

TYPHOID FEVER –CONTINUES AS A MAJOR THREAT IN CHILDREN

HUMERA RAFIQ, RASHID ZIA AND SAMINA NAEEM

*Department of Paediatrics, Shalamar Hospital and
Department of Pathology, King Edward Medical University, Lahore*

ABSTRACT

A total of 100 children hospitalized with clinical and/or laboratory diagnosis of typhoid fever admitted to the pediatric ward were reviewed for demographic data such as age, sex, clinical features, and results of laboratory tests. There were 59 male and 41 female patients, with a mean age of 6.6 years ranging from 2 months to 13 years. Eleven of all the children 08 were less than one year of age, while 34 were under the age of five years. Predominant symptoms were hepatomegaly, splenomegaly, fever, abdominal pain, vomiting and headache. A febrile convulsion was the presenting symptom in 2 of the patients, all of whom were under the age of five years. Intestinal perforation was not present in any of the patients. Elevated serum alanine and aspartate aminotransferase ($50 > /U/L$) levels were observed in 28% of our patients.

Key words: Typhoid fever, *S. typhi*, hepatomegaly, splenomegaly.

INTRODUCTION

Typhoid or enteric fever is an ancient disease, which has afflicted mankind since human populations grew large enough to contaminate their water and food supplies. It is caused by *Salmonella enterica* serovar typhi (previously known as salmonella typhi); a pathogen specific only to humans, as well as by certain non-typhoid salmonella, particularly Paratyphoid strains A, B, C.

The worldwide incidence of enteric fever is estimated to be approximately 16 million cases annually with 7 million cases occurring in south east Asia alone, accounting for more than 600,000 deaths annually.¹ The exact figures on the incidence and prevalence are not available for Pakistan, but the prevalence is deemed comparable to that in South East Asia. A recent epidemiologic study showed that south-east and south-central Asia are the regions of highest endemicity with rates greater than 100/100,000 cases per year; the rest of Asia, Africa, Latin America, the Caribbean and Oceania (except Australia and New Zealand) are the next highest with incidence rates of 10-100/100,000 and Europe, North America and the rest of the developed world have low rates of disease.² Typhoid fever represents the 4th most common cause of death in Pakistan.³ The disease is predominantly a disease of school age children and young adults and is reported to be milder in infants and young children.⁴⁻⁵ Various organs have been involved in the course of enteric fever, resulting in a wide array of presentation.⁶

The presenting symptoms and sign of typhoid fever in children differ significantly from those in adults.^{7,8} Studies from endemic areas show that younger children are more likely to present with a nonspecific febrile illness.^{9,10}

The aim of our study was to determine the clinical and laboratory presentation of typhoid fever in hospitalized children in this endemic area from 1997 to 1999.

MATERIAL AND METHODS

We reviewed the medical records of all patients admitted to the Pediatric ward. Some had culture-positive and all had serology Positive (typhi dot) and clinical features strongly suggestive of enteric fever. There were 59 male and 41 female patients, with a mean age of 6.6 years ranging from 2 months to 13 years.

Table 1 shows the clinical features of the children on admission. The predominant symptoms were fever (95%), abdominal pain (66%), vomiting (44%), and headache (38%). Fever, vomiting, abdominal pain, loss of appetite, diarrhea and cough were the predominant symptoms. Hepatomegaly was detected in 9 (9%), splenomegaly in 13 (13%) patients.

On admission blood was taken for hematocrit, platelet count, differential white cell count, liver function test, examination for malaria parasites, typhidot and Widal test. Patients included into this study with clinically suspected typhoid fever had typhi dot positive, Widal's agglutination titers of at least 62 were positive.

Elevated serum alanine and aspartate aminotransferase (>50) levels were observed in 32 (32%) of our patients.

DISCUSSION

Salmonella typhi infection remains a serious problem in developing countries. With an estimation of 12.5-16.6 million cases each year and

Table 1: *Clinical Symptoms and Signs of Patients at Admission.*

Symptoms	(%) of Patients
Fever	(95)
Abdominal pain	(66)
Vomiting	(44)
Headache	(38)
Diarrhea	(23)
Constipation	(8)
Cough	(15)
Anorexia	(39)
Weakness	(37)
Nausea	(23)
Signs	
Hepatomegaly	(9)
Splenomegaly	(13)
Abdominal tenderness	(8)
Rose spots	(1)
Relative bradycardia	(2)
Cervical lymphadenopathy	(6)

600 000 deaths, typhoid fever continues to be a major cause of morbidity and mortality in tropical countries, especially among children.^{11,12} However, in more affluent regions of the world, proper sanitation has successfully diminished the infections with *S.typhi*. Typhoid fever in children in the first 2 years of life exhibits certain differences from the clinical course in adults.¹³

In our study, 17% of all patients with typhoid fever were under 5 years, which is close to the figure in some series.^{8,12} School-children were the most affected. Children in this series commonly presented with fever, headache, and gastrointestinal symptoms, and diarrhea was more common than constipation in this study, which is in accordance with the results from other studies.¹⁴⁻¹⁵

Typhoid fever may be particularly difficult to diagnose in infants, as Mathieu et al. have reported, 10 patients in their series having mild illness characterized by non-specific symptoms such as fever and cough.¹ Febrile convulsions was the presenting symptom in 5 (5%) of the patients, all of whom were under the age of five years. Hepatomegaly and splenomegaly were the major physical findings in our study. Seçmeer et al. reported that, in a large

series in children with enteric fever, 32% had elevated liver enzymes, while only 9% had hepatomegaly with or without splenomegaly.¹⁶

It is **concluded** that despite intensive scrutiny and major advances in genetic research and understanding the details of cellular inflammation, typhoid fever remains a major cause of death and disease in the developing world. Its eradication awaits the provision of sanitary water supplies and proper disposal of human sewage. Its eradication would probably be accelerated by programs of mass vaccination in endemic regions. Appropriate antibiotic therapy may postpone the further development of multiple drug resistant strains. The high rate of occurrence of enteric fever in children less than five years calls for critical re-assessment of vaccination strategy. Till then common and uncommon feature of typhoid should not be overlooked and different laboratory results be bear in mind for early diagnosis and to save the patients from morbidity and mortality.

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