



## Clinical Profile And Outcome Of Typhoid Fever In Children In A Tertiary Care Hospital

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### Abstract

**Introduction:** Typhoid fever is a life-threatening infection caused by the bacterium salmonella typhi. It is a major public health problem in India. It affects children with varied clinical presentations ranging from a mild illness to severe life-threatening complications. Hence, the diagnosis becomes a challenging issue. Early diagnosis and treatment is crucial to prevent complications and for better outcome. The present study describes the clinical presentation of typhoid fever.

**Methods:** The study was a hospital based observational study conducted in a tertiary care centre over a period of one year. Children of age 1 -12 years who presented with fever of 5 days or more with clinical signs and symptoms suggestive typhoid fever and only positive blood culture or widal test or typhidot tests were included in the study. We enrolled 100 cases of typhoid fever as per inclusion criteria for the study.

**Results:** In this study, fever was the most common presenting symptoms present in all the patients (100%). The other common symptoms were anorexia (69%) , vomiting (47%), abdominal pain (23%), loose motion (17%), cough (16%) and constipation in 12 % cases . Commonest sign noticed was toxic look (91%) followed by coated tongue (63%) and splenomegaly (61%). Hepatomegaly was also noted in 37% of cases.

**Conclusion:** In children , most of the signs and symptoms of the typhoid fever are nonspecific and common with other acute febrile illnesses. Early diagnosis is important for early initiation of treatment and prevent transmission of the disease.

**Keywords:** Typhoid fever, , clinical profile, Splenomegaly, Toxic look

### Introduction

Typhoid fever is a life-threatening infection caused by the bacterium salmonella typhi . It is usually spread through contaminated food or water. An estimated 11–20 million people get sick from typhoid fever and between 128 000 and 161 000 people die from it every year. In developing areas of Africa, the Americas, South-East Asia and the Western Pacific regions, however, the disease continues to be a public health problem <sup>(1)</sup> . Its greatest burden is in resource limited countries where water supply and sanitation system are poor. In a community based study in urban slums of Delhi , the incidence was estimated to be 980 per 1 100000 population with 44% of cases

occurring below 5 years. Improved living conditions and the introduction of antibiotics resulted in a drastic reduction of typhoid fever morbidity and mortality in developed countries but it is still high in developing countries like India<sup>(1, 2,3)</sup>. Urbanization and climate change have the potential to increase the global burden of typhoid. In addition, increasing resistance to antibiotic treatment is making it easier for typhoid to spread through overcrowded populations in cities and flooded water and sanitation systems.<sup>(1)</sup>

The classical symptoms of typhoid fever include prolonged fever, fatigue, headache, nausea, abdominal pain, and constipation or diarrhoea. Some patients may have rash. Severe cases may lead to serious complications or even death.<sup>(1,3)</sup> The hallmark of typhoid fever is fever which starts as a low grade fever and then shows step wise increase peaking to as high as 103 degree F by the end of the first week. This pattern differentiate it from viral fever where the peak is usually at the onset of fever. Physical findings are unremarkable with the exception of a coated tongue ,tumid abdomen and sometimes hepatosplenomegaly. Infant and young children may have some atypical presentations like diarrhoea as a predominant manifestation or a short lasting febrile illness mimic viral illness. More over, in endemic areas classical signs and symptoms of typhoid fever are not often observed. Unusual presentations lead to diagnostic dilemma and may delay the diagnosis of typhoid fever. Indiscriminate use of antibiotics also contribute to atypical presentation and development of antibiotic resistance in our country<sup>(2,3,5,9,11)</sup>. India is a endemic country for typhoid fever and typhoid fever is one of the commonest causes of fever lasting for more than 7 days in clinical practice . Some patients may develop complications due to delay in diagnosis and initiation of appropriate antibiotic therapy. The commonest complications seen in children are shock, hepatitis, meningitis, cholecystitis, pneumonia ,DIC and neurological complications such as delirium, stupor, coma. Other complications like gastro intestinal bleeding, perforation are more common in adults than children<sup>(2,3,9)</sup>. Hence, early diagnosis and early treatment is very important for better outcome. Under this backdrop, the present study was undertaken in a tertiary care hospital. The objectives of the study were to study the clinical profile and out come of typhoid fever in children.

**Material and Methods**

This hospital based cross sectional, observational study was conducted in the Department of Pediatrics, Gauhati Medical College and Hospital, Guwahati, over a period of one year from November 2020 to October 2021. The study was conducted after obtaining approval from the Institutional Ethics Committee of Gauhati Medical College and Hospital. Children of age 1 year to 12 years of age who presented with fever of 5 days or more with clinical signs and symptoms suggestive of typhoid fever were worked up and only the laboratory confirmed cases like positive blood culture , Typhidot test and Widal test were included in the study.

**Inclusion Criteria-**

- Children of 1 year to 12 years.
- Laboratory confirmed diagnosed cases.

**Exclusion Criteria**

1. Those parents refuse to participate in the study.
2. Children who have been diagnosed as paratyphoid fever by serology like Widal test were clearly excluded from the study.

We enrolled 100 cases of typhoid fever as per above mentioned inclusion criteria after obtaining informed consent from parents for the study. Parents were explained about the study in local languages. Relevant history including family history of similar illness and socio-economic status, source of drinking water and clinical examination was performed and findings were noted. Next, Investigations like CBC (complete blood count) was done in all cases. Other tests like blood culture, Typhidot test , widal test were done as per the need of the patients. Other laboratory tests were done as indicated. The data was recorded in a preformed and pretested proforma and analysed.

**Results:**

The study was conducted with 100 patients diagnosed as typhoid fever from 1year to 12 years of age.

**Table 1: Age and sex distribution of typhoid fever cases (n= 100).**

	Number	Percentage(%)
<b>Age</b>		
Below 5 years	32	32%

Above 5 years	68	68%
Sex		
Male	46	46%
Female	54	54%

In regard to gender distribution, 46 patients were males comprising of 46% and 54 patients were female comprising of 54 % patients. Majority of the typhoid cases were above 5 years of age (68%) followed by 32% in below 5 years. (Table 1)

**Table 2: showing presenting Symptoms of the patients (n=100)**

Symptoms	Numbers of patients	Percentage(%)
Fever	100	100%
Vomiting	47	47%
Loose motion	17	17%
Abdominal pain	23	23%
Anorexia	69	69%
Headache	14	14%
Cough	16	16%
Constipation	12	12%
Irritability/ convulsion	2	2%
Rash	Nil	0%

In this study, fever was the most common presenting symptoms present in all the patients (100%). The other common symptoms were anorexia (69%) , vomiting (47%), abdominal pain (23%), loose motion (17%), cough (16%) and constipation in 12 % cases .(Table 2)

**Table 3: Physical Signs of the cases at the time of admission to the hospital .**

Physical signs	Number of patients	Percentage (%)
Toxic look	91	91%
Coated tongue	63	63%
Pallor	33	33%
Rapid breathing	9	9%
Abdominal tenderness	14	14%
Hepatomegaly	37	37%
Splenomegaly	61	61%
Rose spot	Nil	0%

The most common physical signs observed in this study were toxic look (91%) followed by coated tongue (63%), splenomegaly (61%), pallor (33%) and hepatomegaly in 37% cases. No rose spot was seen. (Table 3)

In reference to complications, two patients were admitted with neurological symptoms like irritability, drowsiness, convulsion etc. Both the cases were completely recovered after treatment. Moreover, No

### Discussion

This study was undertaken to evaluate the various clinical presentations and outcome of typhoid patients and one hundred patients aged 1 to 12 years of age were evaluated in this study. This study showed a female preponderance (54%), which is in accordance with study done by Modi R et al<sup>(9)</sup>. But, in some other studies done by Comeau et al<sup>(6)</sup>, Koul et al<sup>(16)</sup> reported male predominance. In this study, most of the cases were from 6 to 12 years of age (68%). This is probably due to the unhygienic food habits from road side vendors. This findings is comparable with the studies done by other workers Comeau et al<sup>(6)</sup>, Modi R et al<sup>(9)</sup> and Koul et al<sup>(16)</sup>. With reference to symptoms, fever was the presenting complaint in all the patients (100%). Similar observation was made by many researchers in their studies<sup>(5,6,8,9,11,16)</sup>. Next common symptoms were anorexia (69%), vomiting (47%), abdominal pain (23%), and loose motion in 17% cases. This findings were similar with Meena P et al<sup>(5)</sup>, Rathi SK et al<sup>(8)</sup> and Tulika et al<sup>(11)</sup>. Whereas, in another study done by Modi R et al<sup>(9)</sup> reported that Gastro intestinal symptoms were second most common complaint after fever with abdominal pain observed in 57.14% cases and vomiting in 50% of the cases. This is similar with the study done by Comeau et al<sup>(6)</sup>, which observed abdominal pain in 56% and vomiting in 48% patients. Similar observations were made by Kapoor J P et al<sup>(13)</sup> and Sinha et al<sup>(12)</sup>. Contradictory to this findings, Joshi B G et al<sup>(14)</sup> in their study found that headache was the common symptom after fever seen in 52.5% patients followed by abdominal pain and vomiting in 22.5% and 20% cases respectively. On analysis of the physical signs, the most common physical signs found in this study was toxic look (91%) followed by coated tongue (63%), splenomegaly (61%) and hepatomegaly was noted in 37% of cases. A similar study done by

patients developed any complications during the course of treatment in the hospital.

In regard to outcome of the patients, all 100 patients (100%) were fully recovered and successfully discharged from the hospital. Another important observation is that 86% cases were not vaccinated against typhoid and 14 % cases were vaccinated. However, this vaccinated children had mild course of the disease.

Meena P et al<sup>(5)</sup> reported toxic look (88%), coated tongue (79%) and splenomegaly in 63% patients. Devaranavadi RA et al<sup>(10)</sup> also observed Toxic look (68%) as the most common sign followed by coated tongue (49%) and hepatomegaly seen in 44% cases.<sup>(10)</sup> Contradictory to this observations made by other workers, Laishram et al<sup>(15)</sup> found in their study that coated tongue (80%) as the most common sign followed by hepatomegaly (76%) and splenomegaly (38%). Rose spot could not be appreciated in any of the patients in this study. This finding was similar with Modi R et al<sup>(9)</sup>. Rose spots were not observed in most of the Indian studies, probably, because of the dark color of the skin of Indian population.

### Conclusion

Typhoid fever is an endemic disease in this locality and continues to be a major public health problem. In children, most of the signs and symptoms of the typhoid fever are nonspecific and common with other acute febrile illnesses. Early diagnosis is important for early initiation of treatment to prevent complications and transmission of the disease.

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