Torsion of Wandering Spleen: Diagnosis using Magnetic Resonance Imaging

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Introduction

Wandering or ectopic spleen is a condition characterized by migration of the spleen from its normal location to any other location in the abdomen or pelvis. This anomaly is rare, with a reported incidence of less than 0.2% [1]. It usually occurs between 20 to 40 years of age mostly in women. Clinical diagnosis is difficult because of lack of precise signs and symptoms and non-specific laboratory data. Imaging studies play an important role in confirming the diagnosis. Treatment is operative with the choice between splenopexy in a non-infarcted spleen and splenectomy when infarction has occurred.

We report a rare case of wandering spleen with infarction due to torsion of its pedicle, which was diagnosed using magnetic resonance imaging.

Case Report

A 25 year old lady presented with pain in the left upper quadrant of 4 days duration associated with nausea and vomiting. Physical examination revealed diffuse guarding of the abdomen without rebound tenderness. A firm tender mass was palpable in the lower abdomen on the left side. Plain radiographs in the supine and erect positions were normal. The patient underwent ultrasonography of the abdomen which revealed absence of spleen in its normal location with the splenic fossa containing bowel loops. A solid mass measuring 17x9x6cm with echotexture similar to the spleen was noted in the lower abdomen on the left side. The patient underwent an MRI scan of the abdomen which confirmed absence of spleen in the left upper quadrant and an enlarged spleen in the the lower abdomen, antero-inferior to the Lt Kidney (Fig 1). In addition a well-defined wedge shaped area of hyperintensity on T2 weighted image was seen extending from the periphery towards the splenic hilum consistent with an area of infarction (Fig 2). The MR study also revealed whorled appearance of the splenic vessels consistent with torsion of the splenic vessels (Fig 3). A diagnosis of wandering spleen with infarction due to torsion of splenic vessels was

made. Per-operative findings were in agreement with the MR study and patient underwent successful splenectomy.

Discussion

The spleen is anchored in its normal position by the gastrosplenic and the splenorenal ligaments [2]. Failure of normal development of the dorsal mesogastrium when the lesser sac is formed, leads to defective attachment of the dorsal mesentery to the posterior peritoneum and the diaphragm leading to congenital wandering spleen. Acquired factors for splenic mobility include abdominal wall laxity, hormonal effects of pregnancy

Fig. 1 : Sagittal T2 weighted MRI of the abdomen showing an ectopic spleen which is antero-inferior to the left kidney. Infarction in the spleen is seen as wedged shaped hyperintense area

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Fig. 2 : Axial T2 weighted MRI of the abdomen showing a wedged shaped hyperintense area within the spleen consistent with a large area of infarction.

and splenomegaly. This explains why 70 to 80% of cases of wandering spleen are seen in women in the reproductive age group [3].

The disease can be asymptomatic and detected incidentally as a firm, mobile and notched abdominal mass. Partial torsion causes splenomegaly, hypersplenism, gastric fundal varices and abdominal pain, which is seen in 60% of patients. Complete torsion results in infarction, subcapsular haematoma, intrasplenic cyst formation or functional asplenia [4]. Entrapment of the pancreas in a twisted hilum may lead to pancreatitis and ascites.

Plain abdominal radiographs in supine and erect positions may show the wandering spleen as a mobile mass with presence of bowel loops in the splenic fossa. On ultrasonography, the spleen is not seen in its usual location, but a solid mass with echo characteristics of the spleen may be found elsewhere in the abdomen. Splenic infarction is seen as a focal area of reduced echogenicity.

Absence of intraparenchymal blood flow with a resistance index of the splenic artery of more than 80% on Doppler imaging is consistent with splenic infarction [5]. Cross sectional imaging like computerized tomography and magnetic resonance imaging are more specific and show absence of splenic tissue in the normal location with presence of a notched mass elsewhere in the abdomen. The specific sign of torsion is a whorled appearance of splenic vessels in the hilar region [6]. The whorled appearance represents the twisted pedicle which may contain part of the pancreatic tail.

Fig. 3 : Axial T2 weighted MRI of the abdomen showing a whorled appearance of the splenic vessels representing torsion

Hyperdensity of splenic vessels on unenhanced CT and absence of flow voids on MR imaging may be due to acute thrombosis. A thick, enhancing pseudocapsule representing omental and peritoneal adhesions has been observed in cases with chronic torsion. Infarcted parts of the spleen appear as low-density non-enhancing areas on CT and as hyperintense regions on T2 weighted MR scans.

Definitive treatment for wandering spleen is operative, since non-operative treatment is associated with a complication rate of about 65% [7]. Splenopexy with splenic salvage is now the procedure of choice, as long as there is no evidence of infarction [8].

References

1. Gore R, Levin M. Textbook of gastrointestinal radiology. 2nd ed. Philadelphia: WB Saunders; 2000: 1866-9.
2. Larsen WJ. Development of the gastrointestinal tract. In: Larsen WJ, ed. Human embryology (2nd ed). New York: Churchill Livingstone, 1997:229-59.
3. Allen KB, Gay BB Jr, Skandalakis JE. Wandering spleen: anatomic and radiologic considerations. South Med J 1992; 85: 976-84.
4. Balik E, Yazici M, Tanelli C. Splenoptosis (Wandering spleen). Eur J Pediatr Surg 1993; 3: 174-5.
5. Nemcek AA, Miller FH, Fitzgerald SW. Acute torsion of a wandering spleen: diagnosis by CT and duplex Doppler and color flow sonography. Am J Roentgenol 1991; 157: 307-9.
6. Raissaki M, Prassopoulos P, Daskalogiannaki M, Magkanas E, Gourtsoyiannis N. Acute abdomen due to torsion of wandering spleen: CT diagnosis, Eur Radiol 1998; 8: 1409-12.
7. Thompson J, Ross R, Pizzaro S. The wandering spleen in infancy and childhood. Clin Pediatr 1980; 19:221-4.
8. Abell I. Wandering spleen with torsion of the pedicle. Ann Surg 1993; 98: 722-35.