Wandering spleen and splenic torsion associated with upper respiratory tract infection

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ABSTRACT

Torsion of a wandering spleen is a rare cause of acute abdomen in pediatric patients. Congenital absence of the splenic ligaments predisposes the spleen to axial rotation around its vascular pedicle and may lead to infarction. Computed tomography and/or ultrasound are valuable in making a timely diagnosis. Detorsion and splenopexy permit splenic salvage, potentially reducing late post-splenectomy associated complications. We report the case of a 9-year-old female with an upper respiratory tract infection and infarction of a wandering spleen. We review the literature on the management of this condition and hypothesize that vigorous coughing associated with upper respiratory infections may have caused the wandering spleen to undergo axial rotation around its pedicle.

The diagnosis of splenic torsion with infarction was made and exploratory laparotomy was performed through a left subcostal incision. The spleen measured 15 cm in length. The normal splenic suspensory ligaments (gastrosplenic, colicosplenic, phrenocolic, and splenorenal) were absent (Fig. 3). Doppler probe revealed pulsatile flow proximal to the clockwise 360° splenic pedicle torsion but there was no flow at the distal hilum. The spleen was detorsed by rotating it counterclockwise. Hilar doppler signals remained absent and the spleen remained cyanotic. Splenectomy was performed. Histopathologic examination demonstrated diffuse hemorrhagic necrosis of the spleen.

The patient was discharged 2 days later after receiving vaccinations against influenza, meningococcus, and pneumococcus. An indefinite period of prophylactic antibiotics was planned.

2. Discussion

Spleenic hypermobility (wandering spleen) occurs from the failure of fusion between the dorsal mesogastrium and the posterior abdominal wall during embryogenesis [6]. The wandering spleen has occasionally been seen in association with other conditions in which normal intraabdominal fixation has not occurred (prune-belly syndrome, renal agenesis, gastric volvulus, diaphragmatic...
eventration, and congenital diaphragmatic hernia) [7]. Generalized connective tissue diseases such as marfanoid hypermobility can lead to increased laxity of existing splenic ligaments and wandering spleen [8]. Splenomegaly, resulting from lipid accumulation due to type C Niemann–Pick disease has also been reported to be a cause of a wandering spleen [9].

Children with wandering spleen most commonly present with an acute abdomen after torsion of the splenic vascular pedicle [7]. Subsequent infarction, necrosis, and gangrene may cause peritonitis, intestinal obstruction, variceal hemorrhage, and necrosis of the pancreatic tail [6,8,10,11]. Patients may also present with chronic or intermittent pain when partial torsion followed by spontaneous detorsion of the splenic pedicle occurs [3,4,10]. These patients may present with nausea, emesis, fever, leukocytosis, and peritoneal irritation [6,10].

CT and ultrasonography may demonstrate a distinctive comma-shaped spleen in an abnormal location [10]. Doppler flow studies may reveal absent flow within the splenic artery and vein, and CT may show the classical "whorl" sign indicative of a twisted pedicle [5,8,10]. The disadvantages of CT include the need for general anesthesia in younger children and radiation exposure [6]. Ultrasonography is useful and avoids radiation, but in our experience, it may be impossible to clearly evaluate the splenic pedicle in the common situation of massive splenic enlargement [12].

Historically, the treatment for a wandering spleen, whether torsion was present or not, was splenectomy [4,10,11]. However, preservation of the spleen is desirable to avoid overwhelming post-splenectomy sepsis [3,4,11]. Splenopexy is performed if there is no evidence of infarction, thrombosis, or hypersplenism [2–4]. The procedure may involve creating an in-situ tissue pouch using omentum or colon, or by using an absorbable or synthetic mesh to fix the spleen [3,7]. Splenectomy is the treatment of choice if the spleen is infarcted, in danger of rupture, or if there is splenic vein thrombosis [2,4].

3. Conclusion

Most cases of wandering spleen complicated by splenic torsion occur in the setting of nonexistent/abnormal splenic attachment in the absence of other predisposing factors. However this patient presented after a period of vigorous coughing raising the possibility that abdominal wall spasm/contraction may have predisposed to torsion. Centonze et al. report a patient who presented with a wandering spleen in the setting of chronic cough [9].
Torsion of a wandering spleen is a rare cause of an acute abdomen in pediatric patients. Optimal treatment requires a heightened awareness, early diagnosis, and prompt surgical intervention. If diagnosed promptly, detorsion and splenopexy permit splenic salvage, avoiding post-splenectomy associated complications. CT scan with intravenous contrast and/or color doppler ultrasonography are useful adjuncts in making the diagnosis.

Conflict of interest
The authors have no conflicts of interest.

References