



**A Rare Manifestation of Typhoid Fever Hepatitis And Acute Kidney Injury: Case Report**

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**Abstract**

Typhoid fever is an essential universal public health concern, although its occurrence is abundant in developing nations. In developing nations, typhoid is associated mainly with poor hygiene and sanitation, crowding and population overburden. Hepatitis is relatively common, especially anicteric hepatitis in typhoid, but both hepatic & renal participation in a single patient is an infrequent occurrence in typhoid fever. As stated an unusual case of typhoid showing hepatitis & acute kidney injury in the same patient. A 22-year old young male presented with pain abdomen, fever, and diarrhoea and found to have increased bilirubin, liver enzymes, blood urea, & creatinine. Widal and Typhidot test were +ve in the patient. Patient symptoms subsided and disturbed parameters resolved by treatment for typhoid fever.

**Keywords:** Typhoid fever, Acute kidney injury, hepatitis, Widal test, Typhi Dot

**Introduction**

Typhoid fever is a universal febrile illness caused by Gram -ve organism, Salmonella enterica subspecies enterica serovar typhi, with high-risk of problems in untreated groups. Its a major health burden, particularly

in developing nations, because of less hygiene. Present statement from World Health Organisation states that universal occurrence of typhoid fever is about 22 million, new typhoid incidences each year additional 215,000 mortality annually [1]. Disease is widespread in India with an annual incidence of about 1% in endemic areas and is an important cause of mortality & morbidity together in adult populations and paediatric [2]. Consistent data to approximate load of disease in same field is difficult to find. Complicated typhoid generally causes mild hepatic dysfunction with renal complications such as cystitis & pyelonephritis but acute kidney injury concurrent with hepatitis is extremely exceptional. Our patient exhibited concurrent renal and hepatic dysfunction. Acute hepatitis alongwith renal dysfunction is uncommon [3]. As per our knowledge, only one similar case has been estimated from subcontinent of India.

**Case Report**

Twenty-two year old male,with history of intermittent low-grade fever without rigor & chills, associated with watery loose stools & pain upper abdomen for ten days. The pain was moderate in intensity, diffuse, non radiating associated with nausea. Had watery loose

stools, non-foul smelling & not mixed with blood. History of recent journey to endemic area & groundwater consumption was present. No history of burning micturition, sore throat, cough, hematuria, joint pain, skin rash. On examination, patient had body temperature (100.6°F), 102/min pulse rate, BP 110/70mmHg. He had pallor, icterus, no lymphadenopathy. Palpation revealed no ascites, mild diffuse abdominal tenderness, hepatomegaly (3 centimetres from the right costal margin, non-tender) & mild splenomegaly (2 centimetre below left sub costal margin). Other central nervous, respiratory & cardiovascular system were basically normal. During admission haemoglobin was 10.1g/dl, total leukocyte count was 6700/mm<sup>3</sup>. Urine routine examination showed WBC-2-3/hpf, rest normal. Urea was 244mg/dl, & serum creatinine was 10.0 mg/dl. Liver function tests were also disturbed with aspartate transaminase (AST) 244U/L, alanine transaminase (ALT) 122U/L and serum total bilirubin 2.5mg/dl (direct bilirubin 2.4mg/dl). Procalcitonin was 33.75 IU. Widal test showed increased titres of antigens T(O) & T(H) 1:320. Blood culture was positive for Salmonella typhi & typhidot was also +ve. Serology for HBsAg, anti-HAV, HIV, & anti HCV were -ve. Malaria antigen card & peripheral blood smear examination was -ve. dengue card examination, serological tests for scrub typhus & IgM/IgG leptospira was -ve. anti-nuclear antibody was -ve, ASO titre & complement (C3, C4) level was within normal limits. Chest Xray & ECG were normal. Ultrasound revealed mild hepatosplenomegaly & kidneys with normal size & echotexture. Patient was administered IV ceftriaxone 2gm daily along doxycycline 100mg twice daily & other supportive therapy. He showed marked response to therapy, started to recover & discharged after 14 days of treatment from

hospital. While discharge, AST/ALT-37/71 U/L, serum creatinine 1.0mg/dl, blood urea was 26mg/dl, and total serum bilirubin 1.2 mg/dl. All investigations were within normal limits on follow-up in OPD after 14 days.

### Discussion

Typhoid fever is common in developing nations & classified as an endemic disease in Indian subcontinent. It has significant mortality & morbidity due to complications if untreated. Typhoid fever can affect any organ ranging from intestinal perforation, hepatitis, pneumonitis, etc. Hepatomegaly & rise of transaminases are characteristic and can happen in 21–60% typhoid fever cases [4]. Though, derangement in the form of acute viral hepatitis with acute kidney injury is very uncommon. The clinical course can be severe with a mortality rate as high as 20%, particularly with delayed treatment or in patients with other complications of Salmonella infection [5]. +Ve culture for salmonella from blood/stool is necessary to distinguish salmonella hepatitis from another cause of acute hepatitis. Mechanism of hepatic injury is unclear, biochemical evidence of liver injury may be due to endotoxins increase concentration, that injure hepatocytes or invasion by salmonella [6]. Bacteria can multiply in hepatocytes and cause hepatic injury due to release of cytokines [7]. Recognition of this clinical state is mainly significant in tropical nations where viral hepatitis & malaria are fairly frequent. Renal association in typhoid is known as ‘nephrotyphoid’ & because of immune complex mediated glomerular injury manifesting as albuminuria, nephritis, hematuria, azotemia or pyelonephritis [8]. Another variety of renal involvement in typhoid is Ig A nephropathy and nephropathy post-vaccination due to typhoid vaccination. Adults typhoid nephritis untreated causes

significant mortality to around 20-30% [9,10]. Acute renal failure is infrequent in typhoid cases & is secondary to septicemia or shock. In typhoid fever, rarely acute renal failure can happen due to intravascular hemolysis because of typhoid fever [11]. Acute renal failure and hepatitis occurring simultaneously in a patient with typhoid fever is very rare. Timely detection & treatment are instrumental in decreasing mortality & morbidity.

### Conclusion

Patients with fever and altered hepatorenal functions are frequently evaluated for leptospirosis malaria, & scrub typhus by physicians, while typhoid fever is not considered as a common etiology. Our case illustrates good example of how these reversible complications could occur associated with typhoid fever. To increase awareness for every clinician when they come across such case, typhoid fever should be considered as a common differential & appropriate intervention can reduce mortality & morbidity in such cases.

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