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Acute Torsion of the Wandering Spleen: A Case Report

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Abstract | **Case Report**

The wandering spleen is caused by congenital absence of suspensory ligaments or abnormally long ligaments [1]. It is an uncommon clinical condition. The clinical presentation of wandering spleen is variable, but the most dangerous complication is splenic torsion [2], which can subsequently cause splenic infarction and rupture. We present a case of a 17-year-old girl who presented with acute abdominal pain and an abdominal contrast enhanced computed tomography revealed complete splenic infarction due to torsion of the splenic pedicle, consistent with a wandering spleen. The patient underwent an emergent laparotomy through a midline incision. A spleen was found, with its pedicle completely torsed. The spleen had no attachments to the abdominal wall or diaphragm and appeared non vital. as de-rotation did not revascularize the organ. A total splenectomy was performed without complications, and she was discharged in stable condition on the fifth postoperative day, with appropriate post-splenectomy antibiotic prophylaxis and immunizations. During the 3 month follow-up, the patient showed normal conditions with no recurrent episodes of abdominal pain.

Keywords: acute abdomen, torsion, wandering spleen, splenectomy.

INTRODUCTION

Wandering spleen (WS) is a rare condition characterized by hypermobility of the spleen due to the extreme laxity or absence of ligaments that normally secure the organ in its anatomical position in the left upper quadrant [1]. It mainly affects children and women of childbearing age [2]. Splenic infarction following the torsion of a wandering spleen can lead to acute abdominal pain [3] it is considered a life-threatening emergency. The clinical manifestations of a wandering spleen vary from an asymptomatic condition to an acute surgical abdomen. The diagnosis can be confirmed by imaging techniques, such as computed tomography (CT) and magnetic resonance imaging (MRI) [4]. The treatment of choice is splenopexy, while if splenic necrosis is present, splenectomy is required [5].

CASE PRESENTATION

A 17-year-old girl, with no significant past medical, surgical, or family history presented to our hospital's emergency department. With progressive aggravation of abdominal pain for at least 3 days. Accompanied by fever and vomiting. On initial examination, the patient appeared pale and lethargic and had a pulse rate of 96 beats per minute, a blood pressure of 120/60 mmHg, a respiratory rate of 25 breaths per minute, an oxygen saturation of 98%, and a temperature of 38.3 °C. Abdominal examination revealed significant diffuse tenderness, and a palpable splenomegaly extending to the right in the periumbilical region. Serum haemoglobin was 10.6 g/dl with a haematocrit of 0.34, C-reactive protein (CRP) was 46.6 mg/l, she had a white cell count of 14160/l with a neutrophilia of 7190/l, and platelets of 406000/l, all other blood tests were within normal limits.

Abdominal contrast-enhanced computed tomography (CT) was performed. The abdominal CT reported a large spleen measuring 15cm in cranio-caudal dimension along with a twisted vascular pedicle in counterclockwise direction "whirl sign", diffuse parenchymal hypodensity and absence of post-contrast enhancement in the arterial and venous phase, suggesting complete splenic infarction due to torsion of a wandering spleen [Figure. 1]

The patient was finally diagnosed with wandering spleen combined with splenic pedicle torsion and splenic infarction. Based on our findings and the

patient's condition, the patient underwent an emergent laparotomy through a midline incision performed in a supine position after general anesthesia. The operative findings revealed a macroscopically infarcted free-floating spleen attached to an abnormally long vascular pedicle. Twisted around its pedicle in a clockwise rotation with no attachments to the abdominal wall or diaphragm [Figure.2]. The spleen appeared non-vital after untwisting the pedicle. A total splenectomy was done. A drainage tube was placed in the left upper, the surgical time was 45 min, and the intraoperative bleeding volume was 10 ml. Postoperative histopathological analysis confirmed ischemic necrosis. The postoperative period was uneventful and the patient was discharged home on the fifth postoperative day with appropriate post-splenectomy antibiotic prophylaxis and the patient was also advised to achieve the following vaccination schedule: pneumococcal polysaccharide vaccine (starting day 14 post-splenectomy and every 5 years thereafter); meningococcal vaccine (two doses 8 weeks apart starting 1 month post-splenectomy and every 5 years thereafter); and annual influenza vaccine. During the 10-month follow-up, the patient showed normal conditions with no recurrence of abdominal pain.

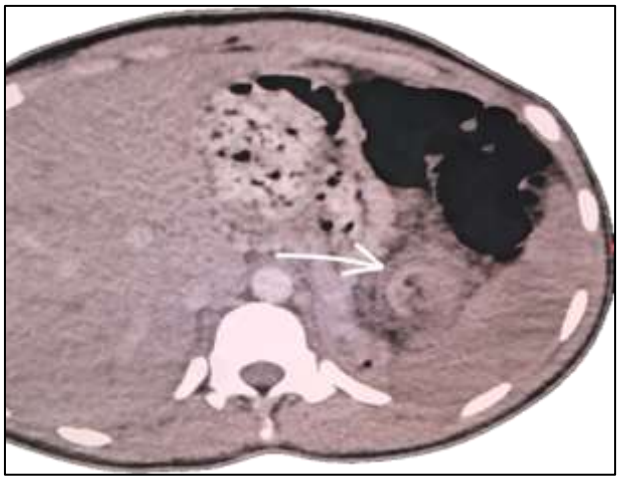

Figure 1: CECT « whirl sign »(white arrow) +absence of enhancement in the spleen

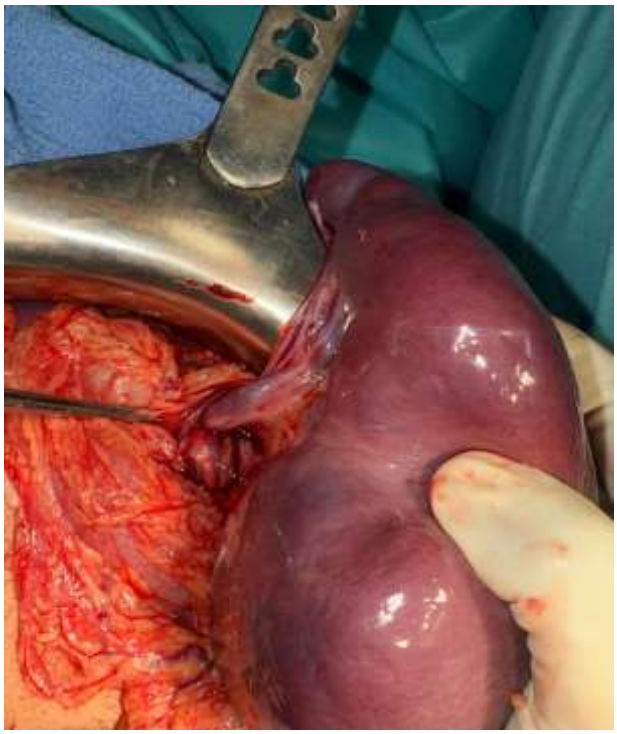

Figure 2: intraoperative image of twisted splenic pedicle

DISCUSSION

Wandering spleen with torsion of the splenic pedicle is an extremely rare condition with an incidence rate of <0.2% [6]. according to fewer than 500 cases have been reported in the literature to date It mainly occurs in children and has a female predominance and potentially further enhancing the association of wandering spleen

with pregnancy [3]. Anatomically, spleen is hypermobile due to absence or maldevelopment of its ligaments. The only attachment is by a long vascular pedicle making it prone to torsion [1]. In our observation, the absence of ligaments suggests a congenital origin of this wandering spleen. The young age and sexe are another argument in favor of the congenital hypothesis mentioned regarding this anomaly. The splenic ligaments consist of the phrenicocolic ligament supporting the spleen inferiorly, and the gastrosplenic and splenorenal ligaments, which bind the spleen to the stomach and posterior abdominal wall, respectively [2,5]. However, acquired anomalies have been described and are connected to the laxity of the ligaments due to weakness of the abdominal wall, splenomegaly multiple pregnancies, hormonal changes the acquired causes included connective tissue diseases abdominal trauma, and surgery [6]. A complete or partial splenic infarction occurs following the torsion of the wandering spleen around its long, twisted vascular pedicle. the diagnosis of Wandering spleen is usually a challenge in clinical practice. Its symptoms vary from an asymptomatic condition to a surgical abdomen; may be asymptomatic, present with a movable mass in the abdomen, or have chronic or intermittent abdominal pain because of partial torsion and spontaneous detorsion of the spleen. The torsion of the wandering spleen, favored by its mobility, weight, and the length of its pedicle, can be irreversible [7]. It may manifest as an acute surgical abdomen where abdominal pain is predominant, sometimes associated with nausea, vomiting, and fever [6]. These clinical signs were also noted in our observation. The association of this acute abdomen presentation with a mobile abdominal mass should suggest a diagnosis of wandering spleen torsion in the differential diagnosis. Other frequent conditions associated with a wandering spleen are gastric volvulus, variceal hemorrhage, and acute pancreatitis, due to affliction of the pancreatic tail confined to the lienorenal ligament, a sigmoid dolichocolon, has also been described in Morocco by Bouhaddouti H *et al*. in a 27-year-old patient [8].Laboratory tests for wandering spleen patients are mostly normal and non-specific, computed tomography CT is still the modality of choice for the final diagnosis of wandering spleen ,it has a high sensitivity for the identification of splenic pedicle torsion., the abdominal CT scan showed congestive enlargement of the spleen. This indicated partial or total splenic infarction. Splenic pedicle torsion is characterized by splenomegaly and abnormal orientation of the splenic hilum, and a “whirl sign”. In our case, the abdominal CT scan was sufficient to confirm the diagnosis of wandering spleen, Surgical management (open or laparoscopic) is the conclusive treatment for complicated and uncomplicated wandering spleen because the complication rate of wandering spleen is high (65%) [3]. So, there are two procedures suggested in such cases splenopexy and splenectomy the selection of surgical procedure is based on the spleen vascularity. Splenopexy is the preferred treatment option for wandering spleen when there is no splenic torsion or when there is normal circulation in the distorted splenic vessels or normal blood supply after repositioning the splenic torsion. a long-term follow-up is necessary given the possibility of postoperative recurrence of splenic torsion. Splenectomy is only indicated in the case of splenic infarction. rupture, and thrombosis. Pneumococcal vaccination and antibiotic therapy must be systematic for any splenectomized patient given the immune function that the spleen plays in the body.

In our case, the spleen was grossly enlarged and completely infarcted due to torsion of the wandering spleen. So, we did splenectomy and the outcome was good during four months of follow-up.

Various techniques have been described in the literature, and to date, there has been no demonstration of the superiority of any of these procedures concerning long-term results. Stringel *et al*. performed fixation of the spleen to its pedicle [9], while Maxwell-Armstrong *et al*. described a splenopexy on the greater omentum . Caracciolo *et al*. as well as Peitgen *et al*. performed a splenoplexy by repositioning the left colonic angle and the gastrocolic ligament. Currently, laparoscopic splenopexy is considered the reference technique.

CONCLUSION

wandering spleen is a rare etiology of acute abdomen, due to congenital or acquired causes Doppler ultrasound of the splenic pedicle and/or abdominal CT scan, are important for diagnosis. Surgical management is the conclusive treatment for complicated and uncomplicated So, there are two procedures suggested in such cases splenopexy and splenectomy the selection of surgical procedure is based on the spleen vascularity.

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