Case Report

Splenic mass of uncertain etiology in a 15-year-old male patient: a case report

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Background: There are few reports on spleen masses, and solitary splenic abscesses with abdominal pain have not been reported in younger age groups. We report a case of a splenic mass of uncertain etiology in a 15-year-old boy.

Case Presentation: A 15-year-old boy visited the emergency department with abdominal pain. Abdominal ultrasonography revealed a thin-walled multilobular splenic cyst. Computed tomography revealed a cystic shadow and a septate structure in the spleen. Magnetic resonance imaging examination revealed a high-signal region on the T2-weighted image. The neutrophil ratio in the white blood cell count of 8,330/µL was high (80%), and splenic abscess could not be ruled out. Thus, therapy with 2 g/day fosfomycin was initiated. Abdominal pain disappeared on day 3 of hospital stay, and the patient was discharged on day 8.

Conclusion: Antibiotic therapy can be effective against very acute onset splenic abscesses, although surgical treatment is usually carried out.

Key words: Abdominal pain, fasting therapy, fosfomycin, intraabdominal infection, lymphangioma, splenic abscess, splenic disease, splenic mass

INTRODUCTION

LYMPHANGIOMAS WITHIN THE tumor mass and splenic abscesses are two rare causes of space-occupying lesions in the spleen.1 To date, solitary splenic abscesses with abdominal pain have not been reported in younger age groups. We report a case of a splenic mass of uncertain etiology in a 15-year-old boy.

CASE

A 15-year-old boy presented at our hospital emergency department with sudden-onset epigastric and left-sided abdominal pain that had developed while playing handball. He had experienced no recent trauma or infections. He had no history of surgeries and an unremarkable family medical history. Physical examination revealed a height of 165 cm and weight of 58 kg. His body temperature was 37.2°C, blood pressure 159/101 mmHg, heart rate 86 b.p.m. and stable, and respiratory rate 24 breaths/min. Thoracic findings were normal. The patient’s abdomen was flat and soft, with tenderness in the left lower abdomen. The mass was not palpable, and the patient reported subjective colic extending from the left abdomen throughout the body, causing a bruise-like sensation.

At admission, laboratory assessment results, including the complete blood count, were normal, except for the leucocyte count, which was 8,330/µL (neutrophils, 80%; lymphocytes, 24.0%; basophils, 0.1%).

Abdominal ultrasonography revealed a thin-walled multilocular cyst with no internal protrusions and no blood flow (Fig. 1). Abdominal computed tomography (CT) revealed a cystic shadow, 58 mm in diameter, within the spleen. The cyst had a septic internal structure. A small volume of ascitic fluid was observed in the pelvic region. No evidence of...
malignancy was observed (Fig. 2). Abdominal T2-weighted magnetic resonance imaging revealed a high-signal cystic mass with a clear internal structure, suggestive of a clear cystic tumor (Fig. 3). Diagnostic imaging showed no cystic lesion rupture.

Pathological examination was not undertaken as no biopsy or surgery was carried out, which made diagnosis difficult. Splenic lymphangioma was strongly suspected; however, the patient continued to have left upper abdominal pain and tenderness in the same region. His respiratory rate increased to 24 breaths/min, and he was slightly febrile (37.8°C). Considering the elevated leucocyte count and neutrophilia, splenic abscess could not be eliminated as a possible cause. Fosfomycin at 2 g/day was initiated as empirical antibiotic therapy. We had also considered the possibility of a hydatid cyst. However, we did not observe an increase in the basophil numbers of the leucocyte count, and hydatid cysts are very rare in Japan.2 Hence, it was difficult for us to consider this to be a hydatid cyst. We also suspected infective endocarditis to exclude the possibility of hematogenous spread to the spleen; however, echocardiography revealed normal results. Furthermore, fasting therapy was initiated as soon as possible following admission to reduce the chances of an infection if surgery was planned.

The patient’s abdominal pain improved on day 2 of hospital stay, his respiratory rate decreased to approximately 16 breaths/min and body temperature decreased to 36.6°C. The pelvic region ascitic fluid volume had decreased according to follow-up CT examination. On day 3 of hospital stay, the patient no longer experienced any abdominal pain and all his vital signs had stabilized. The differential white blood count was 4,550/µL, with 52% neutrophils. On examination, signs of infection were found to have improved. No bacteria were detected in the two sets of blood samples collected at the time of admission, and the data did not meet the modified Duke criteria for infective endocarditis.3 The antibiotic therapy
course was completed on day 7 of the hospital stay, and the patient was discharged on day 8.

DISCUSSION

Benign tumors of the spleen are classified as either cystic or solid lesions. Cystic lesions are further classified into genuine cysts (epithelial/endothelial/parasitic) and pseudocysts. Of the various types of genuine cystic lesions of the spleen, lymphangiomas account for 17.2%; the incidence of abdominal lymphangiomas including the spleen is 9%, and therefore, it is considered rare. Although small splenic lymphangiomas are asymptomatic, as the lesion increases in size and begins to press against the surrounding organs, symptoms such as nausea, left upper abdominal pain, and abdominal fullness/fatigue develop; hypersplenism could also be observed as the size increases further. In our case, no evidence of lesion rupture was observed; however, splenic infection could not be ruled out as a cause of the patient’s abdominal pain because of the lack of corroborative imaging findings. In general, development of splenic infections is rare (frequency 0.14–0.7%). To our knowledge, solitary splenic abscesses in younger patients with abdominal pain onset have not been reported. The three classic clinical features of splenic abscesses are left lower abdomen pain, tender mass formation, and fever, all of which were found in this patient. According to these findings, we initiated treatment for abdominal pain to address potential infection of the splenic lymphatic vessels. Viridans streptococci have been reported to be the most frequent causal organisms of splenic abscess (27.8% of cases), followed by Klebsiella pneumoniae (22.2%). As the causal bacteria range from Gram-positive cocci to Gram-negative bacilli, we selected fosfomycin as the treatment drug, considering its wide antimicrobial spectrum. Following a course of antibiotic treatment and fasting therapy, the patient’s symptoms improved, and he was discharged.

Imaging studies are useful in diagnosing splenic lymphangioma. Splenic lymphangiomas are typically observed as encapsulated lesions with a septate cyst structure. On CT, lesions are visualized as having clear cyst walls with one or more low-absorption regions. On contrast CT, the cystic lumen is not enhanced, and the cyst wall shows weak-to-moderate contrast. On magnetic resonance imaging, lesions are often visualized as cystic lesions showing remarkably high signaling in T2-weighted images. Follow-up should be considered if clinical symptoms are not observed and diagnostic imaging reveals typical findings. However, splenectomy is indicated in case malignant disease cannot be ruled out or splenic enlargement is observed on imaging. In this case, the patient’s abdominal pain was resolved through antibiotic therapy. Although the causal relationship between the nature of the cystic mass of the spleen and the patient’s abdominal pain remains unclear, for mass lesions producing clinical symptoms, as in the present case, we believe that diagnostic assessments should continue to be carried out in parallel with treatment because of the possibility of complications such as surgery-related infection, even in cases in which immediate resective surgery is not indicated. Consideration of more aggressive surgical treatment might not be necessary for patients without a history of malignant tumor formation and those responsive to drug treatment, even if a splenic abscess is suspected. We are currently carefully observing this patient’s course on an outpatient basis to determine the necessity of splenectomy and rule out other diseases as causes of abdominal pain in the future.

In conclusion, when a tumorous spleen lesion with clinical symptoms is observed, initiating treatment concurrent with the diagnostic assessment can be effective. Moreover, more aggressive treatments such as surgery might not be necessary in patients presenting with splenomegaly without a history of malignant tumor formation and those responsive to drug treatment.

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DISCLOSURE

Approval of the research protocol: N/A.
Informed consent: Written informed consent for study participation and to report individual patient data was obtained from the patient.
Conflict of interest: None.
Registry and registration no. of the study/trial: N/A.
Animal studies: N/A.

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