

## CASE REPORT

# TORSION OF WANDERING SPLEEN AND TAIL OF PANCREAS

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Wandering spleen is a clinical entity in which a long pedicle causes the spleen to lie in an abnormal location. Here we report the clinical and imaging findings of a rare case in which torsion of a wandering spleen was associated with torsion of the tail of pancreas.

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**Keywords** • spleen • torsion • wandering spleen

### Introduction

The spleen is held in its position, in the left upper quadrant of the abdomen, by suspensory ligaments. Wandering spleen is defined as splenic hypermobility because of laxity or maldevelopment of its ligaments. During fetal life, the spleen develops in the dorsal mesogastrium, which divides into dorsal and ventral segments. The dorsal segment, which is located between the spleen and the left kidney, forms the splenorenal ligament, including the tail of the pancreas and the splenic vessels. The ventral segment forms the gastrosplenic and gastrocolic ligaments.

Wandering spleen may result from congenital ligamentous disorders and sometimes is accompanied by congenital diaphragmatic hernia.<sup>1</sup>

### Case Presentation

A 44-year-old woman was admitted to our department after an episode of hematemesis in the previous 2 weeks. She had constipation and intermittent periumbilical pain radiating to the shoulder. In all of her five pregnancies, the infants were delivered by cesarean section.

Physical examination revealed pallor and a firm, well defined, tender mass in the mid-abdominal region. Laboratory studies showed a hemoglobin level of 9.1 g/dL, mean corpuscular

volume 59.8 fL, mean corpuscular hemoglobin (MCH) 19.2 pg and MCH concentration 32.2 g/dL. The white blood cell count, serum iron and total iron-binding capacity were normal. Computerized tomography (CT) showed absence of the spleen in its fossa, but a heterogenous mass with a whirled pedicle compatible with torsion of a wandering spleen (Figure). Torsion of an infarcted wandering spleen and tail of the pancreas was evident during surgery.

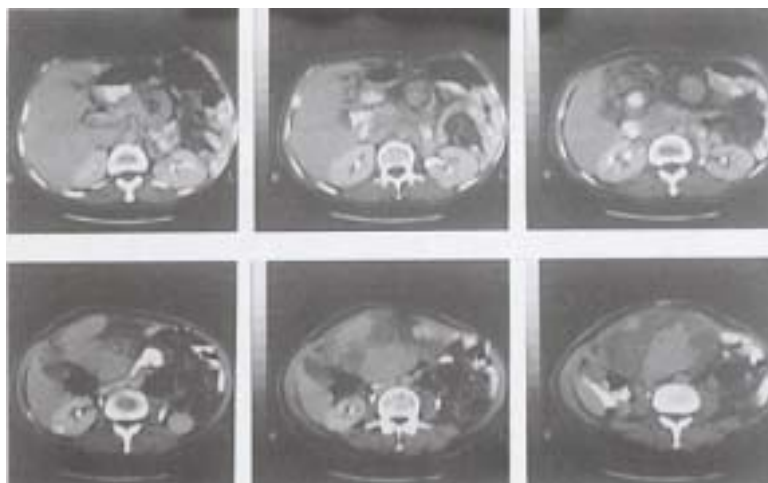
### Discussion

Hormonal changes and abdominal laxity due to pregnancy may play a role in the development of acquired wandering spleen.<sup>2,3</sup> Other suggested etiologies include prune-belly syndrome, splenomegaly, trauma, hematologic disorders and infection.<sup>1,4,5</sup>

The incidence of this condition is less than 0.2%.<sup>3</sup> It has been reported to occur from the second day of life to the age of 81 years. Before the age of 10, the sex distribution is even; after that, the female-to-male ratio is 7:1. The disease can be asymptomatic and only incidentally detected as a firm, mobile and notched abdominal mass. Partial torsion causes splenomegaly, hyper-splenism, gastric fundal varices and abdominal pain, while complete torsion results in infarction, subcapsular hematoma, intrasplenic cyst formation or functional asplenia.<sup>5</sup> Entrapment of the pancreas in a twisted hilum may lead to pancreatitis and ascites. Bowel or urinary obstruction, dysuria and menstrual disturbances are less common.<sup>6</sup>

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**Figure.** Computed tomography showing the tail of the pancreas in a whirled pedicle of the spleen (first row). The spleen was lying in the mid-abdomen and was enlarged with multiple infarctions (second row).

Plain abdominal radiographs in supine and erect positions may show the wandering spleen as a mobile mass. Bowel loops fill the splenic fossa; thus, one cannot see any shadow in this region. On intravenous pyelogram, elevation of the left kidney and lack of a splenic impression over it may be evident. On lateral radiographs, the spleen is anterior to the kidney,<sup>4</sup> and on barium enema, the splenic flexure is often displaced anteromedially. The stomach may lie in the splenic fossa and appear inverted. On ultrasonography, the spleen is not in its usual location, but a solid mass with echo characteristics of the spleen may be found. Splenic infarction may reduce the echogenicity. Enlargement of the distal pancreas with heterogeneous echogenicity suggests torsion. After the occurrence of torsion, no intraparenchymal blood flow can be found, and the splenic artery shows a resistance index of more than 80% on Doppler study. To avoid missing low-amplitude blood flow in the spleen, flow must be detectable immediately above and below the splenic tissue.<sup>7</sup>

CT shows no splenic tissue in the normal location, but a notched abdominal mass. Hypertrophy of the left lobe of the liver can be obvious on CT imaging. The most specific sign of torsion is a whirled appearance of splenic vessels and the presence of fat in the hilar region.<sup>8</sup> The whirled appearance represents the twisted pedicle with or without the pancreas. Hyperdensity of splenic vessels may be due to acute thrombosis. A thick, enhancing pseudocapsule representing omental and peritoneal adhesions has been observed in cases with chronic torsion.<sup>9</sup> Infarcted parts of the spleen appear as low-density areas.

<sup>99m</sup>Tc scintigraphy also shows the abnormal location of the spleen. A previously visualized wandering spleen will not be seen on repeated scintigraphy if torsion occurs. In patients with a chronic condition, angiography can determine the exact site of torsion and gastric varices.

## References

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