“AIR-FLUID LEVEL IN SPLEEN: A RARE CASE OF SPLENIC ABSCESS CAUSED BY GAS FORMING ORGANISMS”

Surgery

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ABSTRACT

Splenic abscess is a rare entity. Delay in its diagnosis and treatment can lead to high morbidity and mortality. Here, we describe a case of a female patient with air-fluid level in the parenchyma of the spleen caused by a gas forming bacterial infection. There was no preceding history of trauma or instrumentation in our case. This case was managed by prompt diagnosis followed by percutaneous drainage under broad spectrum antibiotic coverage. A gas forming infection of the spleen without manipulation or trauma is extremely rare, with only 3 reported cases in the literature.

KEYWORDS

Splenic abscess, Air-fluid level, Gas forming organisms, Percutaneous drainage.

INTRODUCTION

Splenic abscess is an uncommon infection. The incidence of splenic abscess in autopsy studies is estimated to be 0.05–0.7% [1, 2]. Hematogenous spread is the most common cause of splenic abscess. It typically results from endocarditis or seeding from some contiguous sites of infection [3, 4]. Other risk groups include immunosuppressed patients, hemoglobinopathies, and diabetes mellitus [3, 5]. However, spontaneous splenic abscess with no predisposing factors is very rare. Only 3 cases of splenic abscess due to gas forming bacteria have been reported with no history of trauma or instrumentation. Here we describe the presentation, diagnosis and management of a 37 year old female patient presenting with splenic abscess caused by gas forming organisms.

CASE REPORT

37 year old female presented at the emergency department with the complaint of fever, malaise and pain in the back and left upper quadrant of abdomen since past 2 days. Fever was intermittent and high grade. The abdominal pain was continuous and moderate-severe in intensity. There was tenderness just below the left 12th rib in the back. There was splenomegaly extending approximately 7 cm from left costal margin. Her temperature was 101 degree Fahrenheit. Her blood pressure, pulse and respiratory rate were within normal range. Her past history and family history were insignificant. X-ray revealed air-fluid level in the left upper quadrant of abdomen that was overlapped by fundic shadow of stomach (figure 1).

Figure 1: Air-fluid level in the x-ray as shown by the green arrows.

Ultrasonography and Computed tomography (CT) were suggestive of splenic abscess with air-fluid level. Routine laboratory investigations were suggestive of neutrophilia and elevated C-reactive protein. Broad spectrum antibiotics were started and percutaneous drainage of the abscess was done by pigtail catheter. On insertion of the pigtail catheter, around 600 ml of reddish-brown discharge gushed out suggestive of decompression of high pressure inside the capsule of spleen (Figure 2 and figure 3).

Figure 2: Red-brown fluid drained from the spleen.

Figure 3: X-ray of abdomen with pigtail catheter insitu.

Total 1000 ml of fluid was drained. Pneumococcal and meningococcal vaccines were given. Antibiotics were continued for 4 weeks. Pigtail catheter was removed after 4 weeks once the fluid drainage stopped. Follow-up after 15 days, 30 days and 60 days was uneventful.

DISCUSSION

Abscesses of the spleen usually result from bacteremia, particularly in the setting of abnormalities caused by trauma, embolization, or hemoglobinopathy. Immunocompromised states that from human immunodeficiency virus infection, may also be a risk factor. Some reports indicate that splenic abscesses have occurred from a contiguous focus of infection. Other recognized risk factors are neoplasms, metastatic infection, splenic infarction, and diabetes.

Splenic abscesses have also been found to be associated with parasitic infection of the spleen [6-8]. However, none of these factors were present in our patient.

Splenic abscess can be caused by aerobic organisms, anaerobic organisms, fungi, polymicrobial (more than 50 percent cases) and rarely by Burkholderia, Mycobacteria and Actinomycetes. It has a bimodal age distribution described in literature. Peak incidences are between ages 30-40 and 60-70 years; males and females are equally affected. Fever is the most common symptom, followed by abdominal pain and a tender mass on palpation of the left upper quadrant of the abdomen. The common signs and symptoms described of a splenic abscess include the triad of fever, left upper quadrant tenderness, and leukocytosis is present only in one-third of the cases [9]. All these signs and symptoms were present in our patient.

Plain radiographs of the chest can reveal many findings indicative of splenic abscesses such as an elevated left hemidiaphragm and left-sided pleural effusion with or without left basal atelectasis [9]. An ultrasonogram typically demonstrates an area of decreased or absent echogenicity and splenomegaly [9]. An ultrasonogram is quick and can be done at the bedside. A CT scan is the gold standard for diagnosis. The scan also helps doctors to plan treatment by delineating the details of the abscess and the topography of the surrounding structures [9]. Air-fluid level or air foci due to gas forming organisms in spleen have been seen in three cases in the past [10-12]. Two of these cases had obesity and diabetes [10,12]. Only one case has been reported that had no predisposing factor just like our patient [11]. The gas build-up inside the splenic parenchyma can lead to rupture of spleen which can cause life threatening conditions like peritonitis, pneumoperitoneum and septic shock. Hence, prompt diagnosis and treatment is very important in these cases.

The gold standard for treatment of splenic abscess is splenectomy; however, recent studies have shown success using different approaches based on abscess characteristics. Percutaneous aspiration may be a less invasive option in patients who are at high risk for surgery, or a temporary solution used as a bridge to surgery, avoiding the risk of a fulminant and potentially life-threatening infection. A percutaneous aspiration is a successful approach when the abscess collection is unilocular or bilocular, with a complete and thick wall and no internal septations. Aspiration is easier to achieve when the content is liquid enough to be drained. Since urgent drainage was needed in our patient, percutaneous drainage was preferred under broad spectrum antibiotic coverage as the abscess was unilocular.

CONCLUSION

Splenic abscess can be a diagnostic dilemma. Delay in diagnosis can lead to significant complications and therefore mortality. Particularly like in a rare case like this, gas forming organisms can cause increased pressure inside spleen leading to higher chances of rupture and therefore complications like peritonitis, pneumoperitoneum and septic shock. Thus, prompt management is very important. Here we successfully managed this patient by percutaneous drainage by pigtail catheter under broad spectrum antibiotic coverage.

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