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Laparoscopic partial splenectomy for congenital splenic cyst in a pediatric patient: Case report and review of literature

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ABSTRACT

Non-parasitic splenic cysts (NPSC) are a rare condition that makes difficult to know their true incidence and represent 10% of all benign splenic cysts, they can be either congenital with the presence of epithelial lining that originate from invagination of the capsular mesothelial lining or post-traumatic with absence of epithelial lining. We present our management of a splenic congenital cyst in a pediatric patient. A 10-year-old female patient presented to the clinic complaining with a 3-week abdominal pain at the left upper quadrant. An ultrasound showed an enlarged spleen with a thinned walled cystic image on the lower pole of 5 cm. An abdominal CT confirmed the presence of a splenic cyst at the lower pole of the spleen of 5 cm in diameter. Three-port laparoscopic partial splenectomy was done isolating and dividing the lower splenic artery and vein and the lower pole of the spleen with a vessel sealing device. Management of a non-parasitic splenic cyst is controversial: cystectomy, fenestration, percutaneous drainage and sclerotherapy have been previously described, most of them aiming to preserve spleen function and avoiding overwhelming post-splenectomy infection. Partial splenectomy seems the most effective one in terms of preserving spleen function and avoiding recurrence.

1. Introduction

Non-parasitic splenic cysts (NPSC) are a rare condition that makes difficult to know their true incidence and represent 10% of all benign splenic cysts [2–4]. NPSC are classified based on the presence (congenital) or absence (post-traumatic) of epithelial lining [3]. Management of a non-parasitic splenic cyst is controversial: cystectomy, fenestration, percutaneous drainage and sclerotherapy, partial or total splenectomies have all been described [5–8]; some authors conclude that splenic tissue preservation is recommended to avoid the overwhelming post-splenectomy infection (OPSI) [9]. Here in, we present our management of a splenic congenital cyst in a pediatric patient.

2. Case report

A 10-year-old female patient presented to the clinic complaining with a 3-week abdominal pain at the left upper quadrant. The patient did not have previous medical history. Immunizations were up to date including against *S. pneumonae, N. meningitidis, H. Influenzae*. Weight 34.7 kg, Height 140 cm. Physical examination showed the presence of a left upper quadrant mobile mass with 7 of 10 scale of pain on palpation with no other findings. An ultrasound showed an enlarged spleen with a thinned walled cystic image on the lower pole of 5 cm. An abdominal CT confirmed the presence of a solitary splenic cyst at the lower pole of the spleen of 5 cm in diameter without calcifications (Fig. 1). The patient was then scheduled for surgery. The patient was placed on a right lateral decubitus position. Pneumoperitoneum was done using a Veress needle technique using 15 mm of Hg of intraabdominal pressure. A three port laparoscopic partial splenectomy was done by using one umbilical 12 mm port, and two more 5 mm ports; a 5 mm 30° scope was used; after division of the lower pole short gastric vessels, the lower pole splenic artery was identified and divided with and endo GIA ™ white load stapler 60 mm which was introduced through the 12 mm umbilical port (Fig. 2). Once we divided the lower pole splenic artery it became ischemic, and a demarcation line was observed between poles. The lower pole splenic vein was then divided with clips and a vessel-sealing device (LigaSure ™). The partial splenectomy was completed using vessel-sealing device through the ischemic demarcation line previously observed, and the splenic bed bleeding was controlled using monopolar cautery

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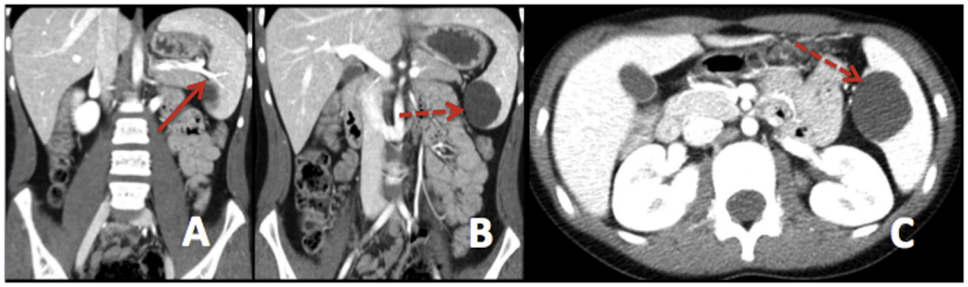

Fig. 1. (A) CT angiogram showing the splenic artery (red arrow) and (B,C) the splenic lower pole cyst (red dashed arrow).

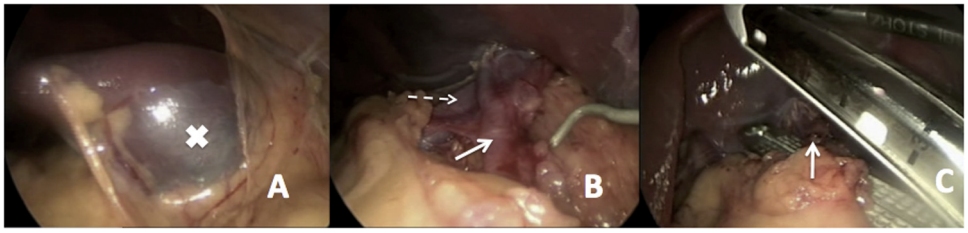

Fig. 2. (A) Laparoscopic view of the splenic lower pole cyst (x), (B, C) and the lower pole splenic artery (white arrow).

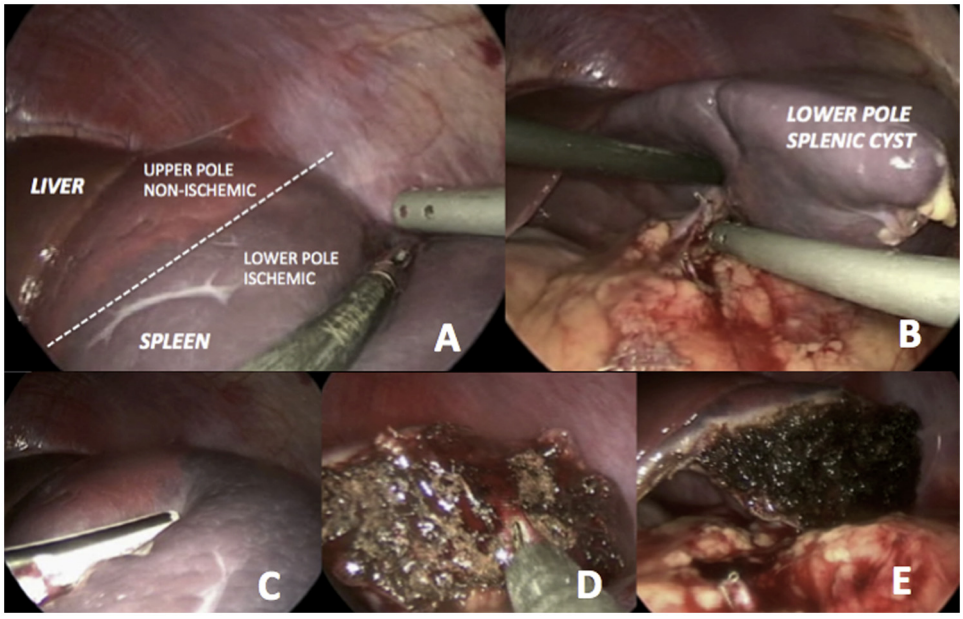

Fig. 3. (A) Upper and lower pole ischemic demarcation line (white dashed line) after division of the lower pole splenic artery, (B) laparoscopic medial view of the splenic cyst, (C, D, E) division of the lower pole of the spleen with a vessel sealing device and monopolar cautery.

and Surgicel SNoW ® (Fig. 3). An endobag was used to remove the specimen and morcellated through the 12 mm umbilical port. No complications were observed. The patient was discharged on post-operative day two. The microscopic analysis showed the presence of epithelial lining on the splenic cyst. One-month follow up at the clinic was uneventful.

3. Discussion

Splenic cysts can be classified in parasitic and non-parasitic cysts, the current management of both it is focused on spleen preservation based on the preoperative localization of the cyst [8].

Hydatidosis is a parasitic infection caused by Echinococcus granulosus and the spleen is the third most common organ involved [9]. It can be solitary in 38% and other locations can be present in 61%. Surgery is the treatment of choice and although total splenectomy seems to be more efective in treating the splenic hydatid cyst, the partial resection of the spleen is safer but could increase the rate of recurrence and postoperative collection [10]. Spontaneous rupture of a hydatid splenic cyst can cause anaphylaxis and should be treated promptly with splenectomy [11]. Percutaneous drainage seems to be unsuccessful [12].

Non-parasitic splenic cysts (NPSC) can be either congenital with the presence of epithelial lining that originate from invagination of the capsular mesothelial lining or post-traumatic with absence of epithelial lining [13]; but recently some other authors have proposed a different classification into congenital, neoplastic, traumatic or degenerative [2]. Post-traumatic splenic pseudocysts include 75% of non-parasitic cysts secondary to a subcapsular or