Two Cases of Salmonella Splenic Abscess

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Introduction

Splenic abscess is a rare clinical entity with an incidence of 0.2 to 0.7 percent in autopsy based studies [1]. Less than 500 cases have been reported in world literature. Clinical presentation is non-specific and it is a potentially serious surgical problem associated with high mortality. The treatment has been a combination of total splenectomy or percutaneous drainage and appropriate antibiotic therapy. We report 2 cases who developed multiple splenic abscesses and were successfully treated.

Case 1

A 21 year old man presented with high-grade intermittent fever with chills and rigors and productive cough of 10 days duration. On examination he had fever, left sided pleural rub and a palpable liver, 2cms below the right costal margin. Investigation showed a Hb of 13gm/dl; TLC 6900/cmm; DLC N48 L48 E03M02; blood sugar 71 mg/dl; bilirubin 0.9 mg/dl, SGOT 76 U/L, SGPT 56 U/L; blood urea 30 mg/dl and serum creatinine 1.3 mg/dl. Peripheral blood smear revealed leucocytosis with shift to left and toxic granules. Chest radiograph showed elevated left hemi-diaphragm. Lung parenchyma and costophrenic angles were normal. Abdominal ultrasonography (USG) showed splenomegaly with multiple hypoechoic areas measuring few mm to 6 cms in diameter. The Widal test was negative. Blood culture and bone marrow aspiration culture were sterile. Contrast enhanced computerized tomography of abdomen confirmed multiple hypodense lesions suggestive of splenic abscess. Injection ceftriaxone and amikacin were instituted. A USG guided percutaneous aspiration was done and 400ml of haemorrhagic pus was drained. Ziehl Neelsen and gram's stain were negative for bacteria. Pus culture grew *Salmonella typhi*. The fever persisted inspite of antibiotics and patient developed hypotension. A surgical consultation was sought and he underwent emergent splenectomy. The fever subsided from 3rd postoperative day and the general condition improved.

Antibiotics were continued for 4 weeks. Sickling and HIV test were negative.

Case 2

A 19 years old recruit presented with fever of one-day duration. On examination his temperature was 103°F, liver was palpable 1cm below costal margin.

The hemoglobin was 9.5gm/dl, TLC 8800/cmm, DLC N 59% L 36% E 3% M 2%; Widal test was positive in 1:80 dilutions. Blood culture grew *salmonella paratyphi* sensitive to fluoroquinolones. Patient was exhibited to ciprofloxacin by intravenous route. On the fourth day of antibiotic he complained of left sided chest pain and a pleural rub was detected. The chest radiograph was normal. Amikacin was added. He continued to have moderate grade fever inspite of 7 days of antibiotic. Ultrasound of abdomen repeated was normal. A bone marrow aspiration (BMA) was done and antibiotic changed to ceftriaxone. The cytology was normal, however culture grew *Salmonella Paratyphi* again. A computerized tomography (CT) of abdomen (Fig. 1) was done which detected multiple splenic abscesses. Patient underwent percutaneous drainage and made uneventful recovery.

Discussion

The diagnosis of splenic abscess has become more frequent with the advent of modern imaging techniques. It has diverse etiologies, which can be divided into five distinct categories: metastatic infection, trauma, contiguous infection, haematological disorders and immunodeficiency states. Large series from developed countries have identified infective endocarditis as the commonest source accounting for 10 to 20% of all cases [2]. The other infective causes include typhoid, malaria, urinary tract infection, pneumonitis, osteomyelitis, otitis media, mastoiditis and pelvic infection. Areas of splenic infarction in disorders like hemoglobinopathies (especially sickle cell anemia) may get infected and evolve into splenic abscesses. Alcoholics, diabetics, intravenous drug

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Fig. 1 : CT study of abdomen showing multiple splenic abscesses.

abusers and immunosuppressed individuals including patients with AIDS are more susceptible to developing a splenic abscess. Infecting microorganisms include gram positive bacteria, mycobacteria, fungi and anaerobes.

Splenic abscess is one of the abdominal complications of untreated typhoid fever, developing frequently in the third or fourth week of infection [3]. In a review of 173 cases of splenic abscesses, typhoid fever accounted for 2.9% [4]. The incidence of splenic abscess in typhoid is reported between 0.29-2% [5,6]. Published data from India is scarce. The diagnosis should be considered in a patient with fever, abdominal pain, non-specific chest findings and leucocytosis [7]. Left upper quadrant tenderness and splenomegaly are frequently encountered signs on examination [1]. Friction rub has been reported in 3.3% only. Leucocytosis has been reported in up to 75% of patients, however the level of leucocytosis is of no value in the estimation of severity of disease or prediction of outcome [1,7]. Both our patients had normal counts, although leucocytosis was documented in peripheral smear, later in the course of illness in one patient. Abnormal findings have been reported in 82% of chest radiographs in the form of mass effect in left upper quadrant, left pleural effusion, elevated left hemi diaphragm and lower lobe infiltrate [1]. USG has a sensitivity of 76% [1]. It detects large abscesses easily, but may miss the small abscesses. The classic CT appearance is a hypodense lesion with a density range of 18-30 HU. CT Scan with a sensitivity of 96% and specificity of 90-95% remains the gold standard for the definitive diagnosis [1]. It is also helpful in planning therapeutic strategies like percutaneous

drainage. Differential diagnosis of splenic abscesses in CT and US images include splenic infarct, hematoma, neoplasm and even complicated cyst.

The recommended treatment for splenic abscess has been a combination of total splenectomy and appropriate antibiotic therapy, although there have been isolated reports of successful treatment with antibiotics alone [7,8]. Recent trends in the management of a splenic abscess include percutaneous catheter drainage and fine needle aspiration of the abscess [9]. In young patients, preservation of splenic function by percutaneous drainage has a major immunological advantage [9]. Multilocular abscesses, fungal abscess, infected haematomas, abscesses with thick contents and abscesses unresponsive to percutaneous drainage, should be subjected to splenectomy. Untreated, a splenic abscess may rupture into the peritoneal, pleural cavity or bowel and the prognosis in these patients is bleak. The overall mortality rate is 12.4% [1]. Although splenectomy and appropriate antibiotic remain the traditional treatment, recent literature suggest computed tomographic-guided drainage in a select group of patients.

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