



## Co-Infection of Hepatitis A with Salmonella Infection: A Case Report

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### Abstract

Waterborne diseases are very common in developing countries like Bangladesh due to intake of contaminated water from local water supply authority, along with inadequate sewage and water drainage systems. Multiple infections can occur with contaminated water. Viral hepatitis and typhoid fever are endemic in our country. Both are transmitted feco-orally and are associated with poor sanitation, poor hygiene. Sometimes more than one type of infection along with coexisting febrile illness makes the diagnosis and management a challenging task. We report a case of 10 years young girl came to us with 10 days history of low grade intermittent fever, yellow discoloration of sclera and urine and right upper abdominal pain and final diagnosis was confirmed as co-infection of Hepatitis A and *Salmonella typhi* infection.

**Keywords:** Co-infection; Hepatitis A; *Salmonella*

### Introduction

Ours is a developing country so infectious diseases contribute maximum to the morbidity and mortality [1]. Among these, water borne diseases like diarrhea, typhoid, infectious hepatitis etc. are on rise. Waterborne diseases are very common in developing countries like Bangladesh due to intake of contaminated water from local water supply authority, along with inadequate sewage and water drainage systems. Multiple infections can occur with contaminated water. Viral hepatitis and typhoid fever are endemic in our country. Both are transmitted feco-orally and are associated with poor sanitation, poor hygiene. Sometimes more than one type of infection along with coexisting febrile illness makes the diagnosis and management a challenging task [2,3]. Few studies have shown the co-existence of these two together, but still the diagnostic dilemma whether clinical manifestations are due to viral hepatitis or a feature of typhoid hepatitis, always challenge a physician [4]. We report a case of Co-infection of *Salmonella Typhi* with Hepatitis A virus infection.

### Case Presentation

A 10 year old young girl came to us with complaints of low grade intermittent fever for last 10 days, yellow discoloration of eyes and urine for last 5 days and upper abdominal pain and nausea for last 3 days. There was no a chill, arthralgia, myalgia, diarrhea, night sweats, nor preceding weight loss. There was no past history of jaundice, blood transfusion or surgical procedures. She had family history of *Salmonella* infection. There uncle was positive for salmonella 10 days back. She gave history of consumption of un-boiled water of WASA. On examination, the patient was febrile, had icterus. Patient was fully conscious and had no evidence of bleeding from any site. Urinary output was adequate. Vitals were pulse rate of 100/min, respiratory rate 24/min, blood pressure 110/60 mmHg and temperature 100 degree F on per abdomen examination there was no abdominal distension, liver was palpable 5 cm below right costal margin with span of 12 cm. It was soft and tender. There was no other organomegaly. Spleen was not palpable. There was no evidence of free fluid in abdomen with shifting dullness present. Other systemic examination reveals nothing abnormality. Investigations showed hemoglobin of 10.8 gm%, total leukocyte count 17,000 cells/cumm with 65% polymorphs. Platelets were 170,000/cumm. Peripheral blood film showed anisopoikilocytosis with few microcytes. Serum biochemistry showed- total bilirubin 3.88 mg/dl, AST 895 U/L, ALT 1196 U/L, alkaline phosphatase 270 U/L, albumin 2.8 gm%, PTI of 12.2 sec with INR 1.01. Renal functions and electrolytes were normal. Among viral markers IgM anti HAV came out to be positive. HBsAg was negative. Blood culture isolated *Salmonella typhi*. Widal test

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was positive in high titers. *Salmonella typhi* IgM found positive. X-ray chest PA view showed nothing abnormality. Ultrasound Abdomen showed hepatomegaly 14.7 cm vertically parenchymal echo texture is uniform with prominent periportal echoes. Gall bladder lumen narrowed with thickened wall (7.1 mm). A diagnosis of Enteric fever with Hepatitis A was made and patient was started with intravenous Ceftriaxone and supportive care (rifaximin, lactulose, domperidone, zinc). Patient became afebrile on day 4 of admission, oral intake and general well being status was improved. Patient was discharged on oral antibiotics. On follow up she was afebrile, with no evidence of fever or tender hepatomegaly, icterus was reduced. Patient was advised to avoid consumption of unboiled water from WASA and for Vi-Poly-saccharide typhoid vaccine after 4 weeks.

## Discussion

Enteric fever is endemic in Bangladesh with more than 100,000 cases of enteric fever occurring each year [5,6]. Although clinical hepatitis is unusual (probably fewer than 25% of all cases), liver involvement is present in almost all cases. Establishing a diagnosis of salmonella hepatitis may be difficult for us as we are in developing countries, because the manifestations are similar to those of other forms of acute hepatitis, including viral hepatitis, leptospirosis and malaria. The clinical presentation of salmonella hepatitis resembles that of viral hepatitis, but certain features help in differentiation. In particular, high fever (often more than 40°C) and bradycardia (inappropriate response of heart rate to degree of fever) seem to be more common among patients with *Salmonella* hepatitis. In addition, the biochemical profile is significantly different from that of viral hepatitis and suggests the presence of an infiltrative process in the liver rather than hepatitis [7]. In a comparison of 25 cases of *Salmonella* hepatitis each year in Bangladesh [5], the cases of *Salmonella* hepatitis were more likely to have a disproportionately increased serum alkaline phosphatase level and that serum aminotransferase values were far lower than with acute viral hepatitis [8]. Also unlike, viral hepatitis, salmonella hepatitis was associated with fever and a left shift of white blood cells. Jaundice is unusual, and many cases of *Salmonella* hepatitis are anicteric. In untreated patients, jaundice may be delayed from the second to the fourth week of the illness. Jaundice was noticed in the starting of second week of illness in our patient. Our patient was initially diagnosed as enteric fever due to positive *Salmonella* IgM for *Salmonella typhi*. Co-infection of hepatitis with enteric fever was suspected because of association of high grade fever with markedly raised liver enzymes. As in our setting typhoid fever and viral hepatitis are common ailment and *Salmonella* hepatitis is a rare incident so, we like to highlight the case to reduce causality in the future. The timely institution of antimicrobial therapy has reduced

typhoid case-fatality rates from 15% to 20% to less than 1%. Ascites or pleural effusion may occur as a part of complications. The exact mechanism is unknown, though immune complexes have been cited as possible etiological factor. Pleural effusion is a possible benign and early complication of acute hepatitis A infection that resolves spontaneously regardless of illness out-come. But due to early detection and starting of parenteral antibiotic therapy we can avoid the hassle smartly [9].

## Conclusion

Co-infection should always be kept in mind while dealing with cases of enteric fever or viral hepatitis with atypical features. In order to reduce the burden of disease, vaccination against typhoid and Hepatitis A should be included in the immunization schedule. Despite restricted finances in our country vaccines against typhoid and Hepatitis A cannot be incorporated in the national immunization schedule at present but these vaccines can be offered on an individual basis.

## References

1. Parker TM, Murray CK, Richards AL. Concurrent infections in acute febrile illness patients in Egypt. *Am J Trop Med Hyg.* 2007;77(2):390-2.
2. Schwartz E, Jenks NP, Shilm DR. Typhoid hepatitis or typhoid fever and acute viral hepatitis. *Trans RSoc Trop Med Hyg.* 1994;88(4):437-8.
3. Pandey CK, Singh N, Kumar V. Typhoid, hepatitis E, or typhoid and hepatitis E: The cause of fulminant hepatic failure- a diagnostic dilemma. *Crit Care Med.* 2002;30(2):376-8.
4. Ohnishi S, Hatanaka K, Nakanishi M. Acute hepatitis with salmonella paratyphi A and hepatitis E virus coinfection. *J Clin Gastroenterol.* 2003;37(4):350-1.
5. Saha S, Saha S, Das RC, Faruque ASG, Salam A, Islam M, et al. Enteric fever and related contextual factors in Bangladesh. *Am J Trop Med Hyg.* 2018;99(3):20-25.
6. Rahman A, Ahmad M, Begum R, Hossain M. Prevalence of typhoid fever among the children in a semi urban area of Bangladesh. *J Dhaka Med College.* 2011;20(1):36-43.
7. Gordon SC. Bacterial and systemic infections. In: Schiff ER, Somell MF, Maddreg WC, editors. *Schiff's Diseases of the Liver.* 9<sup>th</sup> ed. Philadelphia: Lippincott Williams and Wilkins. 2003. P. 1529.
8. El-Newihi HM, Alamy ME, Reynolds TB. Salmonella hepatitis: Analysis of 27 cases and comparison with acute viral hepatitis. *Hepatology.* 1996;24(3):516-9.
9. Emre A, Dincer Y, Hancer Y. Pleural effusion associated with acute hepatitis A infection. *Ped Inf Dis.* 1999;18(11):1111-2.