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Splenic cyst in a wandering spleen: laparoscopic treatment with preservation of splenic function

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Abstract

Background: Wandering spleen and splenic cyst are rare benign congenital conditions that can both cause severe complications related to torsion or trauma.

Case Report: A 14-year-old girl presented a mobile 10-cm-long abdominal mass in the left lower quadrant associated with mild abdominal pain.

The diagnosis of an 8-cm-long nonparasitic cyst in a wandering spleen was confirmed by computerized tomography and negative serum indirect hemagglutination titer for hydatid disease.

Laparoscopic unroofing of the cyst and splenopexy in a vycril mesh was performed.

Results: No problems were encountered during laparoscopic surgery. Postoperative course was uneventful, and at a 1-year follow-up, the spleen is viable and maintains a normal position in the phrenorenal angle.

Conclusions: In the child, treatment of wandering spleen associated with a cyst should aim at the prevention of vascular accidents and at conservation of the spleen. We achieved these goals with unroofing and splenopexy through laparoscopic surgery.

Wandering spleen (WS) is characterized by the absence of the normal ligamentous attachments of the spleen. The spleen is suspended only by its hilar vessels and portions of the gastrosplenic ligament [1,2]. The condition predisposes the spleen not only to twist around its pedicle but also to an increased risk of traumatic injury owing to its more superficial location [3,4]. Torsion of the spleen almost always leads to splenectomy because of infarction of the spleen. Elective surgery is therefore desirable.

Nonparasitic splenic cysts (SC) include posttraumatic pseudocysts, lymphatic vascular malformations, teratomas, and congenital epithelial cysts, which are the most frequent among those with a wall lining [5-7]. Enlargement of the cyst weakens the organ, which can be easily damaged with minor trauma.

Both WS and SC are rare conditions particularly in the pediatric population. The combination of both conditions is even rarer, and only very few cases have been reported in the pediatric literature [8,9].

We report our experience with laparoscopic surgery in this very rare condition.

1. Case report

A 14-year-old girl was referred to our Department of Pediatric Surgery for evaluation of an abdominal mass.

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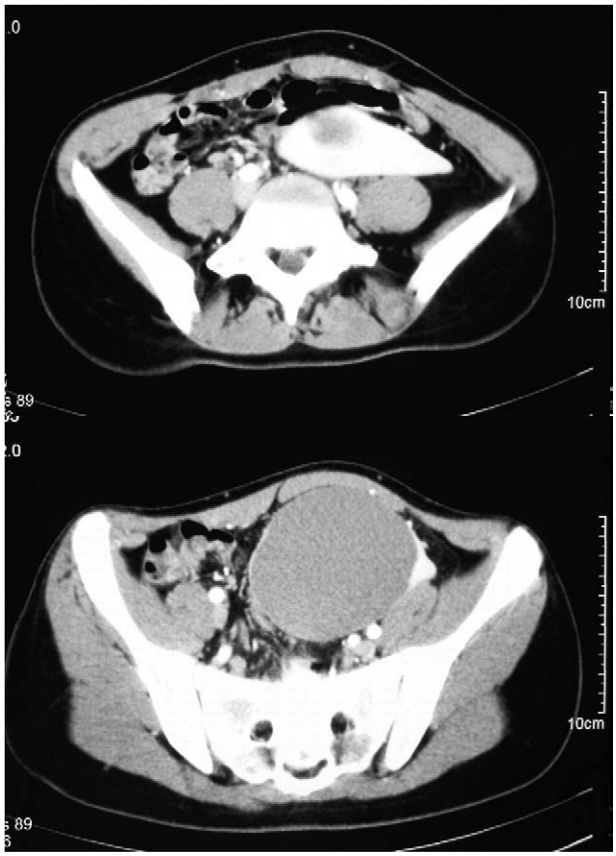

Fig. 1 Abdominal computed tomography scan: large mass situated below the lower pole of the left kidney, containing a large, low-density lesion showing no sign of enhancement after contrast medium infusion. (The spleen was not visualized in its normal site).

The previous medical history was unremarkable. Physical examination revealed a mobile, slightly tender mass in the left lower abdominal quadrant.

Ultrasound scan demonstrated a hypoechogenic 8-cm-long ovoid cyst almost completely surrounded by a homogeneous mass of hecogenicity resembling that of splenic parenchyma. Computed tomography scan showed a large mass extending from the lower pole of the kidney to the pelvic cavity. A scan with contrast confirmed a 2-compartmental nature of the mass characterized by parenchyma surrounding a nonenhanced cyst (Fig. 1). Serology for hydatid disease was negative.

Diagnostic findings were compatible with a WS containing a nonparasitic cyst.

We opted for laparoscopic surgery with the aim of unroofing the cyst and relocating the spleen in its anatomic site.

Surgery was performed through four 10-mm trocars. Three trocars were positioned in the area between the xyphoid process and the umbilicus and one in the left flank.

Pneumoperitoneum was held at about 12 mm Hg.

The spleen was mobile in the lower left abdomen and had a normal macroscopic appearance except for its most lateral aspect where the cyst wall reached the surface.

Needle puncture of the cyst yielded 400 mL of a brown liquid. Unroofing of the cyst with a harmonic scalpel (Johnson & Johnson) caused the surrounding thin layer of the parenchyma to collapse.

The spleen was inserted in a bag of vycril mesh, which was fixed by unabsorbable stitches in the left hypocondrium and covered with omentum (Fig. 2).

Small serosal scarifications of the abdominal wall adjacent to the mesh were produced to induce further adhesions with the mesh.

Total operative time was about 180 minutes, and the procedure was without complications.

Microscopic examination of the removed specimens showed a benign structure lined with stratified squamous epithelium.

Postoperative course was good, and the girl was allowed home on the fourth postoperative day.

After 1 month, the girl was allowed to resume her previous activities without restrictions.

At 1 year follow-up, at intervals of 3 months, Doppler ultrasound showed a spleen that remains well perfused and rests in a normal position; blood count values remain in the reference range.

2. Discussion

The WS and SC, taken singularly, are rare findings. The prevalence of WS has been reported to be less than 0.5% [10], whereas the occurrence of a SC in a WS has hardly ever been estimated in the literature by authors who have had experience with this pathology [8,9,11-13].

There is the likelihood that the coexistence of these two rare entities predisposes the spleen to a higher incidence of complications. The WS is subject to traumatic or hischemic events as suggested by the fact that some SC

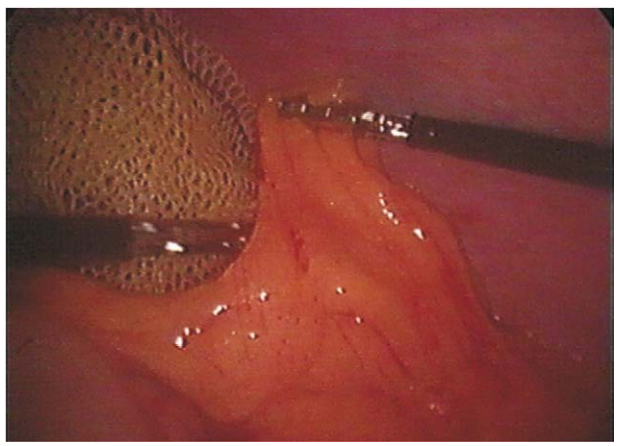

Fig. 2 The WS, fixed into a vycril mesh bag in the left upper hypocondrium, is being covered with omentum.

are without an epithelial lining. Congenital epithelial SC can undergo enlargement from intracystic hemorrhage or inflammatory fluid accumulation probably initiated by benign trauma of the abdomen transmitted to a superficially located cyst in the WS [8,11,14].

The presumed high rate of complications of the disease makes a correct diagnosis important especially in the asymptomatic patient because this diagnosis warrants elective surgery as opposed to other pelvic masses such as accessory spleens or pelvic kidney, which will not need a treatment.

Historically, treatment of symptomatic WS was splenectomy to prevent recurrence and acute complications [3,11]. Currently, splenopexy is preferred to avoid the septic and immunologic risks of splenectomy, and several reposition techniques have been described including formation of an extraperitoneal pocket [15], colonic displacement, suture splenopexy, and absorbable mesh attachments or bags [2].

To the best of our knowledge, splenectomy continues to be the treatment of choice for SC in a WS [12,13]. Initial attempts to save the WS with a SC with laparoscopic surgery were unsuccessful, and splenectomy became necessary [12]. Our experience with laparoscopic splenectomy [16,17] led us to reconsider a laparoscopic approach for the treatment of this patient. Our aim was to try a conservative procedure as opposed to splenectomy. Unroofing and splenopexy were easily accomplished. The patient had an uncomplicated recovery.

Treatment of a SC in a WS certainly depends on its clinical presentation, type of disease, and functional reservoir of the spleen. Our case report demonstrates that unroofing and splenopexy of a WS with a SC can be performed laparoscopically and should be a treatment consideration for these patients.

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