

EXPERIENCE WITH TYPHOID FEVER AT SHANTA BHAWAN

by

Jane Dorman*

&

John Dickinson, B. M., B. Ch., M. R. C. P.,**

INTRODUCTION. From the text books, the student of tropical medicine might form the impression that the diagnosis of typhoid fever is a relatively simple matter; he receives a clear-cut description of the step-wise rising temperature in the first week, the sustained fever in the second and third weeks, never falling to normal, the clouded consciousness, the constipation, the famous rose spots, relative bradycardia, splenomegaly and leucopenia. In practice there can be few of us who have not spent perplexed hours over obscure fever cases, wondering whether or not to use Chloramphenicol, and who have not regretted failing to use it earlier. Hence the despairing cry of a previous *Shanta Bhawan* physician: "All typhoid in Nepal is atypical."

Apart from the desire to come to grips with a common clinical problem in Nepal, this small study was stimulated by a paper by Wicks et al of the University College of Rhodesia, (1) who propounded, and supported by studying a large series, the theory that typhoid in endemic areas gives a different clinical picture from the epidemic typhoid described in the text books and committed to the memory circuits of generations of doctors.

We set out therefore to see if the Rhodesia experience is paralleled in our practice at *Shanta Bhawan*. However, at the outset it is necessary to acknowledge severe limitations in our study. The first is the size; in the attempt to present a personal series, children were excluded

* Medical Student, St. Mary's Hospital, London

** Physician, Shanta Bhawan Hospital

and, in the period March 1971 to July 1972 for which records were readily available, only 31 cases were found. The second and more serious limitation is the criterion for a diagnosis of typhoid. Whereas the Rhodesian group used recovery of *S. typhi* and some post-mortum evidence, our main criterion of necessity was response to Chloramphenicol therapy in a febrile illness of compatible clinical features. For various reasons bacteriological studies were rarely performed and even more rarely positive. Almost certainly, therefore, our series contains a certain number of self-limiting viral or other fevers which gave the impression of responding to specific therapy.

As a study on which to base a theory, our series was clearly inadequate, but we believed it may be of value to set our results beside those of the Rhodesian group and consider similarities and differences.

RESULTS: (a) *Symptoms.* The patients' complaints are listed in Table I and their percentage frequency compared with that of the Rhodesian series. A marked difference is the fact that only 39% of the Africans gave a complaint of fever, whereas 100% of our patients did make this complaint. There may be a cultural explanation for this difference. On the one hand, fever is a common complaint in Nepal, even among those with no objective pyrexia, and the word is probably used by some to describe any form of malaise. On the other hand, in Rhodesia, where malaria is common, it may be that people reserve the term 'fever' for the shaking chills characteristic of this condition.

Our figures, small though the numbers are, confirm the frequency of abdominal pain (39%), cough (26%), headache (29%), arthralgia (19%), vomiting (35%) and the fact that typhoid patients more commonly have diarrhoea (39%) than constipation (23%). Epistaxis frequently described in text books, was not seen.

(b). *Signs.* Vague abdominal tenderness was found in 39% of cases. Though only 2 cases had clinical dehydration, the complaint of dysuria suggests that some degree of fluid deficiency is much more common. When present, the withdrawn, lethargic 'cloudy' state of mind from which the disease derives its name (Greek: *tuphos* = cloud) was helpful. Splenomegaly occurred in about half of our cases and, though non-specific, is probably more helpful in diagnosis than in malarious regions such as Rhodesia.

We endeavoured to demonstrate relative bradycardia by taking the means of the first four temperatures and pulse readings after admission for each patient and plotting them on a graph. Taking as a standard the expected rise of pulse rate for each degree Fahrenheit from a well-known text book (2), we found that our patients showed no significant tendency to bradycardia, and in fact the readings were randomly scattered on either side of the expected values. This was true even when only patients with a short history were included, even though the tendency to be bradycardic is said to be more marked in the first week (3). Only two patients had pulse rates of more than 20 beats below the expected value. In the Rhodesian series, 26 out of 140 patients with a history of one week or less, and 26 out of 103 patients with a longer history, had bradycardia.

As in the Rhodesian series, rose spots were not seen. Since the series was completed, we have seen a Western patient who developed a partially purpuric rash on the trunk and legs during an attack of typhoid. This did not resemble rose spots.

Two cases developed orchitis during the illness.

The pattern of fever was studied in our series though not in the Rhodesian one. An evening fever, similar to that of tuberculosis was present in 12 cases (39%). In 10% the temperature fell to normal at some point during the day and in 49% there were marked falls to below 100° F during the day. In no case was the fever sustained at a high level throughout the day.

3. *Investigations.* Table 3 shows that a leucopenia was by no means the rule, and, in fact, 23% had a white cell count over 10,000.

From a survey of the local population, the Rhodesian group considered that Widal O or H antigen titres of 1/480 or over were diagnostic of typhoid, and that above this level there were unlikely to be false positives due to anamnestic reactions or infection with other *Salmonellae*. Such a study remains to be done in Nepal. Table 4 shows the results of single widal tests in our study. The main conclusion that may be drawn is that false negative results are commoner in the first week of the illness, as might be expected. The value of rising titres was not studied.

4. *Treatment.* Chloramphenicol was used in all cases, and nearly all cases appeared to respond within a week. Table 5 shows the speed of response of 27 cases, and demonstrates the importance of continuing a therapeutic trial for at least a week. Corticosteroids were not used, largely because we were relying heavily upon defervescence as proof of success of the clinical trial and therefore hesitated to mask the fever with steroids. No cases of bone marrow depression were seen.

5. *Age Incidence.* The figures in Table 6 show that the disease was commonest in young adults (Children were not included in the series.) There was no significant sex difference.

6. *Seasonal Incidence.* It will be seen from Table 7 that there was a general tendency for the disease to be commonest in the rainy seasons, June to August. However cases did occur throughout the year and in 1971, when the rains began in April, there was no increased incidence in the unusually wet months, April and May. On the other hand these pre-monsoon months, April and May, produced a relatively high incidence in 1972. It is not possible from these limited numbers to decide if the disease is mainly spread in the pre-monsoon period when drinking water is limited and stagnant water must be used, or whether it is disseminated by the rains. Probably both mechanisms operate.

CONCLUSIONS. We believe that our experience confirms the difficulty of applying text book descriptions to typhoid in this endemic area. The reason is presumably that patients have a degree of resistance, possibly acquired by previous exposure, that masks many of the

classical features. The practitioner in Nepal should not hesitate to diagnose typhoid in the presence of tachycardia or leucocytosis, or in the absence of splenomegaly. The fever pattern is not typical and may indeed mimic that of tuberculosis or hidden abscess. The Widal test was never conclusive and we have not found it very helpful.

The combination of fever for more than a few days, vague abdominal symptoms, cough and often headache and mental changes, in the absence of chest x-ray changes of pulmonary tuberculosis is nowadays usually sufficient to cause us to treat with Chloramphenicol.

References

1. Wicks, Holmes and Davidson, Quart. J. Med. XL 159, 341-54.
2. Adams and McGraith. Clinical Tropical Diseases 4th Ed. 1966.
3. Tidy Synopsis of Medicine 10th Ed. Bristol. 1954.

TABLE 1
SYMPTOMS.

Symptom	Number of Cases	%	Rhodesian Series %
Fever	31	100	39
Abdominal Pain	12	39	52
Diarrhoea	12	39	37
Vomiting	11	35	24
Anorexia	11	35	—
Headache	9	29	75
Cough	8	26	53
Constipation	7	23	17
Arthralgia	6	19	18
Dysuria	6	19	24
Chest Pain	5	16	27
Weakness	4	13	—
Sore Throat	3	10	6
Shivering	3	10	—
Dizziness	3	10	—
Haemoptysis	3	10	—
Abdominal distension	1	3	—
Dyspnoea	1	3	—
Dyspepsia	1	3	—
Melaena	1	3	—
Epistaxis	—	—	—

TABLE 2
SIGNS

<u>Sign</u>	<u>Number of Cases</u>	<u>%</u>	<u>Rhodesian Series %</u>
Pyrexia	30	97	98
Splenomegaly	14	48	?
Abdominal tenderness	12	39	33
Chest signs	8	26	33
Mental changes	6	20	33
Anaemia	4	13	—
Relative Bradycardia	2	7	33
Dehydration	2	6	—
Neck Stiffness	1	3	20
Rash	0	0	0

TABLE 3
INITIAL WHITE CELL COUNT IN 30 CASES

<u>W. C. C. / cu : mm</u>	<u>Number of Cases</u>	<u>%</u>	<u>Rhodesian Series %</u>
Less than 5000	9	30	46
5000—10,000	14	47	46
More than 10,000	7	23	8

TABLE 4
WIDAL H OR O ANTIGEN TITRES, RELATED TO HISTORY

<u>Length of History</u>	<u>No.</u>	<u>Not done</u>	<u>Negative</u>	<u>Less than 1/320</u>
1—7 days	14	1	2	5
8—14 days	8	3	0	1
15+ days	9	2	0	0
Total	32	6	2	6
	<u>1/320</u>	<u>or</u>	<u>More</u>	
	6			
	4			
	5			
Total	15			

TABLE 5
NO. OF DAYS OF PYREXIA AFTER COMMENCEMENT OF CHLORAMPHENICOL

No. of days	0-1	2	3	4	5	6	7	8	9	10
No. of cases	4	4	4	4	5	1	4	2	0	0

TABLE 6
AGE AND SEX INCIDENCE

Age	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54
Male	0	4	7	2	0	0	0	0
Female	3	5	6	0	1	1	1	0
Total	3	9	13	2	1	1	1	0

55-59
0
1
1

TABLE 7
SEASONAL INCIDENCE

Month 1971	No. of cases	Month 1972	No. of cases
March	1	January	0
April	0	February	2
May	1	March	0
June	0	April	3
July	4	May	4
August	2	June	3
September	0	July	2
October	2		
November	1		
December	3		