

CASE REPORT

SEPSIS, AN UNUSUAL PRESENTATION OF TYPHOID FEVER - A CASE REPORT

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Abstract:

Typhoid fever is an infection caused by Salmonella typhi. The common complications are intestinal perforation and typhoid encephalopathy. Cases of typhoid fever with sepsis and/or disseminated intravascular coagulation (DIC) are rarely reported. A 20 yr old male presented with grade fever, vomiting, diarrhoea. His Dengue NS1 was negative, procalcitonin was high, coagulation profile was altered and developed subclinical DIC along with septicemia within a short period of time which is very rare. Sepsis and DIC are rare complications of typhoid fever. Typhoid fever can be presented with profound bleeding manifestation other than gastrointestinal bleeding, since it is a common symptom of typhoid fever. Further research should be conducted to postulate association between typhoid fever and DIC. Here we reported an unusual case of sepsis which is caused by case of typhoid fever.

Received: 15.08.2023

Accepted: 16.06.2023

DOI: <https://doi.org/10.3329/bjm.v34i3.68437>

Citation: Reza IB, Zahiruddin MA, Ahasan HAMN, Islam QT. Sepsis, An Unusual Presentation of Typhoid Fever - A Case Report. Bangladesh J Medicine 2023; 34: 252-254.

Introduction:

Typhoid fever is a serious systemic disease caused by *Salmonella enterica* serotype typhi. The prevalence of typhoid in worldwide are near about 12–33 million cases a year.¹ It is more common in children and young adults than in older patients. Though gastrointestinal manifestation are common but some rare presentation are sepsis, disseminated intravascular coagulation (DIC), multiorgan failure, and rhabdomyolysis-related acute renal failure.^{2,3} Here we are discussing a case of typhoid fever presenting with rapidly progressive sepsis.

Case report:

A 20-yr-old male presented to us with high grade fever which was 104F, generalized body ache and vomiting for 3 days. As now dengue is endemic initially, we thought this may be a case of dengue fever or any other viral disease. One day after admission, he developed severe watery diarrhea along with high fever.

On examination patient was toxic, drowsy, dehydrated. His pulse was feeble along with low blood pressure. Spleen was just palpable. Initial CBC showed leucopenia. NS1 came negative. Liver enzymes were deranged and S. electrolyte showed hyponatremia. Further CBC report showed progressive leucopenia and thrombocytopenia (Table-I).

His condition was deteriorating. Abnormal blood coagulation (PPT 40.3 s, APTT 44s, Fibrinogen <7 mg/dL, D-dimer 2.5mg/dl), lactatemia (lactate 5.42 mg/dL), and increased level of procalcitonin (procalcitonin 28.98 ng/ml). DIC score was 7. Meanwhile report of Dengue IgM and IgG was negative. We started inj ceftriaxone 2gm intravenously 12 hrly. 1 day later, report of Blood culture showed salmonella typhae. Patient became afebrile 3 days later and his condition was improving. Based on clinical and laboratory findings, the patient was diagnosed with typhoid fever with septicaemia with DIC.

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Table-I
Serial Laboratory reports of the patient

Date	07/06/23	08/06/23	09/06/23	10/06/23	12/06/23
White Blood Cell (WBC)	2.33 K/ μ L	2.06 K/ μ L	2.69 K/ μ L	2.80 K/ μ L	7.87 K/ μ L
Red Blood Cell (RBC)	5. 18 million/ μ l	4.50 million/ μ l	4.21 million/ μ l	4.25 million/ μ l	4.03 million/ μ l
Platelets	150 K/ μ L	100 K/ μ L	80 K/ μ L	50 K/ μ L	80 K/ μ L
Haemoglobin	15.40 g/dL	13.70 g/dL	12.60 g/dL	12.70 g/dL	12.10 g/dL
Neutrophils	71%	82 %	77 %	80 %	48 %
Lymphocyte	25 %	15 %	20 %	17 %	46 %
Monocyte	03 %	02 %	02 %	02 %	05 %
Eosinophil	01 %	01 %	01 %	01 %	01 %
Basophil	00%	00 %	00 %	00 %	00 %
ESR	06 mm/ hr	16 mm/ hr	22 mm/ hr	21 mm/ hr	19 mm/ hr
HCT	42.60 %	36.20 %	34.40 %	35.30 %	32.90 %
MCV	82.2 fl	80.1 fl	81.7 fl	83.1 fl	81.6 fl
MCH	29.7 pg	30.3 pg	29.9 pg	29.9 pg	30.0 pg
MCHC	36.2 g/dL	37.8 g/dL	36.6 g/dL	36.0 g/dL	36.8 g/dL

Discussion:

In typical cases, a gradual increase of body temperature, known as “step ladder”, relative bradycardia, and hepatomegaly are common in the first week of onset. Sustained high temperature with apathetic facial expression is observed in the second week of onset. In the third week, intestinal perforation and GIT bleeding are common manifestations. The fourth week is normally the recovery phase. The most common complications due to typhoid infection are hepatitis, bone marrow suppression, and paralytic ileus⁴. Here we diagnose the case on the basis of blood culture.

Sepsis due to *Salmonella typhoid* is uncommon⁵. Adu-Gyamfi et al. reported a 28 year-old male with Salmonella sepsis in November 2019. The patient came to hospital and presented with septic shock after a ten-day history of abdominal pain, malaise, vomiting, and diarrhea. Laboratory investigation showed septicaemia.⁶ Another case reported by Nishida et al. was a 7 year-old boy with typhoid fever complicated by sepsis and DIC⁷.

DIC is mostly a subclinical event, and the severe bleeding complications are not typically found in typhoid fever, although DIC score indicates an imbalance of coagulation and fibrinolysis which are markedly elevated in patients with typhoid [8]. Coagulation problems involve three major processes: pro-coagulation, anti-coagulation, and fibrinolysis. A typhoid patient usually demonstrates increased

plasma prothrombin fragments as well as D-dimer level, prolonged prothrombin time, and lower protein C and anti-thrombin concentrations. Repeated tests of coagulation markers during convalescence showed a return toward normal values⁸. DIC in this patient can be a part of the multi-organ dysfunction due to sepsis syndrome⁴.

Acute infection can also result in systemic activation of coagulation. Thrombocytopenia is one of hematological features of typhoid; 18–44.9% of patients with typhoid fever suffer from thrombocytopenia⁹. The mechanism of thrombocytopenia in typhoid patients remains vague. It has been postulated that there are defects in production of platelets due to the direct effect of the toxin produced by *Salmonella* on the bone marrow, while others have suggested the destruction of non-immune platelets due to DIC.⁸

Conclusion:

Salmonella infection can present as fulminant sepsis which can mimic acute viral illness. Outcome can be worse. There should be a high index of suspicion of typhoid fever during this season of dengue fever. Typhoid vaccine is now a burning issue in our country now a days.

Conflict of Interest:

The authors stated that there is no conflict of interest in this study.

Funding:

This research received no external funding.

Ethical consideration:

The study was conducted after approval from the ethical review committee of Popular Medical College Hospital, Dhaka, Bangladesh. The confidentiality and anonymity of the study participant was maintained.

Consent:

For the purpose of publishing this case report and any related photos, the parents are written informed consent was acquired.

References:

1. Parry CM, Hien TT, Dougan G, White NJ, Farrar JJ. Typhoid fever. *N Engl J Med* 2002;347:1770-82.
2. Retornaz F, Fournier PE, Seux V, Jacomo V, Soubeyrand J. A case of *Salmonella enteritidis* septicemia complicated by disseminated intravascular coagulation, severe hepatitis, rhabdomyolysis and acute renal failure. *Eur J Clin Microbiol Infect Dis* 1999;18:830-1.
3. Sirmatel F, Balci I, Sirmatel O, Bayazit N, Hocaoglu S. A case of *Salmonella paratyphi B* infection septicemia complicated by disseminated intravascular coagulation, severe hepatitis, rhabdomyolysis and acute renal failure. *J Infect* 2001;43:19
4. Malik A.S. Complications of bacteriologically confirmed typhoid fever in children. *J. Trop. Pediatr.* 2002;48(2):102–108. doi: 10.1093/tropej/48.2.102.
5. Ray B., Raha A. Typhoid and enteric fevers in intensive care unit. *Indian J. Crit. Care Med.* 2021 May;25(Suppl 2):S144–S149. doi: 10.5005/jp-journals-10071-23842.
6. Adu-Gyamfi R., Hoosain F., Chetty S. *Salmonella typhi*: a quiet bacteria with a loud message: an ICU case report. *Bali J Anesthesiol.* 2019;3(2):129–132. doi: 10.15562/bjoa.v3i2.161.
7. Huang G.C., Chang C.M., Ko W.C., Huang Y.L., Chuang Y.C. Typhoid fever complicated by multiple organ involvement: report of two cases. *J. Infect.* 2005 Aug;51(2):E57–E60. doi: 10.1016/j.jinf.2004.08.018.
8. de Jong H.K., Parry C.M., van der Vaart T.W., Kager L.M., van den Ende S.J., Maude R.R., Wijedoru L., Ghose A., Hassan M.U., Hossain M.A., Dondorp A.M., Baker S., Faiz M.A., Meijers J.C.M., Wiersinga W.J. Activation of coagulation and endothelium with concurrent impairment of anticoagulant mechanisms in patients with typhoid fever. *J. Infect.* 2018 Jul;77(1):60–67. doi: 10.1016/j.jinf.2018.03.008.
9. Getahun Strobel A., Parry C.M., Crump J.A., Rosa V., Jenney A., Naidu R., Mulholland K., Strugnell R.A. A retrospective study of patients with blood culture-confirmed typhoid fever in Fiji during 2014–2015: epidemiology, clinical features, treatment and outcome. *Trans. R. Soc. Trop. Med. Hyg.* 2019; 113(12):764–770. doi: 10.1093/trstmh/trz075.