Laparoscopic Versus Open Splenectomy for Splenic Peliosis: Report of Three Cases and Literature Review

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Background

- Splenic peliosis is rare and may result in spontaneous splenic rupture
- There is a limited understanding of the true etiology of splenic peliosis
- Associations with various medications and medical conditions have been reported
- We present three patients with spontaneous splenic rupture due to isolated splenic peliosis

Objective

To highlight the surgical urgency for patients with splenic peliosis who present with spontaneous rupture and to draw attention to the potential association with hematologic malignancy

This report details what we believe to be the first case of a patient with splenic rupture due to peliosis who was successfully treated with a laparoscopic splenectomy

Case Presentations

Case 1: 31 year-old Male

- **PMH:** Essential thrombocytopenia, antiphospholipid-antibody syndrome
- **Presentation:** Diffuse abdominal pain, hypotension, Denied trauma
- **CT:** Hemoperitoneum, splenic rupture, spleen replaced with innumerable blood-filled cysts (Figure 1)
- **Tx:** Emergency open splenectomy; full recovery
- **Follow-Up**: The patient died 6 years later from complications of acute myelogenous leukemia

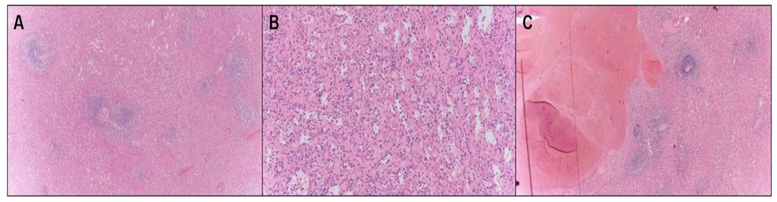


Figure 1: Histopathologic images of the spleen of a 31-year-old patient with splenic peliosis (Case 1), showing intact, but slightly atretic, white pulp; the red pulp is expanded, and upon higher magnification shows slight dilation of the sinuses. Adjacent to this is a blood filled sinus (forming a cyst-like structure); the cyst-like structure doesn't have true lining cells. (**A-4x, B-20x, C-4x; H&E**).

Case Presentations

Case 2: 44 year-old Male

- **Presentation:** LUQ pain, left-shoulder pain, denied trauma
- **CT:** Splenomegaly, multiple splenic cysts, free intraperitoneal blood (Figure 2, 3)
- **Tx:** Semi-elective laparoscopic splenectomy; full recovery
- **Follow-Up**: Well at 37 months

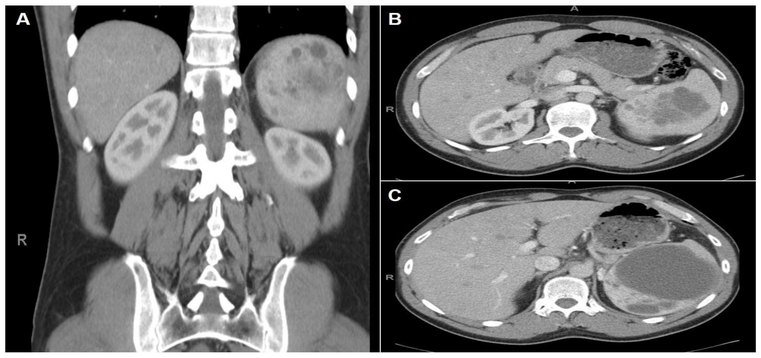


Figure 2: CT from Case 2 **(A)** Coronal view, **(B)** Axial view at the level of L1, **(C)** Axial view at the level of T12. Significant splenomegaly (14 x 11 x 9 cm). Multiple, loculated, cystic lesions are noted throughout the spleen. The largest cystic lesion measures 9.3 cm in diameter.

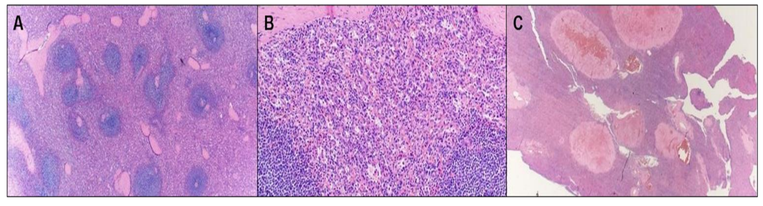


Figure 3: Histopathologic images of the spleen of a 44-year-old patient with splenic peliosis (Case 2), showing intact, white pulp; the red pulp is slightly expanded, and upon higher magnification shows slight dilation of the sinuses. Adjacent to this are blood filled sinuses (forming cyst-like structures); the cyst-like structures don't have true lining cells. (**A-4x, B-20x, C-2x; H&E**).

Case 3: 78 year-old Male

- **PMH:** Atrial fib, chronic anemia, splenomegaly
- **Presentation:** Shock, distended abdomen, standing height fall
- **Tx:** Laparotomy with 4L intraperitoneal blood, splenectomy; Required: 8 units PRBCs, 5 units FP, 6 platelet units; full recovery
- **Pathology:** Splenic rupture and peliosis, diffuse large B-cell lymphoma (DLBCL)
- **Follow-Up**: The patient died 12 years later of DLBCL

Literature Review

Reported Cases in English Literature	n = 42
Average Age	50 y.o
Sex	Male = 24, Female = 18
Presented with Splenic Rupture	64% (n = 27)
Identified at Autopsy	7% (n = 3)
Associated Malignancy	21% (n = 9)

Discussion

- Cysts of splenic peliosis are blood-filled and innumerable in quantity, distinguishing them from post-traumatic fluid-filled cysts of the spleen
- No existing guidelines for surgical management of splenic rupture due to peliosis
  - Hemodynamically unstable: Transfusion protocols, urgent laparotomy for splenectomy
  - Hemodynamically stable: Semi-elective open splenectomy
- Reported Associations
  - Anabolic steroids, azathioprine, tamoxifen, androgens, danazol
  - Multiple myeloma, aplastic anemia, Hodgkin disease, myelofibrosis
- The link between elevated VEGF levels and the development of peliosis-like cystic spaces strengthens the possible association of splenic peliosis and hematologic malignancy

Acknowledgements and References

References are available digitally via QR Code.

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