

## SPLENIC ABSCESS IN WANDERING SPLEEN

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The spleen is fixed in its position, in the left upper quadrant of the abdomen by suspensory ligament. Wandering spleen is a rare entity in which the spleen is attached by a long, vascular pedicle causing splenic hypermobility because of laxity or maldevelopment of its ligaments. Here is a report of one case of wandering spleen with complicated splenic abscess in a pediatric patient.

### CASE REPORT

An eight-months-old child presented with abdominal distension, fever and nausea/vomiting after eating. Physical examination revealed an enlarged spleen (10 cm. below left costal margin). Laboratory investigation showed mild anemia (haemoglobin 9.8 g/dL, haematocrit 31.2%, peripheral smear-normocytic, mildly hypochromic anemia with lymphocytosis). Plain film shows no soft tissue shadow at splenic region which replaced by much overlying bowel gas (Fig. 1). Computed tomography revealed no spleen at the normal location (Fig.2) but located at left

mid-abdomen. The splenic hilum showed a whorled appearance with alternating high and low attenuation areas corresponding to enhancing vessels and fat respectively. Rim enhancing, low attenuation lesion, 7.5x3.5x5 cm. in size, is seen as ectopic spleen (Fig 3). Radiological diagnosis of splenic abscess secondary to torsion of wandering spleen was made. Emergency laparotomy found splenic torsion and abscess in the ectopic spleen, then splenectomy was done. The patient was discharged after an uneventful postoperative period.

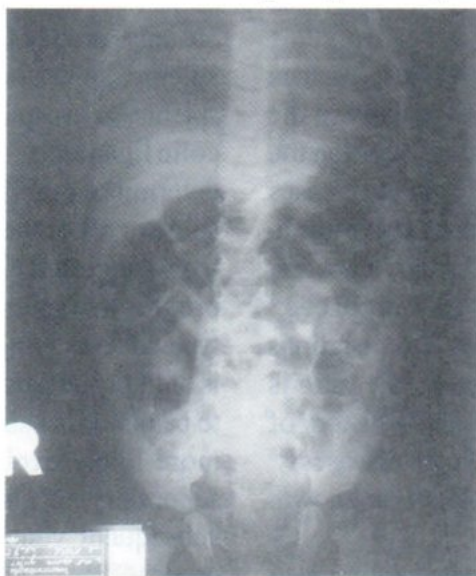
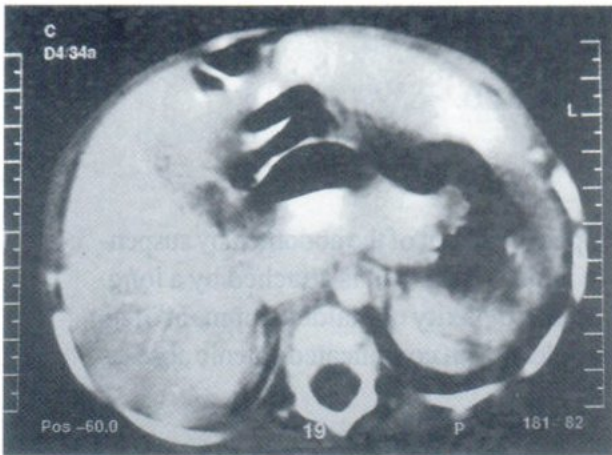


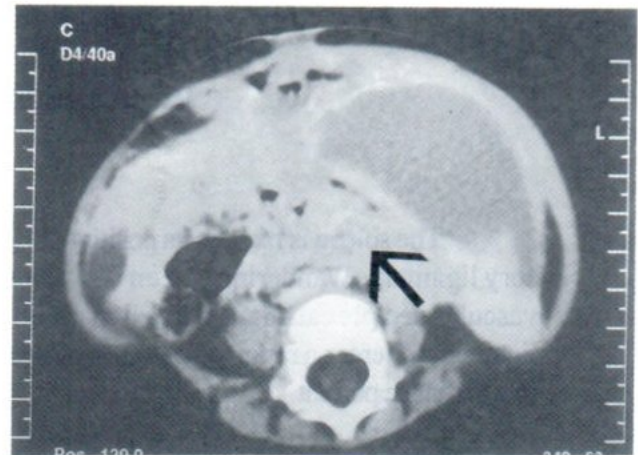
Fig. 1

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**Fig. 2** No spleen is present in normal location.



**Fig. 3** Low-attenuating lesion in ectopic spleen and whorled appearance at splenic hilum (arrow)

## DISCUSSION

Van Home, a Dutch Physician, is credited with describing this condition in 1667 after performing an autopsy. In 1875, Martin, a German obstetrician, performed the first splenectomy for a wandering spleen. Ten years later, splenopexy was described and considered superior to splenectomy, a differential preference that changed several times over the years. Since Van Home's discovery, approximately 400 cases of wandering spleen have been reported worldwide.

The incidence of wandering spleen is less than 0.2%.<sup>1</sup> Wandering spleen is rare, especially in the pediatric population. It usually occurs between the ages of 20 and 40 years, and 70% to 80% of cases are seen in women: most are of reproductive age at the time.<sup>2</sup> Children make up one third of all cases, and 30% of them are younger than 10 years of age.<sup>3</sup> Under the age of 10 years, the male: female ratio is 1:1, but for those older than 10 years, the ratio is 1:7.<sup>6-9</sup> Some case reports have included a history of malaria, trauma, or benign hematologic diseases,<sup>4-8</sup> but the relationship to wandering spleen is unknown.

This variable incidence of wandering spleen according to age and sex can be explained by the two possible etiologies of this condition, which are acquired or congenital. The acquired form occurs in

multiparous women as a result of hormonal changes during pregnancy. This causes a slackening of the abdominal wall and laxity of the ligaments normally attached to the spleen. In the congenital form, there is failure of normal development of the dorsal mesogastrium when the lesser sac is formed. Therefore, attachments of the dorsal mesentery to the posterior peritoneum and diaphragm are faulty. In this form, suspensory ligaments of the spleen are not formed, or are only partially formed. These include the phrenicosplenic, splenorenal, phrenicocolic, pancreaticosplenic, gastrosplenic, splenocolic, and pancreaticocolic ligaments. The length of its vascular pedicle determines mobility of the spleen in the absence of some or all of these ligaments. Some case reports have suggested that wandering spleen is a result of progressive splenomegaly due to diseases such as typhoid fever, lymphoma, and especially malaria. This is unlikely because some wandering spleen is found to be of normal size or only moderately enlarged. A more likely explanation is that splenomegaly is secondary to chronic or recurrent torsion and subsequent venous congestion, not the primary process.<sup>9-11</sup>

Patients with wandering spleen may have an asymptomatic mass, a mass with abdominal pain, or



an acute abdomen. Sixty percent have a mass and pain. Acute torsion may precipitate fever, vomiting, and acute abdominal pain,<sup>12</sup> while recurrent, chronic torsion and detorsion may present as intermittent colicky pain, or vague abdominal discomfort.<sup>13</sup> Torsion can be precipitated by any movements of the body, changes in intra-abdominal pressure during respiration, or peristalsis or distention of adjacent organs.<sup>10</sup> Acute pancreatitis may be associated due to incorporation of the tail of the pancreas in the splenic vascular pedicle. Gastric compression or distension may also occur.<sup>4,14</sup>

Complication of wandering spleen includes infarction, gangrene, splenic abscess, variceal hemorrhage, and pancreatic necrosis.<sup>14-17</sup>

Given the rarity of wandering spleen and its nonspecific symptoms, early diagnosis is difficult. Some authors<sup>18,19</sup> suggest that the diagnosis can be made with certainty if the following criteria are met: (1) palpation of a mass with a notched edge; (2) mobility of the mass, which is painless in the left upper quadrant and painful in other directions; (3) resonance on percussion in the left upper quadrant; and (4) chronic intermittent pain. Wandering spleen can mimic several entities: tubo-ovarian abscess, ovarian cyst with torsion, uterine fibroid, urinary tract infection, acute appendicitis, intestinal obstruction, diverticulitis, colon cancer, cholecystitis. Laboratory values are often non-specific, however leucocytosis is generally present. Diagnosis of wandering spleen is very difficult with physical exam alone and often requires radiologic confirmation.

The diagnosis of wandering spleen can be confirmed radiographically, but there is still debate concerning which test is the most appropriate. Plain abdominal films may reveal a central abdominal mass with loops of bowel in the left upper quadrant. Barium enema may show a mass with medial and anterior displacement of the splenic flexure. Upper gastrointestinal tract studies may show an empty splenic fossa with a malpositioned stomach. Ultrasonography may

show a solid mobile mass and absence of the spleen in the left upper quadrant. Doppler ultrasonography of the splenic vessels can be used to evaluate flow. Liver-spleen scans show splenic displacement, as well as the functional state of the spleen. In cases with torsion and ischemia, the spleen is absent and only the liver can be seen. CT of the abdomen may most often be suggestive of the diagnosis. Arteriography allows definitive evaluation of the splenic vasculature and signs of left-sided portal hypertension, if present.

Duplex ultrasonography and CT have gained popularity as the tests that can most easily and safely be used to diagnose wandering spleen. Ultrasonography may be limited by bowel gas or habitus, but one should be able to see an enlarged ectopic, hypoechoic mass with no flow in the splenic parenchyma (if torsion has occurred), decreased splenic arterial flow, and increased vascular impedance. CT shows wandering spleen and delineated other anatomic relationships. It may show absence of the spleen in its normal location, anterior to the left kidney and posterior to the stomach. The ectopic spleen can be seen as an abdominal or pelvic mass with an attenuation value lower than that of the normal spleen. Occasionally, ascites or necrosis of the pancreatic tail and torsion of the splenic vessels and surrounding fat (which appears whirled) can be seen. If torsion is chronic, a thick pseudocapsule is evident. The spleen is not enhanced by intravenous contrast medium if torsion has occurred and blood supply is lost.<sup>4,10,13-16,20-21</sup>

Definite treatment for wandering spleen is operative, since nonoperative treatment is associated with a complication rate as high as 65%. Complication of wandering spleen includes infarction, gangrene, splenic abscess, variceal haemorrhage, and pancreatic necrosis. Historically, splenectomy has been used for wandering spleen, but with increased understanding of the spleen's function, splenopexy with splenic salvage is now the procedure of choice in children. However, the decision to perform splenopexy versus splenectomy depends on both the timing of clinical presentation and the appearance and viability of the



spleen intraoperatively. In the emergent setting, the diagnosis of wandering spleen is usually made at laparotomy because patients present with an acute abdomen. The decision to perform splenopexy or splenectomy depends on the viability of the spleen after detorsion. If the spleen appears infarction, a splenectomy should be performed. Splenopexy is a reasonable option when the spleen appears viable after detorsion and the splenic vein is not thrombosed. Results of splenopexy are considered good.

## CONCLUSION

Wandering spleen is a rare entity arising from the failure of fusion of the dorsal peritoneum. Splenic torsion should be recognized as a cause of an acute abdomen. Early diagnosis is difficult and is best done with a thorough clinical history, physical examination, and either duplex ultrasonography or CT. Definite treatment is surgical.

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