. The abdominal cavity was accessed by laparotomy and after opening the peritoneum, it was noted distension of loops of the transverse colon. At laparotomy, an enormously distended and long sigmoid loop, without a gangrenous or thrombosed changes was found (Figure 3). Tthe complete obstruction symptoms resulted from the presence of a sigmoid volvulus due to double twist on the sigmoid colon. And more surgery once mobilization of the spleen was concluded, the vascular pedicle appeared torted and thrombosed, and laparoscopic splenectomy was performed,

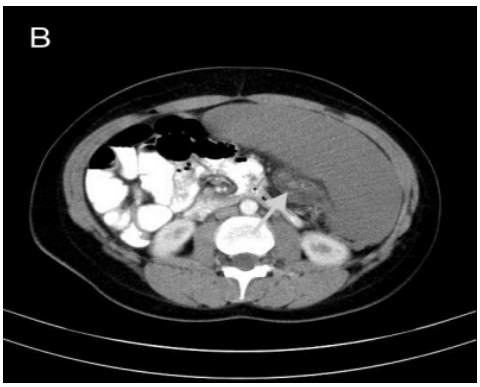

Figure 2. Contrast-enhanced abdominal CT in axial showed an absence of the spleen in the left upper quadrant and whirled sign; a whirled appearance of hyperdense non-enhancing splenic vessels

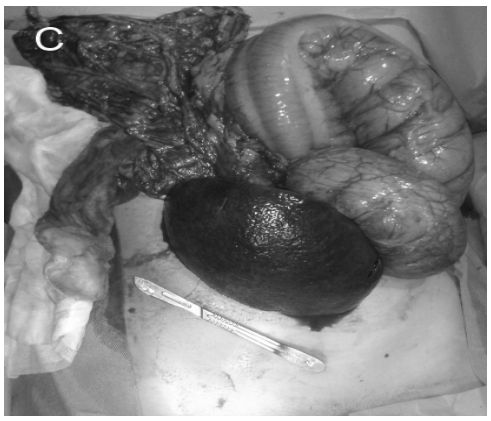

Figure 3. Distended and long sigmoid loop, without a gangrenous or thrombosed

Laparotomy demonstrated severe congestion of the spleen with torsion (Figure 4).

Splenectomy was accomplished, and the patient was discharged on the third postoperative day with no complication and had received post triple vaccine against encapsulated organisms in concordance with the current guideline.

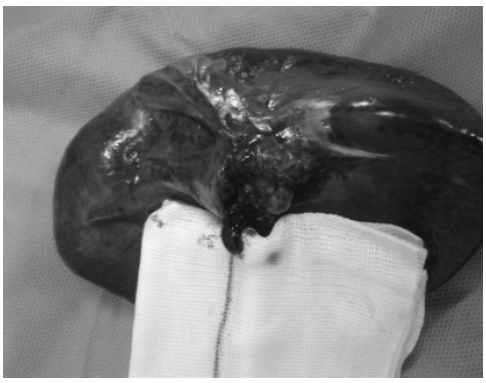

Figure 4. Congestion of the spleen with torsion of the pedicle. the vascular pedicle appeared torted and thrombosed

Discussion

Wandering spleen represents a rare clinical entity characterized by the abnormal location of the spleen in the lower abdomen or in the pelvic region due to the weakening or the absence of the splenic ligaments (6).

The spleen is attached to the posterior part of the left hypochondrium through the splenic pedicle which is formed by the gastrosplenic and splenorenal ligament and includes the splenic artery and vein and the tail of the pancreas (7-8). Wandering Spleen (WS) is defined as a mobile spleen that is attached only by a elongated vascular pedicle, allowing it to any part of the abdomen or pelvis it is a result of congenital anomalies in the developmental of the dorsal mesogastrium and the absence or malformation of normal splenic suspensory ligaments (9-10). However, acquired anomalies have been described with hormonal changes or increase in the size of the spleen (11).

Patients with wandering spleen may be asymptomatic or may present with acute abdomen. all people of all ages wandering spleen may also occur commonly in men under 10 years of age, and older female patients in the age group occur, being most common in multifarious women (12). The first clinical description of WS, confirm by autoscopy, was by Joharnes Van Horne, a Dutch physician, in 1667 (13).

The most common symptoms of the WS is abdominal pain caused by either splenic complications or mass effect. Acute complete splenic torsion

Contributes to splenic in which the patient presents with acute abdominal symptoms and intermittent-incomplete splenic torsion may lead to venous congestion and subsequent hypersplenism (14-15).

With acute torsion, the condition can be confused appendicitis or ovarian torsion. Other clinical symptoms include nausea, vomiting, fever, leukocytosis, peritoneal sign and a palpable mass in the abdomen or pelvis (16).

The absence of a spleen in its normal anatomic position and a presence of an intra-abdominal mass that has similar characteristics with the spleen are major determinants of diagnosis of WS by any imaging modalities utilized. Abdominal sonography and Doppler scan may not only demonstrate a WS but can also evaluate splenic blood flow to rule out a possible splenic torsion (17-18).

Contras–enhanced abdominopelvic CT scan also provides information about the exact location of WS in relation to other intra-abdominal organs and the viability of the spleen in the sitting of possible splenic torsion (19). Other diagnosis imaging modalities include radionuclide scan and MRI (20).

The treatment of choice for the torsion of WS is surgical (6). Martin performed the first successful splenectomy for wandering spleen in 1877 (21). Surgical management consists of spleen vessels and suspicion of malignancy .management consists of splenectomy for frank splenic infarct or splenopexy for the viable spleen, laparoscopic procedures have been extensively for both splenopexy and splenectomy (22).

In the absence of Infarction, thrombosis, hypersplenism and in patients presenting with on acute abdomen, detorsion and splenopexy are a recognized surgical option (23-24-25).

In conclusion, it is important to evaluate a wandering spleen because of the configuration of its vascular pedicle, which makes it prone to splenic torsion. WS has a rare association with sigmoid volvulus. Although both conditions is caused by abnormal fixation. The association, sigmoid volvulus, and splenic torsion have not been reported before.

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