



Case Report of Typhoid Fever (*Salmonella typhi*)

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

ABSTRACT

Typhoid fever is a major health problem globally. Typhoid fever is an enteric fever characterized by systemic illness along with abdominal pain and fever in a "step-ladder" pattern. Typhoid fever is one of the major causes of mortality and morbidity in overcrowded and unhygienic areas though comprehensive research and public health interventions have decreased the occurrence. Patient is having sign symptoms as gastrointestinal symptoms, malaise, hepatomegaly, and high liver enzymes presented with a two-week fever. As a differential diagnosis, a Widal test is done and two blood cultures were requested; both came out positive, confirming the diagnosis of typhoid fever caused by *Salmonella typhi*. Treatment with ceftriaxone and metronidazole was started prior to confirmation of the diagnosis, with a partial response; later, pharmacological therapy was altered based on ciprofloxacin susceptibility testing, with a satisfactory clinical response. We look at how to diagnose and treat enteric fever, with an importance to typhoid fever.

Symptoms or important clinical finding:- A 6 year old male was admitted in A.V.B.R.H on date 12/03/2021 with chief complaint of abdominal discomfort, malaise, problems such as fever since 2 weeks, gastrointestinal symptoms, lethargy, hepatomegaly, and an increased liver enzyme.

Diagnosis therapeutic intervention and outcome: A case is diagnosed as Typhoid Fever. After physical examination and investigation, doctor was detected a case of 6 week.

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Therapeutic intervention and outcome: Also provide a calcium supplements and iron supplements present case was stable but according to ultrasonography finding. **Outcome-** Good sanitation, improved water supply, and a suitable sewage waste matter system, as well as the successful use of existing typhoid vaccinations, can all help to avoid typhoid fever.

Nursing Perspective: Administration fluid replacement .i.e DNS and RL monitored vital signs per hourly. Maintained temperature chart 2 hourly strictly, maintained intake output chart properly. Tablet paracetamol, antibiotics given as per doctor's order.

Conclusion: Good sanitation, improved water supply, and a suitable sewage waste matter system, as well as the successful use of existing typhoid vaccinations, can all help to avoid typhoid fever.

Keywords: Enteric fever; typhoid fever; gastritis.

1. INTRODUCTION

Typhoid fever is a bacterial infection that can spread throughout the body, affecting many organs. Without prompt treatment, it can cause serious complications and can be fatal. It's caused by a bacterium called *Salmonella typhi*, which is related to the bacteria that cause salmonella food poisoning. Enteric fever is another name for typhoid fever. It is a multisystem sickness that has been a public health issue, particularly in poor countries. *Salmonella Typhi* and *Salmonella paratyphi* are the bacteria that cause it [1]. Typhoid fever and paratyphoid fever are also known as enteric fever. Because paratyphoid and typhoid fever are clinically indistinguishable, the terms enteric and typhoid fever often interchanged [2,3]. Typhoid fever is one of the causes of death and morbidity in overcrowded and unsanitary places, despite the fact that extensive research and public health efforts have reduced the incidence. The disease can manifest itself in a variety of ways, from early gastrointestinal pain to nonspecific systemic sickness, but it can also result in a variety of problems. The 'four Fs' are supposed to transmit salmonella (flies, fingers, feces, fomites). Fever usually begins in a step-wise rhythm (i.e., rises and falls alternately), with headache and stomach discomfort following. Typhoid fever, also called typhoid, is a bacterial infection caused by *Salmonella* serotype Typhi. Symptoms can range from moderate to severe and appear anywhere between 6 and 30 days following exposure. A high temperature usually develops gradually over a few days. Weakness, stomach discomfort, constipation, headaches, and moderate vomiting are frequent symptom [4]. In extreme situations, patients may develop disorientation. Typhoid fever is a globally spread infectious illness. Although much is known about *Salmonella typhi* murium infection in mice and the interaction of this server with human cell lines

in vitro, there is little known about *S. typhi* and the pathogenesis of typhoid fever. This review focuses on three aspects: gut epithelial cell adhesion and penetration, systemic dispersion, and host cell survival and reproduction. We also want to put current salmonella research into context with typhoid sickness [5]. Among children and adolescents in south-central and Southeast Asia, Typhoid and paratyphoid fevers are common causes of sickness and mortality. Enteric fever is related with inadequate hygiene and contaminated food and water. High-quality incidence data from Asia is bolstering efforts to enhance typhoid vaccine access [6]. The bacteria *Salmonella enteric* as *erovar Typhi* causes typhoid fever, which is an acute systemic illness. Typhoid fever is caused by *Salmonella enteric* as *erovars A, B, and C*, which are clinically identical [7]. Enteric fevers are a combination of typhoid and paratyphoid fevers. Typhoid fever is responsible for nearly 90% of enteric fever in most endemic countries. Typhoid is spread through the fecal-oral route, which involves contaminated food and water, and is hence widespread in areas with poor sanitation and limited access to safe drinking water. Throughout the nineteenth century in the United States and Europe typhoid fever was once common. but now it seen in developing countries. Antibiotic resistance has risen dramatically in the last fifteen years, resulting in large outbreaks and complicating the management of this fetal disease. Until the 19th century, typhoid fever was frequently mistaken with other long-term febrile infections, particularly typhus fever [8]. Enteric fever is a global public health problem that is most frequent in countries where poor sanitation makes it easier for food and water to become contaminated with human waste. In India and various South Asian, Middle Eastern, Central African, and South American countries, typhoid fever epidemics and high endemic sickness rates have been reported.

Typhoid fever is responsible for an estimated 21 million illnesses and 200,000 fatalities worldwide each year [9]. The most common causes of illness are person-to-person transmission through poor hygiene and sewage pollution of the water supply [10].

1.1 Patients Information

Patient specific information:- 6 year old male was admitted in A.V.B.R. Hospital 12/03/2021 with Chief complaint so abdominal discomfort, malaise, mainly present with fever of two weeks associated with gastrointestinal symptoms, malaise, hepatomegaly and elevated liver enzyme.

Primary concerns and symptoms of the patient: Present case visited AVBR hospital at Pediatric OPD on date 12/03/2021 with chief complaint of abdominal discomfort, malaise, liver enzymes.

Medical, family, and psycho-social history: Present case had history of typhoid fever. he belonged to nuclear family. She was mentally stable, conscious and oriented to date, time and place. He had maintained good relationship with doctors and nurses as well as other patients also [11,12].

Relevant past intervention with outcomes: Present case had no any history of disease, no history of attack,

Clinical findings: A 6 year old male was admitted in A.V.B.R.H on date 12/03/2021 with chief complaint of abdominal discomfort, malaise, mainly present with fever of two weeks associated with gastrointestinal symptoms, malaise, hepatomegaly and elevated liver enzyme.

Blood investigations CBC:- HB-11.5(g/dl)
WBC- 1,000 Widal test-positive

Ultrasonography – Hepatomegaly, splenomegaly.

Timeline: He taken the treatment in A.V.B.R. Hospital.

Diagnostic assessment: On the basis of patient history, physical examination,

Physical examination:-

Temp:- 98.6 F, Pulse:- 80 b/m, Respiration :- 22 b/m, Blood Pressure:- 130/90 mm/hg

Patient is conscious, No edema.

Therapeutic intervention: Present case took the medical management with typhoid fever, antipyretics given such

Tab. Paracetamol 500mg BD, Several different types of antibiotics are used to treat typhoid fever Inj. Ceftriaxone 2gm IV BD, Inj. Levofloxacin 750 mg. IV OD.

Nursing perspectives: Administration fluid replacement. i.e DNS and RL monitored vital signs per hourly. Maintained temperature chart 2 hourly strictly, maintained intake output chart properly. Tab. paracetamol, antibiotics given as per doctor's order. ORS therapy also given as per doctor's order.

2. DISCUSSION

This patient had sign symptoms such as abdominal discomfort, malaise, mainly present with fever of 2 weeks associated with gastrointestinal symptoms, malaise, hepatomegaly and elevated liver enzyme. My patient feel better now, and all symptoms treated with medication and nursing care, he taken follow up and routine checkup. Despite being rarely seen in western world hospitals, infection with *S. typhi* remains a global health issue and an important differential diagnosis in patients the return from tropical destinations. The World Health Organization (WHO) estimated 22 million cases and 200,000 deaths per year worldwide [13].

3. CONCLUSION

We report a case of a young otherwise healthy traveler who had Salmonella bacteria and clinical signs of systemic infection. She presented with typical clinical signs of typhoid fever such as high fever, constipation and a dry cough [14]. Initial laboratory diagnostics showed eosinophilia and a relatively low leucocyte count (no neutropenia) as a potential diagnostic marker for typhoid fever. Although being vaccinated, she did not develop a protective immunity nor antibody titers against H- and O- antigens after infection. After all, our case underscores the need for a better understanding of the immune responses that occur in typhoid fever. Recent advances and the development of a new animal model of typhoid fever are promising. Using a chimeric rag-2 deficient mouse with humanized hematopoietic stem and progenitor cells may help to shed light on the so

far insufficiently understood immune response and development of immunity to typhoid fever and finally lead to more reliable tests and better vaccines [15].

CONSENT

While preparing case report and for publication patient's and parental informed consent has been taken.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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