Laparoscopic hemi-splenectomy: a valid option in selected cases such as epidermoid cyst

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ABSTRACT

Splenic cysts are a rare pathology, which can be classified as true (25%) or pseudocysts (75%). Total splenectomy has been the treatment of choice, particularly in recent times with the advent of the laparoscopic approach. However, as the spleen is an organ with multiple immunological functions, the laparoscopic partial splenectomy is an alternative, which is technically difficult but effective. We present a case of a 26-year-old woman with incidental evidence of a splenic cyst in an abdominal ultrasound scan. We performed a laparoscopic partial splenectomy to preserve the function of the spleen because of the patient's youth.

Laparoscopic partial splenectomy allows the effective removal of lesions and preservation of splenic function. Although more research is needed to clarify the most effective approach, this case is further evidence that this surgical approach may be beneficial for selected patients.

KEYWORDS

Laparoscopic partial splenectomy – Splenic cyst – hemi-splenectomy – Partial splenectomy

Accepted 7 October 2018

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Introduction

Splenic cysts are a rare pathology and can be classified as true (25%) or pseudocysts (75%), based on the presence or absence of epithelial lining. True cysts are subdivided into parasitic and nonparasitic. Nonparasitic cysts can be either congenital or neoplastic tumours.

Pseudocysts are normally developed from splenic injuries.¹ Laparoscopic total splenectomy has been the surgery of choice for the treatment of this disease. However, due to the important immunological function of the spleen, splenic preservation as a treatment in this condition is an effective and safe alternative.

Case history

A 26-year-old woman with a childhood history of ureteral duplicity, which was surgically treated, underwent abdominal ultrasound scan because of abdominal pain, with incidental evidence of an 8 cm hypoechoic splenic cystic mass, located in the upper pole of the spleen. Abdominal computed tomography was performed, confirming the cystic lesion, which measured 9 × 6.2 cm (Fig 1). Hydatid serology was requested, which was negative. A single dose of

2 g amoxicillin/clavulanic acid was administered as a prophylactic treatment prior to surgery. The procedure was performed with the patient supine in the 45-degree right lateral position. Laparoscopic supraumbilical access established a pneumoperitoneum using a Veress needle and an additional three ports were employed (5 mm right hypochondrium, 10 mm left hypochondrium and 10 mm subxiphoid location); (Fig 2).

Spleen adhesions were released from the parietal peritoneum, diaphragm and retroperitoneum. The splenic hilar dissection was carefully performed, clipping the upper polar nutritional vessels, which resulted in ischaemia of the cyst and the upper part of the spleen. This provided a visible colour gradient between vascularised and non-vascularised parenchyma, which was transected using a bipolar system for sealing vessels along the line of ischaemia (Fig 3). The specimen was removed through the enlarged left hypochondrium incision (Fig 4). A drainage line was placed lateral to the splenic remnant.

The operative time was 140 minutes. The postoperative period was uneventful and the patient was not vaccinated against any encapsulated organism. The abdominal drainage was removed on the fourth postoperative day and the patient was discharged on the fifth postoperative day.

Figure 1 Abdominal computed tomography showing cystic lesion 9 × 6.2 cm.

Figure 3 Parenchymal section performed using the bipolar system.

Figure 2 Patient in supine and 45-degree right lateral position and location of ports.

Figure 4 Partial splenectomy showing the cystic lesion.

Histological study revealed a splenic epidermoid cyst. Twelve months after surgery, the patient is asymptomatic and without recurrence.

Discussion

The spleen is an organ which has an important role in the immune system, blood storage and blood filtration. Therefore, the aim when splenic surgery is performed is, if

possible, to maintain its immunological role and guaranteeing that adequate haemostasis is preserved. Partial splenectomy, which allows both effective removal of lesions and preservation of splenic function, has been recommended for selected cases.² This procedure is technically challenging but can also be performed with low morbidity. According to the results of one study, total splenectomy showed a higher incidence of thrombocytosis and splenic vein thrombosis.²

Balaphas *et al* reported that laparoscopic partial splenectomy is effective and feasible.⁵ This study provides evidence that a laparoscopic approach constitutes an attractive alternative to the laparotomic partial splenectomy. The study included 33 cases with 187 laparoscopic partial

splenectomies. In 7 cases, the patients were placed in a supine position, and in 17, the patients were placed in a lateral or semi-lateral position. The position of the patient was not described in the remaining cases. The number of ports varied from three to five and the mean length of hospital stay varied from one to eight days. Postoperative morbidity was 5.4%. Comparing both surgical techniques, there are no statistical differences in terms of morbidity, but the surgical time is longer in laparoscopic partial splenectomy.

Surgical robotics could be useful in this field to improve the splenic hilum approach; however, this technique needs furthermore investigation.⁵ When conventional surgery is not possible, other alternatives have been proposed for the management of splenic cysts, such as marsupialisation, which consists of creating an opening in the wall of the drainage cyst, internally to the peritoneal cavity or externally through a cystocutaneous fistula. This treatment leads to recurrence of the cyst and is not recommended.⁴

Patients who undergo total splenectomy have a risk of infection caused by encapsulated organisms, particularly *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Neisseria meningitides*. Our patient was not vaccinated before or after surgery. Although humoral immunity is depressed in some patients who undergo partial splenectomy, this technique is associated with a overall lower risk of post-splenectomy infection than total splenectomy. Schimmer *et al* therefore concluded that splenic function is preserved after partial splenectomy.⁵

Conclusion

In conclusion, laparoscopic partial splenectomy is a valid option in those cases where a cystic lesion appears in the upper or lower pole of the spleen; especially in young patients, in whom total splenectomy could develop serious postoperative complications such as systemic infections.

According to the literature, laparoscopic partial splenectomy is a practical and effective technique in those cases when an adequate haemostasis is necessary. More research is needed to clarify the most effective approach. The continuous advance of minimally invasive surgery could be extensive in this field and promoting this approach may be beneficial for selected patients.

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