

Laparoscopic Selective Lower-Pole Partial Splenectomy for a Symptomatic Epidermoid Cyst: A Case Report

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Abstract

Case Report

Laparoscopic partial splenectomy (LPS) is the preferred spleen-preserving approach for benign lesions, avoiding the risks of total splenectomy. However, the technique remains technically demanding, particularly for large cysts extending to the splenic hilum. We present a case highlighting the technical nuances of selective vascular control and the management of a significant, delayed complication. A 22-year-old female presented with chronic left upper quadrant pain. CT imaging revealed a 50x70 mm epidermoid cyst at the lower pole, extending to the splenic hilum. She underwent an LPS. This case demonstrates that selective vascular ligation is a feasible technique for hilar lesions. However, it also serves as a crucial reminder that significant complications can occur in a delayed fashion, well after the initial discharge. LPS for large epidermoid cysts extending to the hilum is technically feasible. **Key lessons include:** [1] meticulous hilar dissection with selective vessel ligation provides excellent vascular control, [2] this approach maximizes parenchymal preservation, and [3] clinicians must maintain a high index of suspicion for delayed complications, such as symptomatic pleural effusion, which may require intervention

Keywords: Splenic epidermoid cyst; Partial splenectomy; Laparoscopy; Hilar dissection.

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INTRODUCTION

Splenic cysts are uncommon pathologies, broadly classified as true (primary) cysts or pseudocysts (secondary). Epidermoid cysts, a type of true cyst lined by squamous epithelium, represent only about 10% of all splenic cysts and are often discovered incidentally in young adults. While small, asymptomatic cysts can be managed conservatively, large or symptomatic lesions traditionally required total splenectomy. However, the critical immunological role of the spleen is now well established, and total splenectomy carries a lifelong risk of overwhelming post-splenectomy infection (OPSI). Consequently, the standard of care has shifted towards parenchymal-sparing surgical techniques, with laparoscopic partial splenectomy (LPS) emerging as the preferred approach for benign lesions. Despite its advantages, LPS remains a technically demanding procedure due to the spleen's rich vascularization and parenchymal friability. The surgical challenge is significantly increased when lesions extend to the splenic hilum, risking injury to the main splenic vessels and complicating selective devascularization.

We report the case of a large, symptomatic epidermoid cyst extending to the hilum, successfully managed by LPS. This report highlights the feasibility of meticulous hilar dissection for selective vascular control and the use of an ultrasonic dissector for parenchymal transection, followed by the management of a delayed pleural complication.

This case report has been reported in line with the SCARE Criteria (2023).

PRESENTATION OF CASE

A 22-year-old female with no significant past medical or surgical history presented to our outpatient clinic with a one-year history of chronic left upper quadrant pain and asthenia. Physical examination was unremarkable, and routine laboratory findings were within normal limits. A contrast-enhanced computed tomography (CT) scan of the abdomen revealed a 50 x 70 mm, unilocular cystic mass with internal trabeculations, originating from the lower pole of the spleen. The lesion was noted to extend superiorly, abutting the splenic hilum. Serology for Echinococcus was negative.

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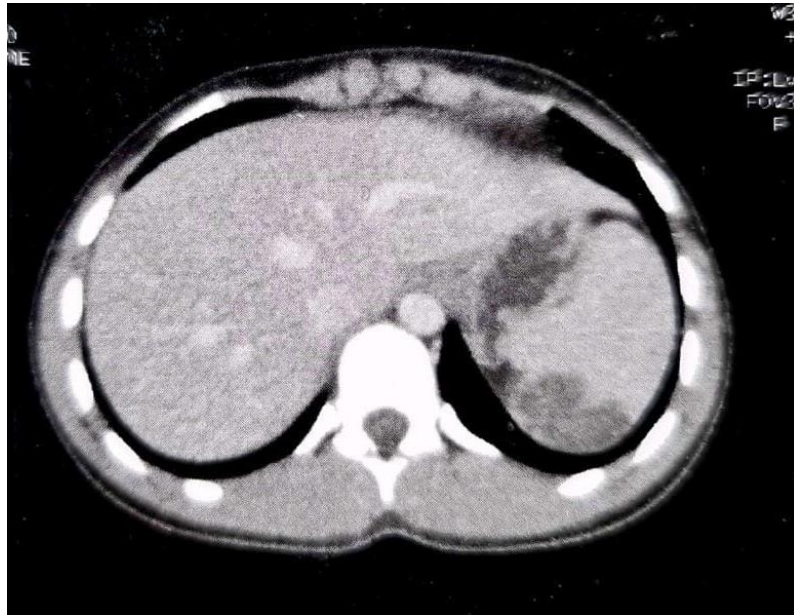


Figure 1: Abdominal CT scan showing a posterior mid-splenic cystic lesion

Given the persistent symptoms and the size of the lesion, a laparoscopic parenchymal-sparing splenectomy was indicated to preserve splenic function.

The patient was placed in a supine position with a 15-degree right rotation. Access was achieved via an open umbilical technique. A 30-degree laparoscope and three 5mm trocars were placed. The left colic flexure was mobilized and reflected inferiorly, exposing the large cyst, which was confirmed to extend from the lower pole to the hilum. A meticulous hilar dissection was performed, identifying the segmental arterial and venous

branches supplying the lower pole. These vessels were selectively controlled using non-absorbable polymer clips (Hem-o-lok®). This maneuver induced a clear ischemic demarcation line on the splenic capsule. The parenchyma was then transected along this line using an ultrasonic dissector (Harmonic ACE®). Hemostasis of the raw surface was supplemented using an absorbable hemostatic agent (Surgicel®), and a surgical drain was placed in the splenic bed. The specimen was retrieved in an extraction bag. Total operative time was 70 minutes, and estimated blood loss was 150 mL.

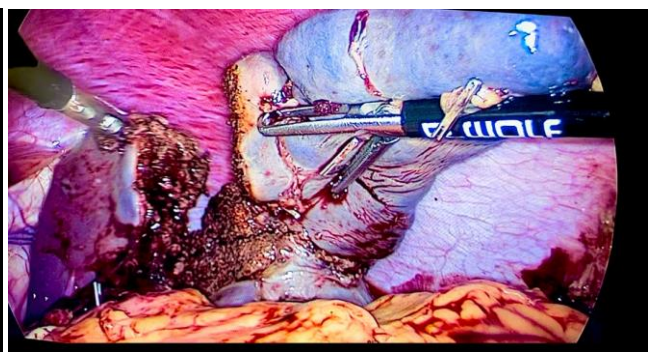
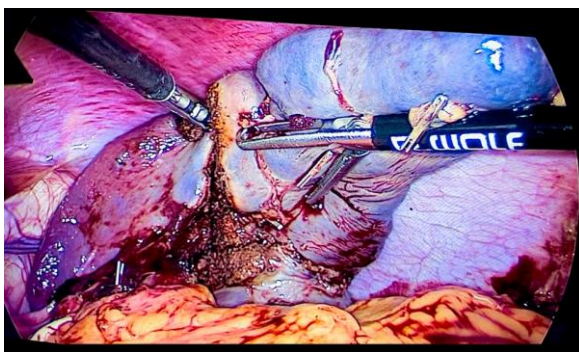


Figure 2: Intraoperative image illustrating laparoscopic partial spleen resection

Histopathological examination confirmed the diagnosis of an epidermoid cyst, characterized by a lining of stratified squamous epithelium, with no evidence of malignancy.

The patient's initial postoperative course was uneventful, and she was discharged on postoperative day 3. However, on postoperative day 15, she presented to

the emergency department with dyspnea. A chest X-ray revealed a significant left-sided pleural effusion. A diagnostic and therapeutic thoracentesis was performed, which confirmed the reactive (non-infectious, non-hemorrhagic) nature of the effusion. This adverse event was classified as a Clavien-Dindo Grade IIIa complication. The patient's symptoms resolved promptly thereafter.



Figure 3: Chest Xray showing left pleural effusion

At the 1-month follow-up, a control CT scan demonstrated a well-perfused splenic remnant and complete resolution of the pleural effusion.

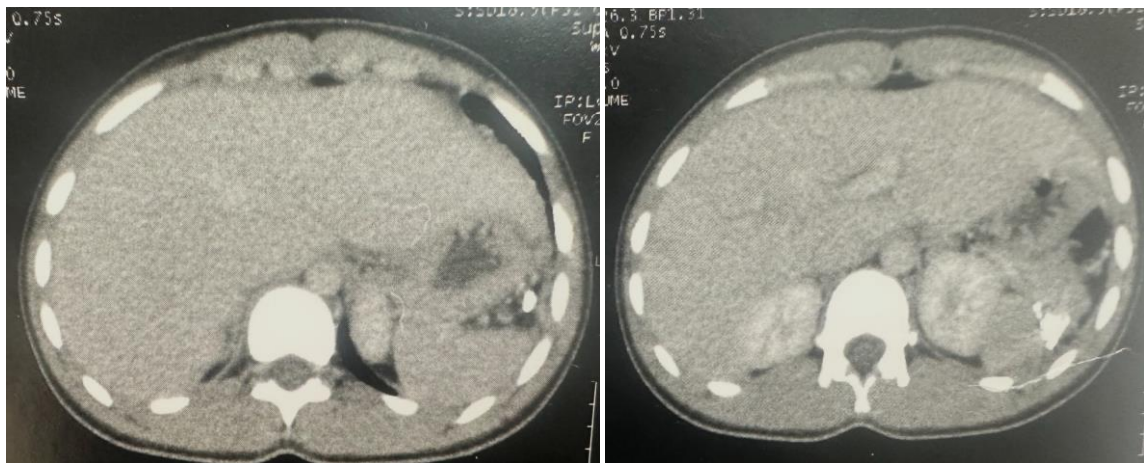


Figure 4: A 1 month post operative abdominal CT scan performed and showing the resolution of fluid accumulation previously affecting the lower pole of the splenic remnant, as was the resolution of left pleural effusion. A thorough review of the imaging data reveals that the splenic remnant appears to be normal, both in terms of parenchymal characteristics and vascular structures

DISCUSSION

We report the successful laparoscopic partial splenectomy (LPS) for a large, symptomatic epidermoid cyst in a young adult. The case is noteworthy for two reasons: (1) the technical feasibility of selective vascular control for a lesion extending to the splenic hilum, and (2) the management of a delayed, symptomatic pleural effusion requiring intervention (Clavien-Dindo Grade IIIa).

Splenic epidermoid cysts are rare, accounting for approximately 10% of non-parasitic splenic cysts, and are typically found in young patients [1, 2]. While asymptomatic lesions < 5 cm can be observed, surgical management is indicated for symptomatic cysts or those > 5 cm due to the risk of complications such as rupture or hemorrhage [3].

The paradigm has shifted from total splenectomy towards parenchymal-sparing surgery to preserve splenic immunological function and avoid the lifelong risk of overwhelming post-splenectomy infection (OPSI) [4, 5]. LPS is now the preferred approach for benign lesions [8].

The main technical challenge of LPS remains the control of hemorrhage from the highly vascular and friable splenic parenchyma. This challenge is amplified in cases like ours, where the lesion extends to the hilum. Various techniques for parenchymal transection and vascular control have been described [6], including the use of ultrasonic scalpels, advanced bipolar devices, radiofrequency, and staplers.

We opted for a meticulous hilar dissection to identify and selectively ligate the segmental arterial and venous branches supplying the lower pole. This

approach, using polymer clips, induced a clear ischemic demarcation line, facilitating a precise transection with the ultrasonic dissector (Harmonic®). This avoids the need for main splenic artery clamping, which carries a risk of total splenic infarction, and offers excellent control. Our operative time (70 minutes) and estimated blood loss (150 mL) are consistent with outcomes reported in large retrospective series [7, 8].

Complications following LPS are reported in 10-20% of cases [5], including bleeding, pancreatic fistula, abscess, and pleural effusion. A left-sided pleural effusion is a recognized complication, often attributed to diaphragmatic irritation or atelectasis.

A recent large-scale study by Li *et al.*, (2024) found no significant difference in the incidence of pleural effusion between LPS (20/87 cases) and total splenectomy (22/78 cases) [8].

Our case, however, provides a crucial "take-away lesson". The patient's initial recovery was uneventful (discharge on POD 3), but she presented with a *delayed*, symptomatic effusion 15 days postoperatively. This complication was not minor; it required therapeutic thoracentesis, classifying it as a Clavien-Dindo Grade IIIa event. This is consistent with other reports of significant complications, such as a Grade IIb re-operation for bleeding reported after LPS for a large cyst [1]. This highlights that significant complications can occur well after the initial discharge period, necessitating a high index of suspicion during follow-up.

This case adds to the growing body of evidence [4, 7, 8] supporting the feasibility and safety of LPS for large, benign splenic cysts. It demonstrates that hilar proximity is not an absolute contraindication [3], provided a meticulous technique of selective vascular control is employed.

CONCLUSION

Laparoscopic partial splenectomy is a technically demanding but viable and safe procedure for symptomatic epidermoid cysts, even when extending to the hilum. The key "take-away lessons" from this case are: Meticulous hilar dissection with selective segmental arterial ligation is a successful strategy for vascular control. Parenchymal transection with an ultrasonic scalpel is effective. Clinicians must remain vigilant for delayed postoperative complications, such as symptomatic pleural effusion requiring intervention, well after the patient's initial discharge.

Strengths and Limitations

The strength of this report is the detailed technical description of an LPS for a challenging, hilar-

extending lesion, managed with a purely selective vascular approach. It provides a clear learning point regarding the management of a delayed, significant (Clavien-Dindo IIIa) postoperative complication.

The primary limitation is that this is a single case report, and its findings cannot be generalized. The management strategy, while successful, represents the experience of a single center.

Patient Perspective

The patient expressed satisfaction with the minimally invasive approach and the complete resolution of her symptoms. As a university student, she noted that the rapid recovery allowed her to resume her studies promptly.

Ethical Considerations

Written informed consent was obtained from the patient for the publication of this case report and any accompanying images.

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