Wandering Spleen: A Rare Condition with Splenic Torsion and Infarction in an Elderly Patient

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Abstract

Ectopic spleen or wandering spleen is an uncommon presentation in which the spleen's anatomical location is different from its fixed position in the left upper quadrant of the abdomen, due to the absence of the typical peritoneal attachments; the spleen is more mobile inside the abdomen. Congenital or acquired conditions are the cause of this anomaly, which could ultimately result in torsion and splenic infarction. Less than 0.2% of wandering spleen cases are reported annually, making it a rare clinical manifestation. Splenic vascular pedicle torsion can result in complications that can cause symptoms of an acute abdomen as a result of ischemic necrosis of the spleen. Computed tomography and ultrasonography with Doppler or CEUS are essential for accurate diagnosis due to the vague clinical signs and potential complications. This case involves a 70-year-old elderly woman who complained of extreme abdominal pain and vomiting for three days. On physical examination, a tense right lower quadrant lump was palpated, when she visited the emergency room. An urgent CT scan was done for the acute abdomen which revealed torsion of the splenic pedicle in a wandering spleen.

Keywords: *Wandering spleen, ectopic spleen, splenic infarction, splenic torsion.*

INTRODUCTION

An ectopic or wandering spleen is a rare disorder presenting with a mal-positioned spleen. It is not in its normal anatomical location in the left upper quadrant of the abdomen [1]. This anomaly mostly occurs due to congenital or acquired conditions, which might eventually result in torsion and infarction of the spleen [2]. Approximately 0.2% of wandering spleen incidents are documented each year, making it a unique clinical condition [3]. In the geriatric population, this ailment is incredibly uncommon, the majority of WS patients are children or adults in their third decade of life [1, 3].

It is a condition in which one or more of the splenic ligaments, which hold the spleen in the left upper quadrant, are absent or underdeveloped [3, 4]. Increased intra-abdominal movement results from the spleen's lack of typical peritoneal attachments. The splenic vascular pedicle can be torn or twisted, which can lead to complications and symptoms of an acute abdomen because of splenic ischemic necrosis [3, 4].

Computed tomography (ultrasonography in children) is essential for accurate diagnosis due to the vague clinical signs and potential complications of wandering spleen [1]. This report's goal is to outline the CT findings of wandering spleen with torsion in patients who have acute abdominal pain [1, 5].

CASE REPORT

This case report involves a 70-year-old elderly woman with known Hypertension who complained of extreme abdominal pain and vomiting for three days. On physical examination, a tense right lower quadrant lump was felt, when she visited the emergency room. An urgent CT scan was done for the acute abdomen which showed that the spleen was not in the left hypochondrium **(Figs. 1a-c)**, but rather ectopically located on the right side of the abdomen close to the midline extending down to the pelvis **(Fig. 1d)**. There was massive splenomegaly, with the spleen approximately measuring 22.8 cm in craniocaudal dimension. There was twisting of the splenic pedicle giving a whirlpool sign and showed no enhancement on post-contrast images, in keeping with wandering spleen with torsion of its pedicle and resultant splenic infarction **(Figs. 2a & 2b).**

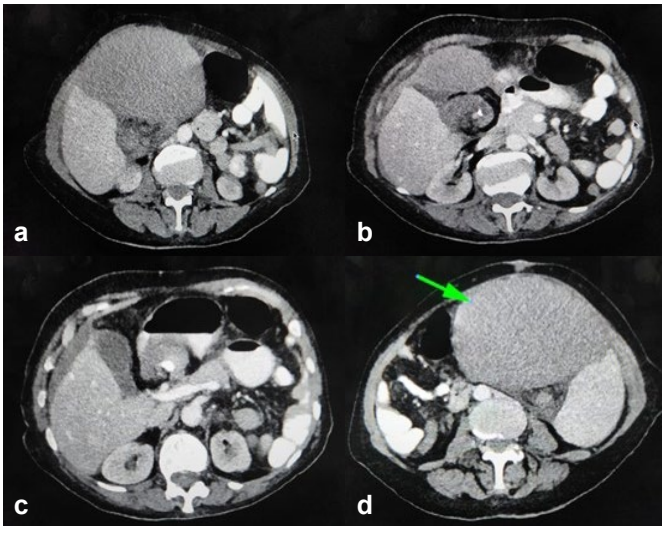

Fig. (1): (a-c) Axial CT contrast images, the spleen is not seen within the left hypochondrium, the spleen is enlarged non-enhancing, and displaced in the midline and **(d)** Slightly towards the right side.

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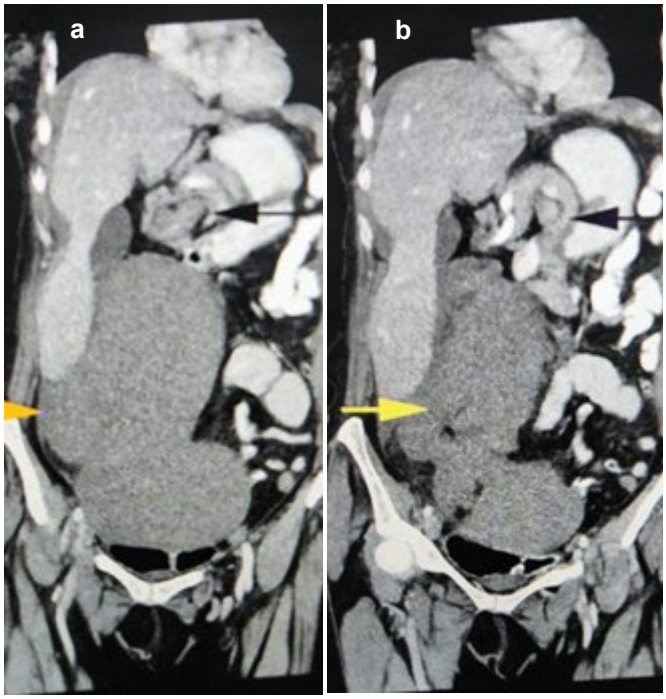

Fig. (2a & 2b): Coronal reconstructed contrast-enhanced CT images of the patient showing a non-enhancing enlarged spleen displaced in midline and torsion of the splenic pedicle.

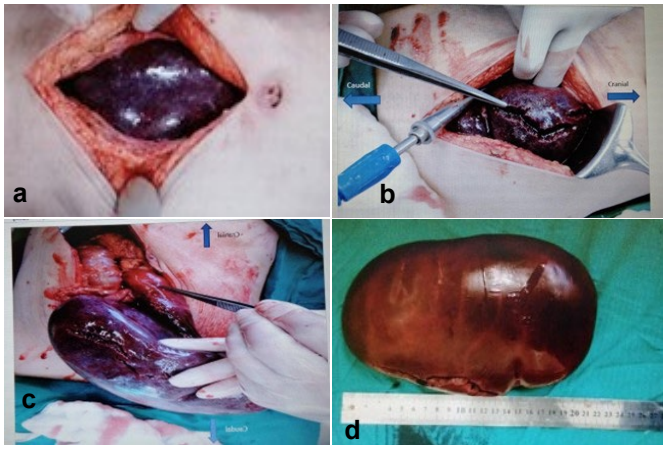

Fig. (3): **(a)** Intraoperative surgical findings of the patient, **(b)** midline laparotomy showing enlarged spleen in the midline, **(c)** Torsion of the splenic pedicle, and **(d)** The size of the spleen.

The patient underwent urgent laparotomy and 600 ml of blood was present in the abdominal cavity, the spleen was massively enlarged close to the midline below the umbilicus **(Figs. 3a & 3b)**, torsion of its pedicle was noted **(Figs. 3c & 3d)**, and the splenic artery and vein were thrombosed.

Histopathology showed benign splenic tissue with marked congestion. The patient was discharged after surgery and postoperative treatment.

DISCUSSION

A wandering spleen is also a displaced, ectopic or pelvic spleen [1]. Splenic hypermobility, which causes the spleen to wander, can be inherited or acquired [2]. The most significant supporting structures of the spleen are the gastrosplenic ligament, which joins the greater curvature of the stomach to the ventral aspect of the spleen, and the splenorenal ligament, which includes hilar vessels and attaches the spleen to the posterior peritoneal wall. These are formed from the dorsal mesogastrium [3]. These do not fuse with the posterior peritoneum (as they normally do between the fifth and sixth weeks of fetal development) in cases of wandering spleen resulting in the absence of one or more suspensory splenic ligaments or their aberrant development [3, 4].

Connective tissue abnormalities, multiparity, hormonal shifts during pregnancy, splenomegaly, trauma, and weak abdominal walls are a few acquired factors that are considered to contribute to the laxity of these ligaments [2-4]. The increased ligament elasticity caused by hormonal changes after pregnancy may explain why more multiparous females develop a wandering spleen [4, 5, 6].

A lengthy pedicle including the splenic arteries and, frequently, the pancreatic tail is a result of both congenital and acquired disorders. The spleen is more prone to torsion because of the lengthy pedicle's hypermobile condition [6].

Splenic torsion ranges from moderate (90 degrees) to severe (160 degrees). Chronic abdominal discomfort from splenic congestion is a common complaint among patients with incomplete mild torsion. Some patients may also experience pancytopenia from hypersplenism [6, 7].

Almost 500 cases of wandering spleen have been documented, predominantly in people between the ages of 20 and 40 years, with women being more victimized in one-third of cases. Boys and girls under the age of ten are equally afflicted, whereas older persons are less impacted [6, 7].

The most common way that a wandering spleen is discovered is during a physical examination as a palpable abdominal mass [2], as in our case a palpable mass was felt in the right lower quadrant. The symptoms may vary depending on the consequences of the condition and its impact *e.g.* on other abdominal organs; for instance, if a wandering spleen causes an intestinal obstruction, the patient may have one or more abdominal pain, discomfort, abdominal distention, vomiting, and constipation [7, 8].

The hypermobile spleen is prone to torsion and infarction resulting in an acute abdomen and a life-threatening condition with a high mortality rate reaching 50% [7].

The patient may exhibit peritonitis symptoms, including signs and symptoms of shock caused by hemoperitoneum if the condition develops with torsion of the pedicle leading to infarction and/or splenic rupture [2, 3]. Additional uncommon disorders linked to

a wandering spleen include acute pancreatitis caused by pancreatic tail inflammation affecting the lienorenal ligament [8].

There has been a reported correlation between the wandering spleen and horseshoe kidney, pancreatic volvulus, mesenteric varices, portal hypertension, and gastric volvulus [8].

In adults, CT is regarded as the most effective diagnostic method for a wandering spleen because of the wide range of symptoms and severe side effects, such as sepsis, splenic rupture, and acute pancreatitis [9]. The most distinguishing CT findings are the lack of the spleen in its usual location and the presence of a soft tissue mass that resembles the spleen elsewhere in the abdomen or pelvis [8, 9].

The splenic pedicle's whirlpool sign which is also seen on other organ torsions such in the mesenteric root or the testicular vessels is highly specific for splenic torsion [6]. The whirl appearance of splenic vessels and surrounding fat typically observed near the splenic hilum, is perhaps the most specific indicator of torsion and should not be confused with bowel intussusception [9, 10].

Surgery is the gold standard treatment for a wandering spleen. Splenectomy or splenopexy, depending upon the condition of the spleen and the clinical condition of the patient is the preferred treatment in viable organs [10].

CONCLUSION

A wandering spleen is rare, and when complicated by torsion and infarction, it turns into a surgical emergency due to a high mortality rate. It is important to diagnose the condition as early as possible to avoid associated complications.

CONSENT FOR PUBLICATION

The patient's permission has been obtained.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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