

An uncommon twist to a common event – Isolated enteric splenic infarcts and abscesses

Meghna Dutta¹, Suddhasatwya Chatterjee²

From, ¹Post Graduate Trainee, Department of Family Medicine, ²Senior Consultant, Department of Internal Medicine and Rheumatology, Apollo Gleneagles Hospital Limited, Kolkata, West Bengal, India.

Correspondence to: Dr. Meghna Dutta, Department of Family Medicine, Apollo Gleneagles Hospital Limited, Kolkata - 700 054, West Bengal, India. E-mail: yourfriendmeghna@gmail.com

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ABSTRACT

Isolated splenic abscess associated with enteric fever is uncommon with very few reported cases in the literature. Till recently, the condition was more frequently diagnosed at necropsy. Splenic abscess is mostly encountered solitarily rather than being multiple and can be fatal if untreated. Various conditions interfere with the prognosis of splenic abscess such as underlying diseases, abscess number and size, organism spectra, and general conditions. This unusual and potentially life-threatening disease is a diagnostic challenge due to its non-specific clinical picture. High index of suspicion and liberal use of imaging studies are essential for timely diagnosis. We report a case of enteric splenic abscess in an immunocompetent patient without any comorbidities, which was diagnosed by blood tests, ultrasonography, and computed tomography scan and successfully managed conservatively with antibiotics.

Key words: Enteric fever, *Salmonella typhi*, Splenic abscess, Splenic infarct

Typoid fever, mainly caused by *Salmonella typhi*, is usually transmitted through the consumption of food, drink, or water that have been contaminated by the feces or urine of subjects excreting the pathogen. This disease typically affects the low- and middle-income countries with overcrowded housing and poor sanitation, or in places where conflicts or natural calamities have led to the compromise of the water, sanitation, and health-care systems. This disease has a high incidence in India, Sub-Saharan Africa, and Southeast Asia. Splenic abscess is an uncommon disease, and nearly 70% develops in patients with concurrent infections. The incidence of splenic abscess in enteric fever is low, reportedly between 0.29% and 2%. Although hematogenous spread is the most common cause of splenic abscess, with the increasing prevalence of malignancies, organ transplantation, and immunosuppressive therapy, the risk of the occurrence of splenic abscesses has increased manyfold [1]. This is mostly seen solitary rather than being multiple and can be fatal if left unrecognized at an initial stage [2]. Patients with multiple abscesses not responding to percutaneous drainage (PCD) require splenectomy. Various studies in recent years have stressed on the dynamic clinical spectrum and reported that there are chances of a better outcome with intravenous antimicrobial therapy alone [3].

We report a rare case of enteric fever with isolated multiple splenic abscesses which were successfully managed conservatively using antibiotics.

CASE REPORT

A 19-year-old young lady presented to our outpatient department (OPD) with complaints of high-grade intermittent fever for 7–8 days associated with abdominal pain, nausea, and vomiting for 2 days. She also complained of loose stools from the past 3 days. As advised by her physician, she was on oral ofloxacin and other symptomatic treatment before her visit to our OPD. No significant personal and family history could be elicited. On examination, pulse rate was 94/min, blood pressure was 110/60 mmHg, temperature was 101°F, and the spleen was just palpable. Initial routine blood investigations only revealed leukocytosis and raised C-reactive protein. Widal titers were within biological limits. Ultrasonography (USG) of the abdomen (on day 1 of admission) gave the impression of mild splenomegaly and mild fatty liver (Fig. 1). Based on her fever of over 1-week duration, abdominal symptoms, and splenomegaly, she was provisionally diagnosed as a case of enteric fever, keeping in mind, vivax malaria, leptospirosis, and dengue fever as the possible differential diagnosis. Microbiologic investigation with blood culture showed the growth of *S. typhi* sensitive to cotrimoxazole, doxycycline, and ceftriaxone confirming the diagnosis of typhoid fever. The patient was managed with intravenous (IV) antibiotic (ceftriaxone 2 g twice daily) for 7 days. On discharge from the hospital, she was advised to continue with oral antibiotics (cefixime 200 mg twice daily) at home for another week.

Following a week after discharge, the patient developed pain over the left hypochondrium with radiation to the left shoulder. On admission, ultrasonography and computed tomography (CT) scan of the abdomen were performed, which reported splenomegaly with multiple hypodense foci in the periphery with liquefaction in the larger ones, and atelectatic changes in the left lung base suggestive of infarcts and abscesses (Figs. 2 and 3). All other possible causes of splenic abscess were ruled out with relevant investigations such as Coombs test, human immune deficiency virus antibodies, and antiphospholipid antibody. With the above investigations, the patient was diagnosed as a case of enteric fever with multiple infarcts and abscesses. Prognosis and possible modes of management were discussed with the patient and her family. Surprisingly, the patient responded well to IV antibiotics (ceftriaxone 2 g twice daily and meropenem 1 g thrice daily for a month) and her clinical condition improved. She remained afebrile, her vitals were stable, and all her abdominal symptoms subsided. No other intervention was performed. Post-discharge, she was regularly followed up and a repeat CT of the abdomen after 1 month showed complete resolution of the infarcts.

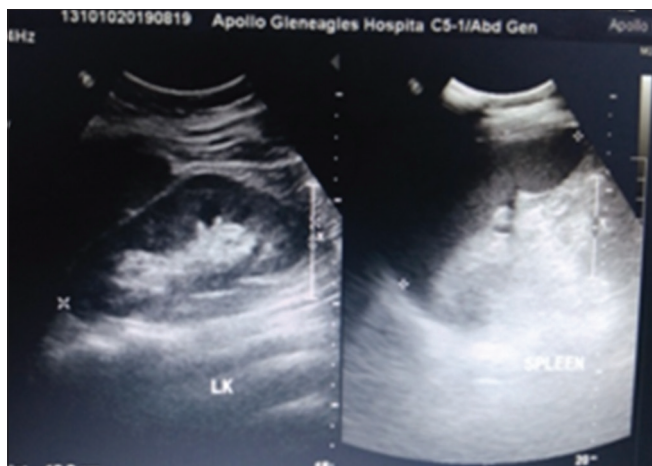


Figure 1: Ultrasonography on day 1 of the first admission showing mild splenomegaly

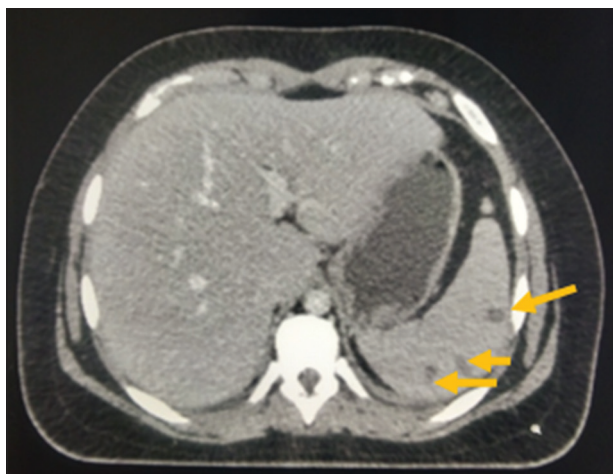


Figure 2: Computed tomography scan of the abdomen performed on day 1 of the second admission shows multiple hypodense foci in the periphery (yellow arrows)

DISCUSSION

Salmonella enterica subspecies *enterica* serovar *Typhi* (*S. typhi*), a human host-restricted organism, causes typhoid fever. Splenic abscess in itself is a rare occurrence, infection with *S. typhi* as a cause of this condition is even more rare so. The condition is generally associated with metastatic hematogenous infections, acquired immunodeficiency syndrome (AIDS), IV drug abuse, chemotherapy, and transplantation [4]. Due to its rarity, insidious onset, and vague clinical presentation, it is difficult to clinically diagnose enteric splenic abscess. Fever, abdominal pain, nausea, and vomiting are common symptoms in patients with splenic abscess. Nagem and Petroianu reported that 66.7% of patients with splenic abscess presented with a classic triad of fever, pain in the left hypochondrium, and splenomegaly, the same was observed in our case [5]. A study published in 2006 mentions that spleen infected with Gram-negative *Bacilli* has a greater risk of developing multiple abscesses and such patients experienced a higher mortality rate than patients with Gram-positive cocci infection and solitary abscess [6].

Multiple splenic abscesses are still extremely rare finding in the clinical setting encountered mostly in immunocompromised patients and those with underlying malignancies [7]. Our patient showed isolated multiple splenic abscesses which are even rarer. Before the advent of USG and CT, individuals with splenic abscess had 100% mortality rate. USG is easy to perform, inexpensive, and also aids therapeutically during PCD. Ultrasound is used as a preliminary diagnostic modality; however, it cannot discriminate between an abscess and an infarct in every case, making CT the examination of choice. On CT scan, splenic abscesses appear as focal areas of low attenuation with no inflammatory rim [6]. Often, there is an overlap in the imaging appearance alone, so the clinical setting is very helpful in differential diagnosis.

Various conditions interfere with the prognosis of splenic abscess such as underlying diseases, abscess number and size, organism spectra, and general conditions; however, our index patient was an immunocompetent lady with no comorbidities [8]. From a therapeutic perspective, splenectomy was once considered the standard treatment; however, the trend is now toward a conservative approach. The increased understanding of the possible etiology of splenic abscess and advancements in pharmacology has allowed the treatment to progress from total splenectomy to draining the abscess under the cover of IV antibiotics. No definite protocol for the treatment of splenic abscess has been set, and hence, treatment for splenic abscess is customized to each patient. Although the success rate of PCD has



Figure 3: Ultrasonography abdomen on day 4 of the second admission shows splenomegaly with multiple splenic infarctions

been reported between 67% and 100%, it has been observed that PCD may be appropriate in unilocular and peripherally located abscesses [4].

CONCLUSION

With its rare incidence and various misleading clinical manifestations, splenic abscess usually poses a diagnostic pitfall in the medical world. Although the confirmation of the diagnosis is based mostly on imaging studies, the splenic abscess should be suspected in a febrile patient with the left upper quadrant tenderness and raised white blood cell count. A high index of suspicion and liberal use of imaging studies are essential for timely diagnosis and treatment of this life-threatening condition.

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