

Splenic Infarction Rare Complication of XDR Enteric Fever; Case Report

Dr. Wania Rafaey*, Dr. Shanawar, Dr. Anum Latif

MBBS, Liaquat National Hospital Karachi, Pakistan

*Corresponding Author: Dr. Wania Rafaey, MBBS, Liaquat National Hospital Karachi, Pakistan

ABSTRACT

Background: The emergence and rapid spread of extensively drug-resistant salmonella typhi is an alarming situation. It can present with different complications including intestinal perforation, bone marrow suppression and encephalopathy. Splenic infarction is a rare complication of XDR enteric fever. It is characterized by abdominal pain, nausea and vomiting.

Case Description: We present a case of young male with XDR Enteric Fever having persistent left hypochondrial pain was diagnosed to have splenic infarction that were identified on abdominal imaging (CT abdomen). Salmonella typhi XDR was isolated from the patient's blood and bone marrow cultures.

Conclusion: Splenic infarction is a rare complication of XDR enteric fever. Patient with XDR enteric fever presenting with persistent abdominal pain could be due to splenic infarction in addition to other complications of enteric fever. High index of suspicion is required to diagnose such rare complication.

CASE PRESENTATION

21 year old, unmarried male, resident of Karachi, accountant by profession, was admitted through Liaquat National Hospital Emergency with complaints of high grade, intermittent fever, documented up to 101F associated with chills, non projectile vomiting (usually after meals) and loose, semisolid stools for the last 3 weeks. On examination, he had blood pressure of 110/70 mmHg, pulse of 80beats/min, temperature of 101 F and respiratory rate of 16 breaths/min. Abdomen was soft, non tender, tip of spleen was palpable. Baseline investigations and blood cultures were sent. Complete blood count showed Hb- 13.8g/dl, TLC of 12.8×10^9 , Platelets- 65. Blood culture showed salmonella typhi sensitive to only Imipenem and Azithromycin. Antibiotics were started according to culture sensitivity. Patient started to improve clinically, fever started to subside and platelet counts were on rising trend. However, on Day 4 of admission, patient developed left hypochondrial pain. Ultrasound abdomen was done that showed 2 hypoechoic lesions of 2.2x 2.1 cm and another of 1.8x1.7 cm- suggestive of splenic infarctions. CT abdomen done that also showed splenic infarcts. (Figure:1) Patient started to

develop multiple spikes of fever again, despite culture sensitive antibiotics. His platelet count started declining rapidly and reached 2000 and he had one episode of per rectal bleed. Patient was transfused platelets multiple times but platelet count failed to rise. Echocardiogram done that was normal. Autoimmune workup was all negative. Bone marrow examination done which showed normal aspirate and normal cellularity and cell lineage. Bone marrow culture showed Salmonella typhi XDR with similar sensitivity as blood culture.(figure :2) So, antibiotics were continued for total 21 days and oral steroids started at the dose of 1mg/kg/day. Patient started to improve gradually- fever and abdominal pain settled, platelet counts improved. Patient was discharged home to follow in opd. Steroids were tapered off over a period of 6 weeks. Repeat ultrasound showed normal spleen and repeat complete blood count was normal as shown in table 1.

Table1.

Haemoglobin	15.4 g/dl
TLC	$12.6 \times 10^9/l$ (4.8-11.3)
Platelets	$232 \times 10^9/l$
Retic count	1.2% (0.6-2.4)

BONE FOR C/S

Specimen: Bone Marrow

Organism (s):

A: *Salmonella typhi*

Antibiotics	A
Chloramphenicol	R
Trimethoprim+Sulfamethoxazole	R
Ciprofloxacin	R
Imipenem	S
Ceftriaxone	R
Ampicillin	R
Nalidixic Acid	R
Azithromycin	S
Cefixime	R

S= Sensitive

R= Resistant

I= Intermediate

Comments

*Imipenem not routinely reported for salmonella except in multi drug resistant (MDR) cases.

Final Report

Figure1.

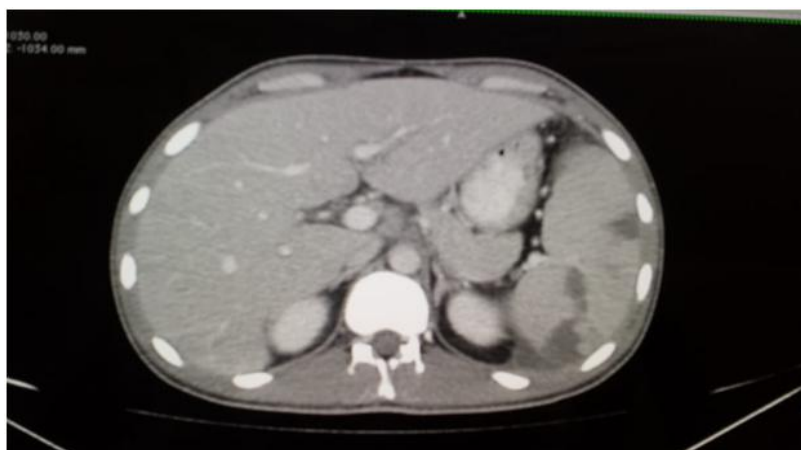


Figure2.

DISCUSSION

Salmonella Typhi is the causative organism for Enteric fever, that has developed resistance to first line traditional antibiotics including Chloramphenicol, Ampicillin, and Trimethoprim-Sulfamethaxazole leading to multi drug resistant strain of Salmonella Typhi. From 2016-2018, 5,274 cases of Salmonella Typhi have emerged from Sindh, Pakistan; that were resistant to both first line and second line antibiotics (fluoroquinolones and third generation cephalosporins). This strain has been labeled as XDR (extensively drug resistant) Salmonella Typhi (1). A large population in Pakistan is at risk of Enteric fever because of poor sanitation and unsafe drinking water. Emergence of cases with XDR strain is an alarming situation that requires immediate action. Azithromycin, carbapenems, tigecycline, piperacillin-tazobactam, ceftazidime-avibactam, fosfomycin, and colistin are potential treatment options available for XDR Salmonella Typhi (2).

10-15 percent of the patients with enteric fever develop severe complications including gastrointestinal bleeding, pancreatitis, hepatitis, intestinal perforation, DIC, enteric encephalopathy, endocarditis, pneumonia, hemolytic uremic syndrome and rarely, rhabdomyolysis and reactive hemophagocytic lymphohistocytosis (HLH) (3). Splenic infarction is a rare complication and commonly associated with haematological and rheumatological diseases.

Approximately 12-27 million cases of typhoid fever are reported annually worldwide (4). The province of Sindh, Pakistan reports a total number of 5274 cases of XDR enteric fever out of 8188 typhoid fever cases from 1 November 2016 to 9 December 2018 (5).

There are a wide variety of presentations of enteric fever ranging from multisystem illness to minor cases of diarrhea with low grade fever. Presenting complaints include fever, malaise, diffuse abdominal pain and altered bowel habits. Untreated enteric fever may result in intestinal hemorrhage, bowel perforation, delirium and obtundation (6).

Severe disease occurs in 10-15 percent of patients depending on the host factors (such as antacid therapy, previous exposure, immune suppression and vaccination.), strain virulence and inoculum and choice of antibiotic therapy. Most common complications occurring in the third and fourth week of illness include

gastrointestinal bleeding (10-20 percent) and intestinal perforation (1-3 percent) resulting from hyperplasia, ulceration, and necrosis of the ileocecal Peyer patches at the initial site of Salmonella growth in the intestines. 2-40 percent of patients present with neurological manifestations – meningitis, Guillain-Barré syndrome, neuritis, and neuropsychiatric symptoms (7)

The development of severe disease, which occurs in approximately 10 to 15% of patients, depends on host factors (i.e., immune suppression, antacid therapy, previous exposure, and vaccination), strain virulence and inoculum, and choice of antibiotic therapy. Gastrointestinal (GI) bleeding (10-20%) and intestinal perforation (1-3%) most commonly occur in the third and fourth weeks of illness and result from hyperplasia, ulceration, and necrosis of the ileocecal Peyer patches at the initial site of Salmonella growth in the intestines. Other complications may include acute cholecystitis, hepatitis, osteomyelitis, intrabdominal abscess, urinary tract infection and meningitis (6). Whereas splenic infarctions are very rarely encountered in patients with enteric fever.

Common causes of splenic infarcts include sickle cell hemoglobinopathy, infective endocarditis, leukemias and lymphomas, systemic embolisation, mural thrombosis accompanying acute myocardial infarction, post partum toxic syndrome, HIV associated mycobacterium infections, splenic venous thrombosis and trauma. The common causes of splenic infarction were excluded by no evidence of thrombus or vegetations in echocardiogram, no evidence of leucoerythroblastic picture on peripheral film, negative HIV serology profile, normal ESR (erythrocyte sedimentation rate) and negative anti nuclear antibodies. CT angiogram ruled out any abnormality in the splenic artery and vein.

REFERENCES

- [1] World Health Organization. Typhoid Fever–Islamic Republic of Pakistan. WHO, Geneva. 2018.
- [2] Parry CM, Ribeiro I, Walia K, Rupali P, Baker S, Basnyat B. Multidrug resistant enteric fever in South Asia: unmet medical needs and opportunities. *bmj*. 2019; 364: k5322.
- [3] Klemm EJ, Shakoor S, Page AJ, Qamar FN, Judge K, Saeed DK, Wong VK, Dallman TJ, Nair S, Baker S, Shaheen G. Emergence of an extensively drug-resistant Salmonella enterica serovar Typhi clone harboring a promiscuous plasmid encoding resistance to fluoroqu-

Splenic Infarction Rare Complication of XDR Enteric Fever; Case Report

- inolones and third-generation cephalosporins. MBio. 2018;9(1)
- [4] Mogasale V, Maskery B, Ochiai RL, Lee JS, Mogasale VV, Ramani E, Kim YE, Park JK, Wierzba TF. Burden of typhoid fever in low-income and middle-income countries: a systematic, literature-based update with risk-factor adjustment. *The Lancet Global health*. 2014;2(10):e570-80
- [5] World health organization. Geneva: WHO; 2018. Typhoid fever - islamic republic of Pakistan
- [6] Lambotte O, Debord T, Castagne C, Roue R. Unusual presentation of typhoid fever: cutaneous vasculitis, pancreatitis, and splenic abscess. *Journal of Infection*. 2001 Feb 1; 42(2):161-2.

Citation: Dr. Wania Razaey, "Splenic Infarction Rare Complication of XDR Enteric Fever; Case Report", *Annals of Microbiology and Infectious Diseases* 2020, 3(2), pp. 17-20.

Copyright: © 2020 Dr. Wania Razaey. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.