

Salmonella typhi Causing Splenic Abscess - A Rare Case

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ABSTRACT

Splenic abscess is a rare entity which often goes unrecognised. Only few cases are reported in literature. Often the clinical presentation is non specific. We report a case of a 45 years old female who presented with fever, leukocytosis and left-sided upper abdominal pain, following trauma. Ultrasonography and Computerised Tomography of the abdomen revealed

single large splenic abscess. Ultrasound guided percutaneous drainage of the abscess was performed. Culture of the aspirated material was positive for *Salmonella enterica* serotype typhi and the patient's condition improved after being treated with appropriate antibiotics. Proper clinical, radiological and microbiological evaluation is very much necessary in dealing with rare cases.

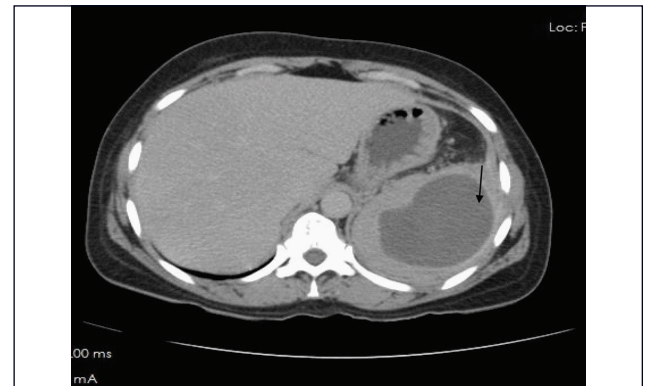
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CASE REPORT

A 45-year-old female was admitted with chief complaints of continuous low grade fever with chills, rigors and abdominal pain for 10 days. The patient gave history of trauma to the left upper aspect of abdomen one month back, following which she developed constant, dull aching pain in the same area associated with abdominal distension. She had two episodes of vomiting before admission to the hospital. She was not a known diabetic or hypertensive. There was no history of bleeding episodes in the past. Informed consent was taken and on physical examination she was found to be febrile, her pulse rate was 92/min and BP was 110/70 mm Hg. Systemic examination revealed abdominal distension associated with tenderness in left hypochondrium extending posteriorly. Dullness on percussion was positive. Decreased intensity of breath sounds in left lung area was appreciated. The cardiovascular and central nervous systems were normal.

Laboratory investigations revealed haemoglobin level of 9.4g%, an increased total leucocyte count of 15,000/mm³ (82% neutrophils, 10% lymphocytes, 4% eosinophils, 4% monocytes) and platelet count of 4.8 lakhs/cumm (1.5 - 4.5 lakhs /cumm). Blood urea, serum creatinine, serum electrolytes and liver function tests were within normal limits. The patient was negative for Hepatitis B virus surface antigen and antibodies to HIV virus. Ultrasonography and CT of the abdomen revealed splenic abscess along with partial thrombosis of left portal vein and splenic vein, cholelithiasis with minimal left pleural effusion and hepatosplenomegaly [Table/Fig-1,2]. Pelvic scan was normal.

Based on clinical and radiological findings a preliminary



[Table/Fig-1]: CT-scan abdomen demonstrating A single large splenic abscess.



[Table/Fig-2]: Sagittal view of CT demonstrating a single large splenic abscess.

diagnosis of splenic abscess/hematoma secondary to trauma was made by the Surgery Department. Aspiration of pus under ultrasonic guidance was done followed by pig tail catheter insertion for residual drainage from the site. The pus sample was sent to Microbiology Laboratory for aerobic, anaerobic and blood culture. The patient was started on Amikacin and Amoxicillin + Clavulanic acid and Metronidazole to cover for both aerobic and anaerobic bacteria.

In the microbiology lab, the pus sample was inoculated on 5% sheep Blood agar, MacConkey agar and also inoculated onto Thioglycollate broth. Grams stain performed on pus sample showed numerous pus cells and no bacteria. The plates and liquid medium were incubated at 37°C and inspected for bacterial growth after 24 hours.

Grey opaque moist colonies grew on 5% sheep blood agar and non lactose fermenting colonies grew from McConkey agar from the aspirated pus, but blood culture and anaerobic culture yielded no growth. Based on the gram stain, motility, biochemical tests and agglutination with factor IX and factor H the organism was identified as *Salmonella typhi*. The isolate was sensitive to penicillins, cephalosporins, flouroquinolones and aminoglycosides. The patient was administered Amikacin, Amoxicillin + Clavulanic acid and Metronidazole for 7 days and the condition improved clinically. Subsequent ultrasonography revealed no collection after pig tail catheter removal on day 7. On the day of discharge patients condition was stable.

DISCUSSION

Very few cases of splenic abscess are reported in literature usually presenting with a nonspecific clinical picture [1]. Splenic abscess usually occurs following damage to the spleen by infarction or trauma commonest being systemic bacteraemia due to infective endocarditis [2]. We are reporting a case of splenic abscess caused by *Salmonella enterica* serotype Typhi in a patient who had a history of trauma.

Two important sites of extraintestinal Salmonella abdominal infections are the hepatobiliary system and the Spleen. Because of the phagocytic activity of the reticuloendothelial system and the leucocytes a low incidence of splenic abscess is seen [3]. Impaired host resistance, Sub-acute bacterial endocarditis, trauma, diabetes mellitus, urinary tract infection, skin sepsis, respiratory tract infection, and intravenous drug abuse are the common predisposing factors of splenic abscess [4]. Most often it presents with a triad of fever, left upper quadrant abdominal pain and a palpable tender mass with additional imaging evidence of splenic space occupying lesion [5,6]. A high index of clinical suspicion is necessary for early diagnosis of splenic abscess. The diagnosis may be missed as the clinical features are often non specific. One of the predisposing factor found in our case is that patient had a history of trauma, followed by fever, chills, rigors and pain which started after 10 days.

Staphylococcus aureus, Streptococci and various aerobic and anaerobic intestinal flora and rarely fungi can play a role

in the causation of splenic abscess, however non typhoidal Salmonella are more frequently reported than *Salmonella typhi* [1]. Till date only few cases of solitary splenic abscess caused by *Salmonella typhi* are described in literature, as reported by Torres et al., [7]. Pus culture in our case, grew *Salmonella typhi*, which could be the probable aetiology for the development of splenic abscess. Splenic abscess probably would have developed by seeding from *Salmonella typhi* bacteraemia with the predisposing factor being blunt trauma to the abdomen. Negative Blood culture could be explained due to administration of antibiotics prior to venepuncture for collecting blood sample.

Ultrasonography and CT are the most useful imaging modalities in making a diagnosis of splenic abscess. Both techniques are quick, harmless and sensitive. A focal sonolucent defect with abundant echogenicity due to debris or septations is seen in US, whereas CT shows a homogenous low density area with occasional rim enhancement [8]. Normally CT is more specific than US in delineating gas bubbles which is diagnostic of splenic abscess in visualising the peripheral contrast enhancement and in providing accurate information about the location of the abscess [9]. In our case CT revealed enlarged spleen with peripherally enhancing hypo-dense collection, measuring 8.6×7×6.6cm, with a lobulation anteromedially, and a break in the wall posteromedially in the upper pole.

Mainstay of treatment for splenic abscess is splenectomy with a success rate of 86-94%. Solitary unilocular abscess may be treated by percutaneous catheter drainage or fine needle aspiration with success rate being upto 68%. But its use is limited to surgically high risk patients and for unilocular abscesses [1]. In our case, percutaneous drainage under Ultrasonographic guidance followed by pigtail catheter insertion along with antibiotic coverage was the preferred mode of treatment as it was a unilocular abscess.

CONCLUSION

Salmonella typhi splenic abscess is very rare and can be fatal if it is not recognised at an earlier stage. Non invasive imaging modalities like Ultrasonography, CT-scan are useful for early diagnosis of splenic abscess. It must be borne in mind that while there are several emerging new infections, we should not miss the newer presentations of the older diseases. A good microbiological correlation of the appropriately collected specimen is mandatory in such unusual pyogenic infections.

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