Original Research Article

Clinical profile of typhoid fever in children at a tertiary care hospital: a cross sectional study

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ABSTRACT

Background: In endemic areas such as India, traditional signs and symptoms in enteric fever are not often observed. Unusual presentations lead to diagnostic dilemma and may delay the diagnosis of typhoid fever. The present study describes the clinical presentation of enteric fever at a tertiary care centre in Aurangabad district of Maharashtra.

Methods: The study was a hospital based prospective observational study done in paediatric ward of MGM Medical College, Aurangabad over a period of 18 month starting from 1st November 2013 to 31st April 2015. The parents of the children were informed about the research and its objectives, and written informed consent was obtained from them. Prior approval was taken from institutional ethics committee. Children of age 2 -18 years who presented with fever of 5 days or more with clinical signs and symptoms suggestive of typhoid fever and positive Widal test or Typhidot tests were included in the study. The demographic and clinical features of the patients were described.

Results: Total of 99 patients were included in the study. Majority of the children were between 2 - 7 year age group (45.4%). Out of 99 children, 57 were males and 42 were females. Majority of the cases were from urban areas accounting for 75%, which included urban slums. Drinking water source was tap water in 80% cases and bore well water in 20% cases. Only 36.4% of children had fever of less than one-week duration. 58.6% of the cases had fever of more than one week but less than two weeks. Continuous fever was noticed in majority of children (55.55%). All the children presented with fever as the main complaint (100%). Loss of appetite and headache were the next common complaints reported by 59.6% cases. Commonest sign noticed was toxic look (83.8%) followed by coated tongue (74.7%) and splenomegaly (61.6%). Hepatomegaly was also noted in 39.4% of cases.

Conclusions: Clinical presentation in the study subjects was similar to available reports from literature.

Keywords: Enteric fever, Splenomegaly, Toxic look

INTRODUCTION

Typhoid fever is a life-threatening disease occurring more frequently in under developed areas of the world and it continues to pose a major public health problem. There are around 16 million new enteric fever cases reported globally.¹ The annual incidence of enteric fever has been reported as more than 13 million cases in Asia alone and it causes annual deaths of more than 0.6 million across the world.² The incidence of Typhoid fever

in India is 2.14 per thousand populations.³ The incidence of typhoid fever in the younger age group is also on the increase and the disease which was reported to be very rare below the age of three years is not correct and now there is documented evidence that enteric fever will not spare any age.⁴ In endemic areas such as India, traditional signs and symptoms in enteric fever are not often observed. Unusual presentations lead to diagnostic dilemma and may delay the diagnosis of typhoid fever. The present study describes the clinical presentation of

enteric fever at a tertiary care centre in Aurangabad district of Maharashtra.

METHODS

The study was a hospital based prospective observational study done in paediatric ward of MGM Medical College, Aurangabad over a period of 18 months starting from 1st November 2013 to 30th April 2015. The parents of the children were informed about the research and its objectives, and written informed consent was obtained from them. Prior approval was taken from institutional ethics committee. Children of age 2 -18 years who presented with fever of 5 days or more with clinical signs and symptoms suggestive of typhoid fever and positive Widal test or Typhidot tests were included in the study. The demographic and clinical features of the patients were described. All children were enquired about a careful history including family history of similar illness and socio-economic status, source of drinking water. Children who have been diagnosed as paratyphoid fever by serology like Widal test were clearly excluded from the study. Total leukocyte count was done in all patients.

RESULTS

Total of 99 patients were included. Majority of the children were between 2-7 year age group (45.4%). Children between 8 to 13 years were 37.4% and 17.2% children were between 14 to 18 years. Children below two years and above 18 years were not included. But there was no case below age of one year during the time of the study. Out of 99 children, 57 were males and 42 were females. The ratio of male to female was 1.36:1. Majority of cases were from urban areas (75.8%), which included urban slums and 24.2% were from rural area. Drinking water source was tap water in 80.8% cases and bore well water in 19.2% cases. Table 1-5 describe the further study results.

Table 1: Duration of fever before admission to hospital.

Duration of fever	No. of cases	Percentage
1-7 days	36	36.4
8-14 days	58	58.6
Over 15 days	04	04
Total	99	100

Only 36.4% children had fever of less than one-week duration. 58.6% cases had fever of more than one week but less than two weeks. Only 4% cases had fever of more than two weeks duration. Continuous fever was noticed in majority of children (55.55%). Intermittent fever was observed in 37.37% of children. Only 7.07% of children had remittent fever.

All the children presented with fever as the main complaint (100%). Loss of appetite and headache were the next common complaints reported by 59.6% cases.

Table 2: Symptoms at the time of admission to hospital.

Symptoms	No. of cases	Percentage
Fever	99	100
Anorexia	59	59.6
Vomiting	35	35.4
Diarrhoea	15	15.2
Abdominal pain	35	35.4
Constipation	09	9.1
Headache	59	59.6
Cough	25	25.3

This was followed by pain in abdomen (35.4%). Vomiting was present in 35.4% cases whereas 15.2% of children complained of loose stools.

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

Signs	No. of cases	Percentage
Coated tongue	74	74.7
Anemia	36	36.4
Jaundice	00	00
Abdominal tenderness	27	27.3
Toxic look	83	83.8
Hepatomegaly	39	39.4
Splenomegaly	61	61.6
Respiratory infections	03	03
Rose spots	00	00

Commonest sign noticed was toxic look (83.8%) followed by coated tongue (74.7%) and splenomegaly (61.6%). Hepatomegaly was also noted in 39.4% of cases.

Table 4: Splenomegaly in relation to duration of fever.

Duration of fever	First week	Second week	Third week
Total number of cases	36	59	4
Cases with splenomegaly	20	39	2
Cases without splenomegaly	16	20	2

Among the 99 cases, splenomegaly was present in about 61 cases. But out of 36 children seen in first week, only 55.6% had splenomegaly.

During the 2nd week of illness, splenomegaly was noticed in 66.1% of cases. Splenomegaly was present in 50% cases of typhoid fever seen in 3rd week of illness.

Table 5: Total leukocyte count.

Count per cubic mm	No. of Cases	Percentage
Less than 4000	33	33.3
Between 4000 -11000	48	48.5
Above 11000	18	18.2
Total	99	100

Only 33.3% of the children with typhoid had white cell count less than 4000/c.mm. Majority of the children (48.5%) had White blood cell counts within normal limits. 18.2% of the children had white blood cell counts of more than 11000/c.mm. Absolute eosinopenia was found in 74.7% cases.

DISCUSSION

In the present study, majority of the children were between 2 - 7 year age group (45.4%). Children between 8 to 13 years were 37.4% of the study population. Study by Sen et al mentioned 7.6 years as the average age of presentation with enteric fever.⁵ Study by Comeau et al mentioned 7.5 years as the average age of presentation.⁶ Study by Modi R done in a teaching hospital at Ahmedabad, Gujarat reported that children between 6 to 10 years were the most common age group presenting with enteric fever.⁷ Exposure to unhygienic foods from outside in this age group was put forth to be the underlying reason by the author. It was further stressed by the author that no age is exempted from typhoid fever. The youngest patient observed in their study was of 1 year age.

In present study, ratio of male to female was 1.36:1. Study by Sen et al and Comeau et al also reported male predominance whereas in the study by Modi R male: female ratio was 0.81:1.⁵⁻⁷

In present study, majority of cases were from urban areas (75.8%), which included urban slums and 24.2% were from rural area. Drinking water source was tap water in 80.8% cases and bore well water in 19.2% cases. Study by Devaranavadagi RA and Srinivasa S as well as the study by Modi R also reported that enteric fever was more frequently observed in people using municipal tap water for drinking as compared to bore well water users.^{7,8}

All present study subjects presented with fever as the main complaint (100%). Loss of appetite and headache were the next common complaints reported by 59.6% cases. This was followed by pain in abdomen (35.4%).

Vomiting was present in 35.4% cases whereas 15.2% of children complained of loose stools. Study by Modi R reported that gastrointestinal complaints were second most common after fever with abdominal pain noticed in 57.14% patients and vomiting in 50% of the patients.⁷ Similar observations were reported by Comeau et al and Kapoor JP et al and Sinha et al.^{6,9,10} However, Joshi et al reported that headache was the most common symptom after fever seen in 52.5% cases and abdominal pain and vomiting were the other common associated symptoms seen in 22.5% and 20% cases respectively.¹¹

Commonest sign noticed in present study subjects was toxic look (83.8%) followed by coated tongue (74.7%) and splenomegaly (61.6%). Hepatomegaly was also noted in 39.4% of cases. Devaranavadagi RA and Srinivasa S

also reported Toxic look (68%) as the most common sign followed by coated tongue (49%), Hepatomegaly (44%), and other signs.⁸ However, Laishram et al reported coated tongue (80%) as the most common sign followed by Hepatomegaly (76%) and splenomegaly (38%).¹²

In present study, 33.3% of the children with typhoid had white cell count less than 4000/c.mm. Absolute eosinopenia was found in 74.7% cases. In Devaranavadagi RA and Srinivasa S study, Leucocytopenia and Eosinopenia was found in 34% and 39% cases respectively.⁸ However, Eosinopenia was seen in 72 % cases in study by Ganesh R et al.¹³

Limitations of present study include hospital based and convenience sample with a cross-sectional design of study. However, the present study data will add to the literature regarding the clinical presentation of typhoid fever in a hospital setting from this geographic area.

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