

# ORIGINAL

## ABSTRACT

**42 PATIENTS** with Enteric fever were admitted to Pediatric department (Salmaniya Medical Centre) over a three months period. A retrospective study showed that the age range was 1 - 10 years (two of them were below two years). The male-female ratio was 1 : 1. The symptoms & signs of the disease were essentially similar to that reviewed by other workers in the other countries, except that rose spots were not seen in a single patient. The common complication was acute hemolytic anaemia (40%) as there is high prevalence of G6PD deficiency in this area. Acute glomerulo-nephritis and acute appendicitis were confirmed in two of our patients. The mortality rate was zero.

## INTRODUCTION

ENTERIC FEVER is a disease of major importance in the developing countries lacking high standards of Public Health. The diagnosis of Enteric fever remains essentially clinical and is confirmed whenever possible by blood culture. The serological diagnosis by Widal test plays a minor role in the diagnosis of Enteric fever. This retrospective study was therefore undertaken to document the clinical and laboratory features and complications of enteric fever during last out break of enteric fever in May-August 1982 in pediatric age group in Bahrain.

## The Out Break of Enteric Fever in Bahrain (1982) Clinical Analysis (Pediatric Age Group)

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### PATIENT MATERIAL

42 patients with enteric fever were admitted to Pediatric Department (SMC) between first May and 4th August 1982. The clinical and laboratory features and complications were studied and analysed retrospectively from their charts.

### RESULTS

— TABLE ONE shows the age & sex distribution. The male : female ratio was 1 : 1 and the age range from one to ten years (two patients were below 2 years).

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— TABLE TWO & THREE shows the clinical symptoms and signs respectively.

— TABLE FOUR shows the laboratory findings.

— TABLE FIVE shows the complications.

On admission white blood cell count was performed for all patients, the range was from 3000 - 21.500/mm<sup>3</sup>. Leucopenia (count less than 5000/mm<sup>3</sup>) was found in 25%. Leucocytosis (count more than 10000/mm<sup>3</sup>) was noticed in 3 patients, two of them were sicklers (SS) and one with G6PD deficiency.

Relapse was considered in one patient, who was treated the first time on clinical basis. 2 weeks later re-admitted with fever and confirmed by bacteriological study that he had Enteric fever.

**Table No. 1**  
**Sex Ratio**

Sex	No.	%	Age
Male	21	50	1 - 10 years
Female	21	50	1 - 10 years
Total	42	100	



**Table No. 2**  
**Presenting Symptoms**

<i>Symptoms</i>	<i>No.</i>	<i>%</i>
Fever	42	100
Abdominal pain	10	23.8
Vomiting	10	23.8
Loss of appetite	10	23.8
Headache	6	14.2
Cough	2	2.2

**Table No. 3**  
**Presenting Signs**

<i>Signs</i>	<i>No.</i>	<i>%</i>
Toxicity		
Mild-moderate	20	47.6
Severe	2	4.7
Splenomegaly	9	21.4
Hepatomegaly	12**	26.1
Hepatosplenomegaly	5*	11.9

\*\* One patient due to associated malnutrition.

\* Two patients are Sick Cell disease.

**Table No. 4**  
**Lab. Findings**

<i>Type of Investigation</i>	<i>No.</i>	<i>%</i>
Blood Culture Positive	35	83.3
Widal Test		
Suggestive	20	47
not suggestive	10	23
To repeat	2	4

Widal test done on one occasion only.

**Table No. 5**  
**Complications**

	<i>No.</i>	<i>%</i>
1. In relation to disease		
acute hemolytic anaemia	5	11.9
Brochopneumonia & bronchitis	4	9.5
Acute glomerulonephritis	1	2.3
Appendicitis	1	2.3
2. In relation to drug		
Acute hemolytic anaemia	12*	28.5

\* 7 of the patients proved to have G6PD deficiency.

## DISCUSSION

The various symptoms and signs (Table 2 & 3) found in our patients were similar to those found in Dade County series (1973 USA)<sup>1</sup> and Ethiopia<sup>2</sup>.

In our patients enteric fever commonly presented with fever, abdominal pain & vomiting. The features compatible with diagnosis of acute bronchitis or bronchopneumonia could be a misleading presentation found in 9% of the patients. The same for acute abdomen which may be misdiagnosed as acute appendicitis. The fever, cough, headache symptoms with abdominal guarding on examination formed a good basis for suspicion of enteric fever.

In our patients rose spots were not seen in a single patient.

The rose spot were found in 13% in Dade County series and 2% in the Ethiopian series. This is probably explained by the transient nature of the rose spots and the dark skin of our patients.

The incidence of hepatosplenomegaly (60%) in our patients is comparable with 68% in Ethiopian series.

The white blood cell count shows leucopenia in 25% only, while Ethiopian series showed 52%. This significant difference could be due to early seeking of medical advice in our small area, as a transient leucocytosis occurs in the first 7 - 10 days.<sup>1</sup>

The blood cultures were positive in 83.3% of our patients which is exactly comparable with Dade County and Ethiopian series.

The Widal agglutination test was suggestive in 47% (Salmonella typhi O and H antibodies more than 160), while it was 82% in the Ethiopian series.

These findings confirmed our previous suggestion that our patients presented early after onset of the illness, but possibly the antimicrobial therapy they received from peripheral health centres impeded the immunological response.

The high prevalence of G6PD deficiency in this area was shown through this study by high frequency of mild acute hemolytic anaemia in 40% (Hb decrease, retics increase) as a consequence of the disease process itself or as result of drug (chloramphenicol) used for treatment.

These findings were comparable with Tanzanian series 45%<sup>3</sup>. In 12 patients who showed signs of hemolysis in relation to chloramphenicol only seven of them were proved to have G6PD deficiency, others were not. This is probably due to the technique of G6PD estimation which is of qualitative form and those patient had only minor degree of enzyme deficiency



which would be manifested only by quantitative study of enzyme, while this could be manifested by using powerful oxidising drug such as Chloramphenicol.

One of our patients was admitted with clinical picture of enteric fever and proved later by blood culture, developed clinical picture of nephritis which cause no difficulty on diagnosis of typhoid glomerulonephritis, the nephritis picture could be a primary presentation prior to typhoid which mimic post streptococcal glomerulonephritis. The latter presentation was found in 4% in one of studies<sup>4</sup>.

Another one of our patients, known to have Sickle Cell disease presented with acute abdomen, appendicectomy was done and patient developed fever on the 3rd post operative day and proved later to have Enteric fever. The histopathological appearance of the removed appendix was of lymphoid hyperplasia, which occurs during early phase of enteric fever. The problem is not uncommon misleading presentation for surgeons

which can be diagnosed by Barium enema<sup>5</sup>.

Only one of our patients was suspected to have a relapse. The patient was treated as Enteric fever on the first admission and investigations were negative, 2 weeks later presented with clinical picture of typhoid which was proved by bacteriological studies. The Ethiopian series relapse rate was 4%.

The overall mortality was nil as compared with 12% mortality rate of Ethiopian patients. The above findings are most probably due to early seeking of medical care and awareness of admitting physician.

All our patients received treatment in form of supportive measures and Chloramphenicol 100mg/kg/day, reduced to 50mg/kg/day after subsidence of fever. In only two patients medications were changed to Ampicillin after severe drop of haemoglobin. There was no bone marrow depression as sequence of chloramphenicol. Only one patient developed drug fever, which subsided after discontinuation of medicine.

Enteric fever is a great mimic and any continuing fever should arouse suspicion.

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