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Case Report

Organ preservation in splenic abscess

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Introduction

Abscesses of the spleen are uncommon especially in children. They occur more frequently in the tropics, where there is a higher incidence of sickle cell anemia, with associated thrombosis of parenchymal vessels and consequent infarction.¹ Most infections are polymicrobial and splenectomy with adjunctive antibiotics has traditionally been considered standard treatment. We describe one such case in a 10-year-old child who was successfully managed with antibiotics and open drainage of the abscess with preservation of the spleen.

Case report

10-year-old male child, with no known co-morbidities and a normal developmental history, presented with history of fever for 10 days and pain in abdomen for 8 days. The onset of

both symptoms was insidious. The fever was moderate to high grade and not associated with rigors or chills. No periodicity was noticed and it subsided temporarily after administration of anti-pyretics. Two days after the onset of fever the patient started having constant, increasingly severe pain in epigastrium and left hypochondrium that radiated to left shoulder and aggravated with movement. There was associated anorexia but no nausea or vomiting. There was no past history of abdominal/thoracic trauma or features suggestive of local/systemic infections. On general examination the child was listless, febrile, temperature being 101 °F, and tachypneic with a respiratory rate of 40/min and heart rate of 110 per minute. Examination of abdomen revealed tender splenomegaly extending 4 cm below left costal margin. The rest of physical and systemic examination was unremarkable. Laboratory investigations showed leucocytosis (23,000/cubic mm with 80% neutrophils). Other routine hematological and biochemical investigations were normal. Chest radiograph was suggestive of bilateral basal pleural effusion. Serology for

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HIV and tuberculosis was non-reactive. Screening for all hepatitis viral markers was also negative. Imaging studies of abdomen showed a $107 \times 133 \times 132$ mm splenic abscess in the upper pole abutting the left lobe of liver (Fig. 1). The patient was started on antibiotics and taken up for emergency surgery. The abdomen was opened under GA through an upper midline incision. Spleen was enlarged and there was evidence of perisplenitis with adhesions to omentum and adjacent structures which were divided. The abscess cavity was unroofed and approximately 500 ml of pus was drained. Since the rest of the spleen appeared normal it was decided not to do a splenectomy. Peritoneal toilet was done and abdomen was closed with a tube drain placed in abscess cavity (Fig. 2). Pus culture yielded *Acinetobacter* for which antibiotics were continued for 2 weeks. The patient improved dramatically and had an uneventful post-op recovery. He was subsequently evaluated extensively by the pediatricians and presence of underlying cardiac pathologies and hemoglobinopathies/hematologic disorders was ruled out. He is presently doing well after 1 year of follow-up and USG abdomen shows satisfactory resolution of abscess cavity (Fig. 3).

Discussion

Abscess of the spleen is a rare discovery, with about 600 cases documented in the international literature.² The reported incidence varies from 0.14% to 0.7% in various autopsy studies.³ Most cases, unlike our patient, are seen in adults and the mean age reported in one study was 59.9 ± 14.2 years (ranging from 21 to 89 years).⁴ While splenic abscesses may arise occasionally from contiguous spread of infection or from direct trauma to the spleen, hematogenous spread of infection is more common. Bacterial endocarditis is the most common associated infection. Splenic abscesses can develop in patients who have received extensive immunosuppressive therapy and in patients with hemoglobinopathies or other

Fig. 2 – Abscess evacuated. Tube drain being placed.

hematologic disorders especially sickle cell anemia.⁵ The etiology in our patient could not be established conclusively even after detailed evaluation, though hematogenous spread from a distant site appears most likely. The mortality rate for splenic abscess ranges from about 80% for multiple abscesses in immunocompromised patients to about 15%–20% in previously healthy patients with solitary unilocular lesions.⁶

A high degree of suspicion is required for diagnosis as the clinical presentation of splenic abscess is often non-specific and insidious, including abdominal pain, fever, peritonitis, and pleuritic chest pain. The abdominal pain is localized in the left upper quadrant less than half the time and is more often vague. Splenomegaly is present in a minority of patients,⁶ though it was seen in our case along with fever and abdominal pain. CT scan of the abdomen has been the most sensitive diagnostic tool. Ultrasonography can yield the diagnosis but is less sensitive. Liver-spleen scan or gallium scan may also be useful.⁵ Streptococcal species are the most common bacterial isolates from splenic abscesses, followed by *Staphylococcus aureus*⁵ though this was not seen in our case

Fig. 1 – CT scan showing splenic abscess.

Fig. 3 – USG scan after 1 year showing resolving abscess cavity.

where pus culture yielded *Acinetobacter*. Treatment options include percutaneous aspiration, percutaneous catheter drainage, open drainage and splenectomy (partial or total; open or laparoscopic). Splenectomy with adjunctive antibiotics has traditionally been considered standard treatment and remains the best approach for complex, multilocular abscesses or multiple abscesses. However, percutaneous drainage has worked well for single, small (<3 cm) abscesses in some studies and may also be useful for patients with high surgical risk.^{5,7} However, it has attendant problems such as needle/tube blockage or dislodgement and inadequate drainage.

We opted against percutaneous drainage because of the large size of the abscess (>3 cm) and the critical condition of the patient. The procedure of laparotomy and open drainage of pus was preferred with a view to expeditiously drain the pus and also preserve the spleen. This procedure has been reported earlier and may have a role in management of extremely ill patients where image guided percutaneous aspiration may not be the ideal modality of treatment.⁸ Subtotal splenectomy for splenic abscess with preservation of the superior portion of the organ has also been reported.⁹ An exploratory laparotomy not only aided a thorough lavage of the peritoneum and the drainage of cavity via splenotomy, it also allowed for direct assessment of the spleen and its preservation.

In summary, splenic abscesses in children are rare and require a high index of suspicion for diagnosis. The size of the abscess and the critical condition of the patient ruled out the option of percutaneous drainage in this patient and hence open surgery was undertaken and a splenic preserving approach was successfully employed with good results.

Conflicts of interest

All authors have none to declare.

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