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Case Report

A rare case report of ruptured splenic abscess causing pneumoperitoneum in a tertiary care centre

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ABSTRACT

Splenic abscess is a very rare entity but potentially a life threatening disease. In autopsy studies, the incidence of splenic abscess is found to be 0.05 to 0.7%. The most common cause of splenic abscess is through haematogenous spread. It usually occurs due to spread of infection from endocarditis or some contiguous infection sites. High risk individuals include immunocompromised patients, hemoglobinopathies, and diabetes mellitus. Early in diagnosis of these abscesses can be done by the combination of clinical suspicion and computed tomography scan of the abdomen. The management of these abscesses includes medical therapy, CT-guided percutaneous aspiration, and splenectomy. Recent studies have stressed on the change in clinical spectrum, thereby indicating that intravenous antimicrobial therapy alone for patients with splenic abscess has a significant role in its management. However, many studies reveal that splenectomy is necessary for a ruptured splenic abscess with peritonitis.

Keywords: Ruptured splenic abscess, Peritonitis, Pneumoperitoneum, Splenectomy, Percutaneous drainage, Medical therapy

INTRODUCTION

Splenic abscesses are rare and were lethal prior to era of antibiotics. They were usually diagnosed at autopsies. In recent times, the incidence of splenic abscess has increased because of the growing number of immunocompromised patients.[1] However, with the development of new imaging techniques and improved antibiotics, there is an advancement in management and resolution of splenic abscess.

CASE REPORT

A 50-year-old female presented to the emergency department with a complaint of diffuse abdomen pain for the past 10 days. She also had a history of vomiting, which is non-projectile, non-bilious and non-blood stained. She had 4 episodes of fever which was low grade with a history of abdominal distension. On examination, the patient was tachycardic, tachypneic, febrile. Per abdomen examination revealed diffuse tenderness with guarding, rigidity and absent bowel sounds. On percussion, liver dullness was obliterated. Her blood investigations revealed leukocytosis, predominantly raised PMNs. She was hydrated well and put on empirical broad spectrum antibiotics. Chest X-ray showed air under diaphragm. She then underwent contrast enhanced CT abdomen and pelvis which revealed well defined hypodense peripherally enhancing lesion measuring 11.5 x 8.5 x 13 cm with internal air pockets and air fluid level, pneumoperitoneum and free fluid in pelvis.

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As there was a pneumoperitoneum with peritonitis from ruptured splenic abscess, we proceeded with emergency laparotomy rather than percutaneous drainage. Intra-op findings were pyoperitoneum of 200 ml, multiple splenic abscesses with some areas of gross infarcts. Splenectomy with peritoneal lavage was done. Peritoneal fluid isolates taken for organism culture and sensitivity for administration of appropriate antimicrobials.

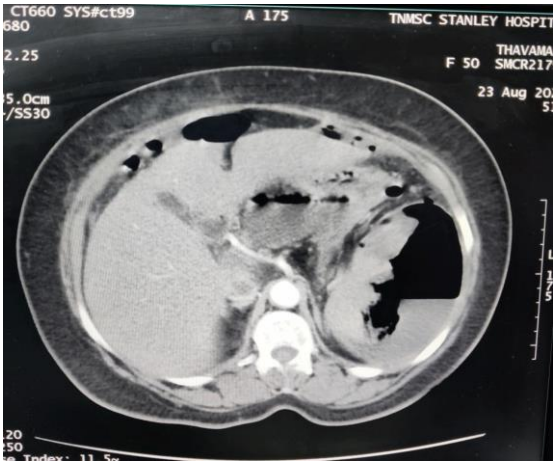

Figure 1: Computed tomography abdomen revealing ruptured splenic abscess with pneumoperitoneum.

Figure 2: Resected spleen demonstrating location of abscess.

DISCUSSION

The classical triad of fever, left upper quadrant pain and elevated WBC count can be seen only in one-third to two-thirds of the patients with splenic abscess.[1] The pathogenesis of splenic abscess includes haematogenous spread of remote infection, haemoglobinopathy which results in embolisation/infarction, chemotherapy and other immunodeficiency states, trauma and contiguous spread of infection from adjacent organs. The most common is haematogenous spread of infection, which has been reported in 49% to 68% of cases. There are a large variety of both aerobic and anaerobic bacteria responsible for splenic abscess. The common bacteria are *Staphylococcus aureus*, *Enterococcus*, *Streptococcus*, *Escherichia coli* and anaerobes. In immunodeficiency patients, fungal organisms have been reported commonly Candida, Aspergillus, Cryptococcus, Blastomyces. Fungal abscesses are usually multilocular.[3]

If left untreated, splenic abscess are universally fatal. Medical therapy (antibiotics) alone is generally ineffective and is associated with a high mortality rate. Combined medical therapy and drainage is used to treat many abscesses. The drainage can be accomplished by either splenectomy or percutaneously using radiographic guidance. However, splenic abscesses that are caused by *Mycobacterium* sp. and Pneumocystis jiroveci may be treated successfully by antibiotics and antifungals alone respectively.

The traditional treatment for splenic abscess is splenectomy. However, this is associated with significant mortality and morbid rates due to secondary underlying disease and intra-abdominal rupture.[1] Critically ill and immunodeficiency patients have even greater mortality rates. Furthermore, splenectomy can be difficult in certain patients due to extensive perisplenic inflammation and adhesions. In these circumstances, early ligation of splenic arteries through an opening in the gastrosplenic ligament may be desirable prior to splenic mobilisation. During exploration, if dense adhesions prevent safe splenectomy, the abscess can be drained or aspirated and interval splenectomy can be done at a later date. After splenectomy, the left subphrenic space should be drained. Sometimes, we may need to remove tenth and eleventh ribs to gain access to high lying abscess, taking caution not to enter the pleural cavity.

Laparoscopic drainage may be indicated when percutaneous drainage is not an option due to anatomical location or access or when percutaneous prior attempts failed or in cases of ruptured splenic abscesses4.

An alternative to splenectomy is CT or USG- guided percutaneous drainage. This carries lower mortality and morbidity rates.[2] It has advantages over standard splenectomy especially in severely debilitated, elderly and critically ill patients.[3] The disadvantage of percutaneous drainage is that it may require multiple

drains for complete resolution. It also carries risk of injury to spleen and surrounding organs such as colon, stomach, left kidneys and diaphragm. Adequate percutaneous drainage of a splenic abscess can be usually achieved by using 12 to 14 French catheters.[4]

Selection of antibiotics in patients with splenic abscess must be guided by culture and sensitivity of the isolates or most likely pathogens in culture negative isolates.[5] The most common length of antibiotic therapy is usually 10-14 days.

CONCLUSION

Splenic abscess though rare, can be a life threatening disease. Hence, early diagnosis with advancements in radiology and administration of appropriate antimicrobials along with prompt drainage can provide significant fall in mortality rates.

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