

## “Clinical Spectrum of Enteric Fever in Children: A Study in a Tertiary Care Hospital, Bangladesh”

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### Abstract

**Background:** Enteric fever is a common public health problem in Bangladesh and it involves multiple symptoms. Enteric fever presents with variable clinical scenario. Objective: The aim of study was to evaluate the clinical spectrum of enteric fever in children. **Methods:** A prospective study was done in the department of Paediatrics, Sylhet Womens Medical College Hospital and Sylhet M.A.G Osmani Medical College Hospital, Sylhet, Bangladesh during the period from January 2019 to December 2019 who was clinically suspected to have enteric fever and had either a positive blood culture for Salmonella or a positive Widal test. **Results:** This study included 133 patients out of which 71 were males and 62 were females. The majority of patients were under 5 years. The age distribution of study population in depicted and the sex distribution. The most common presenting symptoms in our study was fever (97.0%), abdominal pain (39.8%), vomiting (39.1%), diarrhoea (36.1%), and the common symptom was constipation (18.8%) as depicted in table III. The most common physical findings was coated tongue (74.4%), followed by toxic look (63.9%), pallor (51.9%), abdominal distension (15.0%), abdominal tenderness (13.5%), Rose spots (14.3%), hepatomegaly (16.5%), splenomegaly (3.8%), and jaundice (4.5%) as depicted in Figure-1. Complications were present in nine patients (6.77%), Pneumonia was present in five patients (3.76%), hepatitis in three patients (2.25%) and encephalopathy in the patient (0.75%). **Conclusions:** Enteric fever is a common public health problem with fever as most common presenting symptom. Culture yield can be increased in enteric fever by drawing blood culture prior to administration of antibiotics. Ceftriaxone is highly efficacious as monotherapy in enteric fever.

**Keywords:** Enteric fever. Clinical spectrum, Paediatric infection.

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### INTRODUCTION

Enteric fever causes prolonged illness characterized by bacteraemia. Sub-species enterica Serovar Typhi and Salmonella Paratyphi A, B and C [1]. It continues to be a global public health problem with over 21 million cases and at least 216,510 deaths occurring annually [2, 3]. Several studies in areas of endemicity and outbreaks have shown that about one-quarter to one third of pediatric enteric fever cases are under five years of age, and that between 6% and 12% are under two years of age [4-7]. Enteric fever causes prolonged illness characterized by loacteriac. The clinical presentation varies from mild illness with low grade fever, malaise and slight dry cough to a severe clinical presentation with abdominal pain and multiple complications. Enteric fever usually presents with fever, anorexics, abdominal pain, diarrhoea,

constipation, weakness [8]. The presentation of Enteric fever may be more dramatic in children younger than 5 years type with comparatively higher rates of complications and hospitalization. Diarrhea, toxicity, and complications such as disseminated intravascular coagulopathy are also more common in infancy. If there are no complications, the symptoms and physical finding gradually improve within 2-4 weeks [9]. Our aim was to evaluate the clinical spectrum of Enteric fever in children admitted in the hospital.

### METHODS

A prospective study was done in the department of Paediatrics, Sylhet Womens Medical College Hospital and Sylhet M.A.G Osmani Medical College Hospital, Sylhet, Bangladesh during the period from January 2019 to December 2019. All the patients

in the age group of 1 to 15 years with clinically suspected enteric fever and either Widal or Blood culture was positive were included in this study. All patients were subjected to detailed history and examination. Baseline investigations were done in all patients. In addition to baseline investigation blood culture and Widal test was done in all patients. Blood culture was done after taking proper aseptic precautions. Blood culture was done by BACT/ALERT Automated system and positive cultures were characterized using standard bacteriological procedures. Widel was done by the agglutination test. A titre of  $\geq 1:160$  to either O or H antigen in a single serum specimen was taken as indicator of typhoid fever. Data were entered and analyzed using SPSS version 23. Data has been summarized using percentage and table.

## RESULTS

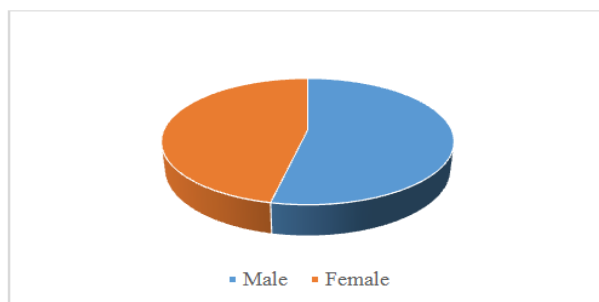
This study included 133 patients out of which 71 were males and 62 were females. The majority of patients 81(60.2%) were under 5 years (Table-1) and Male were dominated in sex distribution 71(53.4%) (Table-2). The most common presenting symptoms in our study was fever (97.0%), abdominal pain (39.8%), vomiting (39.1%), diarrhoea (36.1%), and the common symptom was constipation (18.8%) as depicted (Table-3). The most common physical findings was coated tongue (74.4%), followed by toxic look (63.9%), pallor (51.9%), abdominal distension (15.0%), abdominal tenderness (13.5%), Rose spots (14.3%), hepatomegaly (16.5%), splenomeagly (3.8%), and jaundice (4.5%) as depicted (Figure-1). Complications were present in nine patients (6.77%), Pneumonia was present in five patients (3.76%), hepatitis in three (3) patients (2.25%) and encephalopathy in one (1) patient (0.75%) as shown (Table-4).

**Table-1: Age distribution of the Enteric fever in children (N=133)**

Age Group	No. Patients n=133	%
<60 months	81	60.2
>60 months	53	39.8

**Table-2: Sex distribution of the Enteric fever in children (N=133)**

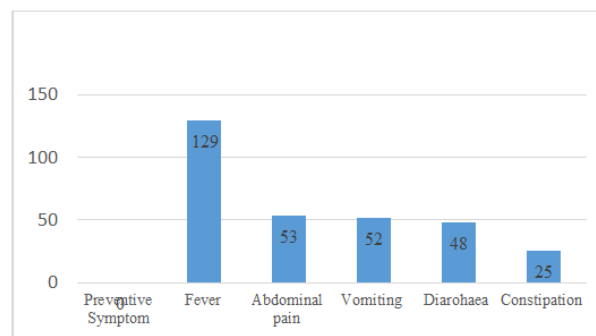
Variables	No. Patients n=133	%
Male	71	53.40
Female	62	46.60



**Fig-1: Sex distribution of the Enteric fever in children.**

**Table-3: Symptoms of the Enteric fever in children (N=133)**

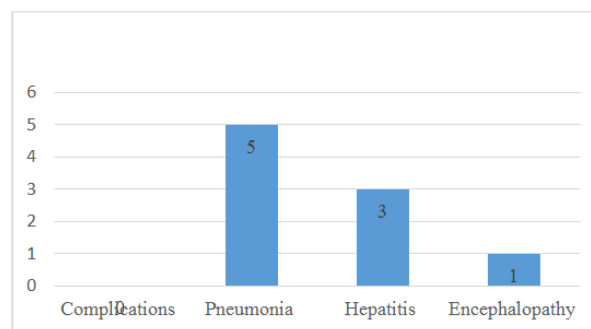
Preventive Symptom	No. Patients n=133	%
Fever	129	97.0
Abdominal pain	53	39.8
Vomiting	52	39.1
Diarrhoea	48	36.1
Constipation	25	18.8



**Fig-2: Symptoms of the Enteric fever in children**

**Table-4: Complications of the Enteric fever in children (n=9)**

Complications	No. Patients n=9	%
Pneumonia	5	3.76
Hepatitis	3	2.25
Encephalopathy	1	0.75



**Fig-3: Complications of the Enteric fever in children.**

## DISCUSSION

Enteric fever is still a significant public health problem in developing countries. It is a dread disease because of its long course and associated complications if not detected and treated early. Typhoid fever is endemic in Bangladesh, where there is a high incidence in children [10]. In this study we found 60% of children were less than five years, which is also in agreement with an earlier of 43.9% prevalence rate in Cebn city, Phillipine [11]. The scene is that children are the most vulnerable group in environments where inadequate pure water supply and poor environmental hygiene are problems. Fever who seen in almost all patients (97%). Similar results were seen in studies doneby Kundu R et al., Ganesh R et al., Walia M et al., and S Jog et al., [12-15]. Vomiting was seen in 53 (39.1%) patients

which is similar to study done by S Jog *et al.*, [15]. Diarrhoea was seen in 48 (36.1%) which is comparable to study done by Ganesh *et al.*, and S Jog *et al.*, [13-15]. Abdominal pain was seen in 53 (39.8%) patients and it different from study done by Abdus S. Bhat *et al.*, [16] where they showed only 18.4% constipation was seen in 25 (18.8%) which is comparable to studies done by Comeau *et al.*, and Taneja PN *et al.*, [17, 18]. In this study coated tongue and toxic look were the most clinical findings. Coated tongue was seen in 99 (74.4%) patients similar to studies done by R Modi and Iqbal *et al.*, [19, 20]. Toxic look was seen in 85 (63.9%) patients similar to study done by Sood and Taneja [21]. Pallor was seen in 69 patients (51.9%) patients. Our study defer with Abdus S. Bhat *et al.*, [16] study where they showed only 32.8%. Hepatomeagly was seen in 22 (16.5%) patients who are differing to studies done by R Modi Chowta MN *et al.*, and Jeeyani H *et al.*, [22, 19, 23]. Splenomeagly was seen in 5(3.8%) patients which is also dissimilar to studies done by S Jog *et al.*, and Jeeyani H *et al.*, [15, 23] Complications were seen in 9 (6.77%) patients which is similar to study done by Jeeyani H *et al.*, [23]. Pneumonia was seen in 5 (3.76%) cases and hepatitis 3(2.25%) cases. Encephalopathy was seen in 1(0.75%) cases similar to study done by Md. Salim *et al.*, [24]. The mean time to defervescence was 5.5 days which is similar to studies done by S Jog *et al.*, and Parry *et al.*, [15, 25].

## CONCLUSION

Enteric is a very common public health problem with fever as major presenting symptom. Blood culture yield can be increased by drawing blood sample prior to administration of antibiotics. Majority of enteric fever have uncomplicated course. Ceftriaxone is highly efficacious against enteric fever till date.

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