

Large Splenic Abscess: A management challenge

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How to cite this article:

Gurjar B, Prajapati S, Tuteja N, Chaturvedi V. Large Splenic Abscess: A management challenge. Iranian Journal of Pediatric Surgery 2024; 10(1): 117 - 125.

DOI: <https://doi.org/10.22037/irjps.v10i1.38202>

Abstract

Splenic abscesses are rare in children. Mostly, they present in immunocompromised children or in children with hematological malignancies. In most of the cases these are smaller, isolated or multiple abscesses and are being successfully treated with broad spectrum antibiotics and percutaneous drainage. However, large abscesses pose a management challenge and require a careful decision to go for either total or partial splenectomy. Ultrasound and CT scan both play a crucial role to decide on these larger abscesses which are prone to rupture and can cause septicemia and death. Different organisms have been isolated from these abscesses as bacteria, fungi and atypical bacteria. We report a case of a massive splenic abscess with septicemia managed successfully by timely operative intervention.

Keywords

- Splenic abscess
- Children

Introduction

Solitary splenic abscess is rarely a clinical scenario in the pediatric age group with a reported incidence of 0.14 - 0.7%. Although these are rare, they carry a very high morbidity and mortality rate up to 70% if untreated. With the availability of advanced CT scans and ultrasonography it has now become more feasible to diagnose and intervene early and mortality can be reduced to less than 1%.¹⁻⁵ Common

etiology is supposed to be a hematologic or lymphatic spread of infective organism from other sites in the body or post trauma. However, there is growing evidence that splenic abscess can also result secondary to an immunocompromised state due to hematological disease, post transplantation, AIDS, post chemotherapy.⁶⁻⁷ Clinically they are difficult to diagnose, mostly present with fever, left upper quadrant pain,

splenomegaly and leukocytosis. Immunocompromised children may not have fever and leukocytosis posing a diagnostic delay. Further imaging with CT and ultrasound improves diagnostic accuracy.⁸⁻⁹ Splenectomy has been the standard management of splenic abscesses in the past century, however, with the improved imaging techniques conservative management with image guided aspiration and spleen preservation therapy are being utilized in last few decades.¹⁰ Even with the increasing use of conservative methods, there are some of the clinical conditions which require surgical intervention and removal of spleen. These are multiple large abscesses with septation, associated coagulopathy, associated hematological disorders and ruptured abscess with generalized peritonitis.¹¹ Here we report a case of large splenic abscess with septicemia which was managed by splenectomy.

Case presentation:

A 12-year-old boy presented with complaints of high-grade fever, abdominal pain and abdominal distension of five-day duration. There was no history of any bowel complains like diarrhea, vomiting, blood in stool, constipation or passage of worms. There was no history of urinary complaints like hematuria, dysuria, frequency or lower abdominal pain. There was no history of respiratory complaints like cough or dyspnea. There was no history of jaundice or trauma or history of recent travel. On general examination the child was toxic and febrile (Temp 101.8 F), with tachycardia (HR-110 beats/min), tachypnea (respiratory rate-35/min) and blood pressure was 112/78mmHg.

Abdominal examination revealed fullness in left upper abdomen. There was a well-defined lump in the left side of the abdomen of size 12 x 15 cm reaching the lumbar region with generalized tenderness and guarding in the left side of the abdomen (**Figure 1**). There was no free fluid and any other swelling/organomegaly.



Figure 1: Preoperative Photograph of the child showing fullness in left upper abdomen (Picture taken with consent from the parents)

Ultrasonography was suggestive of size 10 x 12 x 16 cm³, hypoechoic lesion in the left sub diaphragmatic region, with internal echoes and no internal solid component, arising possibly from spleen, with thin rim of normal splenic tissue around the lesion. There was no free fluid or perisplenic collection in the abdomen and other organs were normal. Chest X ray was also normal. CECT of the abdomen showed a massively enlarged spleen (172mm) with 11.5 x12.8x16 cm³ size well defined thin walled,

hypodense lesion without internal solid component, showing minimal peripheral enhancement arising from spleen and causing mass effect on adjacent body and tail of pancreas, vessels and bowel loops. The lesion was closely abutting to the left lobe of liver and body of stomach. In the blood investigations his hemoglobin was 13.1 g/dL, total leucocyte counts were 14350/mm³ with 85% segmental neutrophils, 7% lymphocytes, platelets

counts were 5.44 lacs/ mm³ and INR was 1.04.

After initial stabilization with intravenous fluids, broad spectrum antibiotics (ceftriaxone, amikacin, and metronidazole) were started and in view of a large abscess impending rupture and septicemia the child was planned for exploratory laparotomy. Intraoperatively there was a large splenic abscess occupying almost whole spleen with a thin rim of unsalvageable normal splenic tissue above it compressing adjacent structures and splenic vessels (**Figure 2 & 3**). There was minimal

reactive fluid in the peritoneal cavity. After aspirating the purulent fluid from the lesion splenectomy was done. Post operatively antibiotics were continued for 7 days. In the pus culture mixed organisms of gram-positive cocci and gram-negative bacilli were found which were sensitive for ceftriaxone. The child was immunized for opportunistic post splenectomy infections with pneumococcal vaccines and discharged home in a healthy condition. He was on regular follow for two years without any complication.

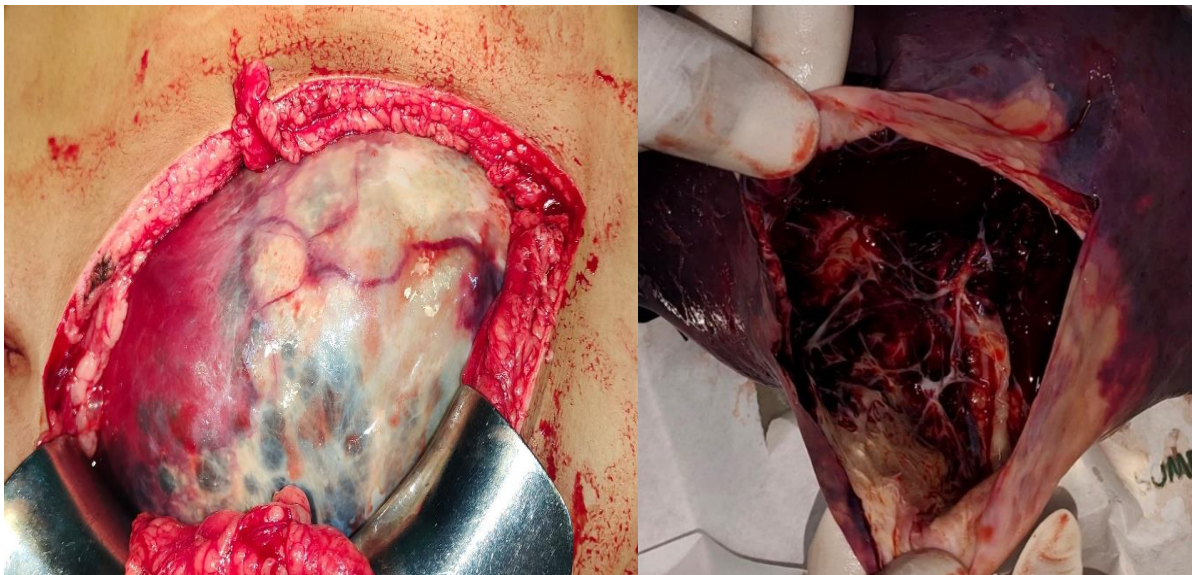


Figure 2 & 3: Intraoperative picture showing large abscess occupying whole spleen and splenectomy specimen showing destruction of splenic parenchyma

Discussion

Splenic abscesses develop after colonization of the bacteria reaching to the spleen via hematological or lymphatic spread, secondary infection after trauma, in immunocompromised states, infection of the splenic infarction in hemoglobinopathies and rarely from adjacent organs.⁶⁻¹¹⁻¹² These are very rarely encountered in both adults and pediatric population. In our case there was no predisposing factor identified which can lead to splenic abscess formation. Gram positive cocci and gram-negative bacilli are the common organisms isolated and rarely mycobacteria and fungi have been identified in immunocompromised children.¹³ In our child the pus culture had mixed growth of streptococcus and *E. coli* bacteria which were sensitive to ceftriaxone and amikacin. Leukocytosis is a prominent finding in splenic abscess patients however, it may be absent in case of previous antibiotic administration or immunocompromised states like chemotherapy and AIDS.¹³ This child also had leukocytosis. Small solitary abscess has been reported to be more common than multiple abscesses.⁶ Large abscess occupying almost whole splenic tissue are rarely reported. Among the radiological

diagnostic modalities ultrasonography have sensitivity of up to 90%, which can be further improved on CT scan (96%).¹⁴ Chest X ray may show nonspecific findings like elevation of left hemi diaphragm, basal atelectasis of left lung, absent bowel shadow in left upper abdomen etc. Ultrasound was diagnostic in our patient and for better anatomical delineation CECT was also done before surgery.

Although splenic preservation has been on the forefront in recent years in the treatment of small solitary splenic abscess, most of the adult literature describes splenectomy as the gold standard treatment of splenic abscess.¹⁵ Considering the fact that spleen is an important organ for the immunological function in the child, more and more reports of conservative management of splenic abscess are coming in last few decades.¹⁶⁻¹⁷

Few authors recommended splenectomy for splenic abscess in immunocompromised patients and children with multiple abscess.¹⁸⁻¹⁹ In our case there was no evidence of immunocompromised state but due to large size of the abscess involving whole spleen and impending rupture, splenectomy was done. However, it is difficult to reach a common conclusion for the management of single large abscess

as most of the reports are based on a few patients or isolated case series.

Conclusion

Authors conclude that based on the imaging findings and clinical condition a decision for conservative management can be considered in small solitary abscess but, splenectomy is still required in septic children having larger abscess with very little amount of normal splenic tissue left.

Ethical Considerations

This case report was reviewed and approved by Department of pediatric surgery, SMS medical college and attached SPINPH (J K Lon), Jaipur 302017.

Acknowledgment

We thank Dr Arun Gupta and Dr Ramesh Chand Tanger for their encouragement and kind words.

Funding/Support

Not applicable

Conflict of interests

There is no conflict of interest

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