

ENTERIC FEVER IN INFANCY.

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DURING the past three years it has been my good fortune to have several cases of enteric fever in infants under my care, and the following notes have been written with a view to pointing out a few facts connected with the disease as it occurs in infants.

Incidence.—The literature on the subject is scanty, from which one may conclude that the condition is a comparatively rare one, or else that it has been to a large extent overlooked or not diagnosed. Leigh Canney in his article on the "Ætiology and Prevention of Enteric Fever" in the *Special Enteric Number of the Practitioner*, January 1904, says it is rare in infancy—he gives no statistics as to the relative infrequency.

F. M. Sandwith, in the same journal, says that for many years "I had not seen a patient under 4 years, until in November 1901, a child, aged 18 months, came under my care." This too in a large practice in Cairo.

Osler in his *Principles and Practice of Medicine* says "it is very rare in infants."

In my opinion enteric fever in infancy is by no means so rare as is generally supposed—many cases of irregular fever of unknown origin are really enteric fever, but before the days of Widal's reaction a definite diagnosis must have been extremely difficult.

Sex.—The number of cases under observation is nothing like sufficient to throw any light on sex influence, there seems no reason to suppose one sex to be more liable than the other as regards infants, as the condition and environment which play an important rôle in the liability of the disease in adults do not come into force in connection with infancy.

Prevalent Season.—July to September, this corresponds with the seasonal influence as it affects the disease in adults. (This applies mainly to India.)

Source of Infection.—This, a highly important factor, is one that ought to be more easily solved in the case of infants than in adults, owing to the greater simplicity of their diet.

In two of my cases I have reason to believe that contamination of raw meat juice was the source of infection.

If one could definitely prove this it would be of much importance, for raw meat juice is such a valuable article of diet for infants, that one would hesitate to condemn its use, at any rate out in India, on the mere supposition that it may be a fertile source of infection in enteric fever.

In one case notably, G. W., male infant, 15 months old, the diet of fresh milk (rigidly boiled) with addition of malted preparations, was one, that was daily kept under the most scrupulous

observation by a careful mother. In the early part of the rains in Poona, there is a prejudice against fresh milk, owing to its liability to set up diarrhoea and allied complaints.

For this reason tinned milk is largely used as a temporary expedient. Not long after the addition of raw meat juice to the dietary, enteric fever attacked the infant. The meat is brought from the bazaar and of course is not subjected to any sterilising influence such as cooking, etc., that it may become contaminated by infected dust in the bazaar or in transit to a bungalow must be admitted.

Almost exactly the same sequence of events occurred in another infant, H. J., age 2 years, for whom raw meat juice was ordered to make up the deficiency caused by a fresh-milk-free diet. The idea of raw meat juice being a source of danger as regards enteric infection is put forward tentatively, and it is to be hoped that others who may have cases of enteric in infants under their care may be able to definitely settle the question.

Mortality.—The mortality is said to be much less in infancy than in adolescence—the disease tending to run a more benign course. It is difficult to give any figures on the subject as probably no one observer has had sufficient number of cases to form any estimate of mortality percentage. Certainly my limited experience would show that the prognosis is good, provided, and this is an important point, that the patient is placed under what I may call enteric conditions. One of my cases, H. J., had an extremely severe attack, the frequency of the stools for a few days being 20 to 30 stools per diem—continued high fever and other unfavourable symptoms—yet the infant made a complete recovery, thanks to the devoted and constant attention of two nurses in attendance.

Onset.—It is probable that in the majority of cases the onset is quite gradual, and so insidious that several days may elapse before a suspicion of the true nature of the disease may present itself. In this respect it conforms to the type commonly observed in the adult.

Course of the Disease.—The classical temperature curve is rarely seen, but in one of my cases, G. L., the fastigium of the disease is well shown in the chart as is also the gradual decline by lysis—then, however, immediately followed a period of irregular pyrexia, and this I have noted in other cases. It is a source of keen disappointment both to the medical attendant and patients; the former prognosticates the end of the attack, only to realise almost at once that there may be another week or ten days of pyrexia to follow. In another case the chart was like that of a low remittent fever, oscillating from 99° to 100° for nineteen days.

Diagnosis.—With the assistance afforded by Widal's reaction this ought not to be a difficult matter now-a-days.

Any case of pyrexia, uninfluenced by quinine and lasting for more than a few days, ought to be considered as a suspicious case, and put under (enteric conditions) until a Widal's test has been obtained. It is often not a matter of ease to confine an infant rigidly to its cot when there is only slight pyrexia and the child is apparently not very ill; in view, however, of the importance of absolute rest, should the case prove to be one of enteric fever, it is advisable to keep the infant under strict enteric conditions. Certainly for the first few days an accurate diagnosis is hardly possible, but the following symptoms, although present in most cases of pyrexia, are usually more marked when the fever is of enteric origin, *viz.*, preceding languor, drowsiness, disinclination to play, gradually rising temperature, abdominal distension, looseness of the bowels, character of tongue, the tip being unusually red while the back is furred. Bleeding from the nose is not of such import as in adults.

Treatment.—This may be summed up in three words, *viz.*, "Efficient Nursing, Whey." These constitute part of the enteric conditions mentioned before.

Without good nursing very little will avail. It is essentially a condition that requires the most constant and assiduous care on the part of the attendants. The art of nursing an infant through enteric is a very real one; not every good nurse has the requisites necessary, one who may be admirable in nursing an adult through an attack may be quite unsuitable in the case of an infant. Usually two nurses are necessary, one for day and one for night.

Diet.—This is the second great factor towards success. Personally, I am an enthusiastic believer in the value of whey both in infancy and in adults, more especially in the former. Under its use, abdominal distension is at a minimum, the stools are less frequent and less foetid, the quantity of urine remains very large, surprisingly so in some cases. Large quantities of whey can be taken, when a similar quantity of milk however diluted or prepared could not be tolerated. Osler and other American physicians insist on the value of large quantities of fluid, in the shape of water, whey, inasmuch as it can be taken *ad lib.*, fulfils that important principle. It can be easily prepared and is cheap, infants take to it readily. Although theoretically there is very little nutriment in whey, hardly enough one would imagine to sustain life, yet, practically it has been found to be ample, and my invariable practice now is to give whey and nothing but whey. Gee and Selby have testified as to the value of whey, and I can fully endorse their experience. As regards the quantity actually taken by an infant I find that 25—30 ounces per diem of whey is about the limit. In every case I endeavour to persuade the infant to take plain cold water in addition. Here, the tactful nurse will have her

powers taxed to coax the child to take this valuable cold water.

Absolute rest.—At first one is likely to be troubled by the mother, who thinks no harm can come of taking the child up, rocking it, etc., to soothe it if peevish, but if one from the outset insists upon absolute rest in the cot, and can impress the nurse or mother with its necessity, there is usually no difficulty later on.

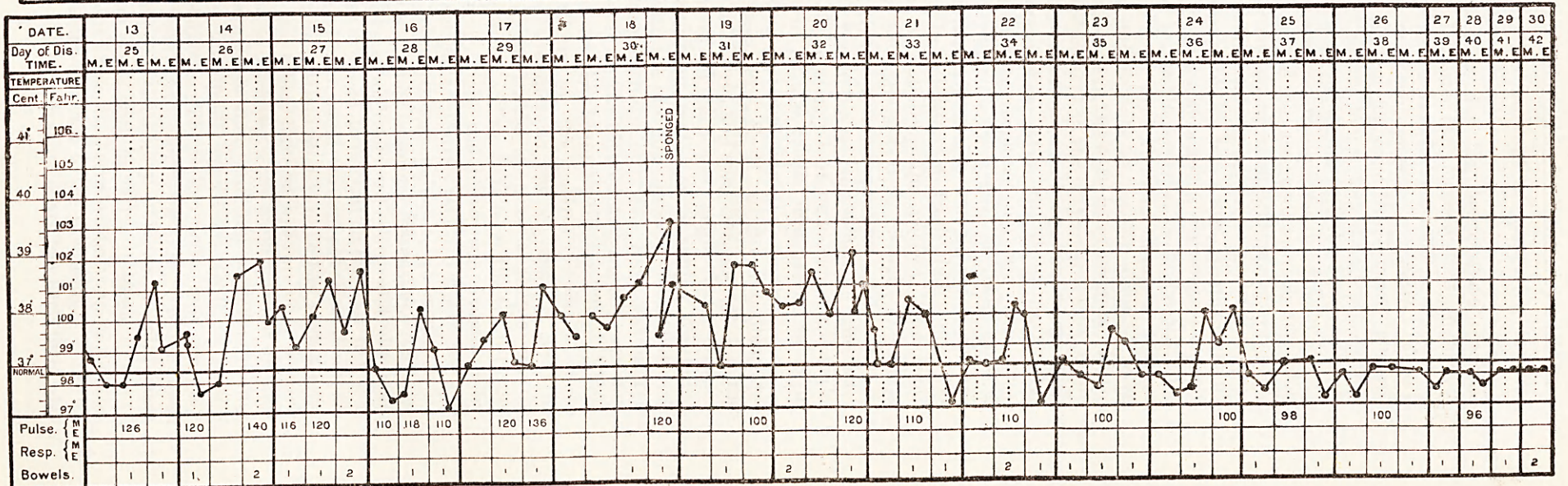
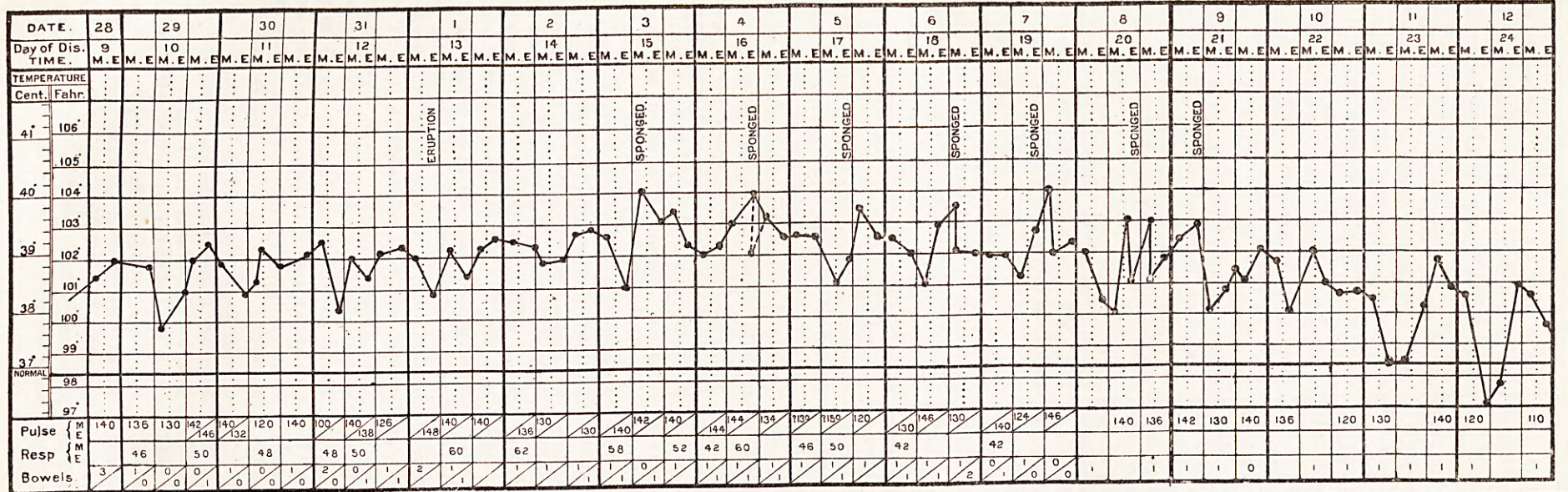
Drugs.—Personally I put no faith in drugs in enteric fever, in fact I rarely see the necessity for using any, if the infant is put on whey and under the influence of good nursing at the beginning. In two cases, one being of more than average severity, I used no drug at all at any stage of the illness. If one remembers that one cannot cut short the duration of the illness by a day by the use of drugs, it is rational enough not to worry the hapless infant by any. If the child has been fed on milk or other food leaving large residues in the intestine, with resultant abdominal distension and pain, then recourse may be had to small doses of calomel or castor oil. Of all the drugs, I prefer turpentine, in cases of tympanites and foetid stools. Its action as a diffusible stimulant is also valuable, and I feel confident I have had good results on the few occasions I have had recourse to it. The most convenient preparation is the Spiritus Terebinthinæ given with Spt. Aeth. Nit.

The treatment of Pyrexia.—Here again the treatment can be summed up in one sentence "the application of cold." Drugs used to reduce temperature are more pernicious even than in the case of adults, the influence of cold water on the nervous system is well-known, and it is as much for this as for the reduction of temperature that the use of cold water is so valuable. Personally in home treatment I prefer simple cold sponging, thoroughly and methodically performed, to the cold bath—although the latter may be of more service in the rare cases of hyperpyrexia. A temperature of 103° is a good limit to place, above this the infant to be sponged—that is a good simple rule.

Treatment of complications.—Prevention is better than cure: our object therefore is to prevent the occurrence of complications such as hæmorrhage, perforation, etc., I have not yet met with either of these serious complications in infants—a few sloughs in the stools, showing that the risk of hæmorrhage is present, calls for greater precautions as to absolute rest and possibly the diminution in the quantity of nourishment for a few hours. Tympanites if obstinate is best treated by small doses of turpentine. Gee says, in his clinical aphorisms, "nothing can relieve the tympanites of enteric fever." I would unwillingly assert anything in contradiction to so great a clinical observer, but my own experience is that

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turpentine is of value in combating this often formidable complication.

Many other points in treatment are such as one adopts in the case of adults, *i.e.*, careful prevention of bedsores, an infant can be so easily rolled over and its position changed that bedsores ought to be of rare occurrence. Personally I have found that infants appear to like lying on the abdomen for hours together, and in this factor we have additional safeguards against bedsores. The disinfection of excreta, etc., is much easier in the case of infants than with adults, for one can easily boil the napkins and soak them in a solution of cresol or other disinfectant so also with the small sheets and clothing, these are all easily dealt with, and there should be no difficulty in preventing the spread of infection.

The following illustrative cases with short notes as to the temperature chart, etc., are given to bring out some of the points above referred to—

Case 1.—G. L., age 15 months, had suffered from chronic diarrhoea and general intestinal disturbance for nearly 3 months before contracting enteric fever. He was in consequence much run down and had lost considerably in weight. The question arose as to sending the infant to England as no treatment had resulted in more than temporary improvement. However, on the 15th August he was sent out to Kirkee for a change of air, and apparently benefited at once, the appetite improving, bowel disturbance being much less and the child generally appeared more happy. Eight days after arrival in Kirkee he developed fever (temp. not taken) and two days later he was brought back to Poona. For the next few days he had irregular fever. On August 26th his temperature rose to 104°F. accompanied by much screaming and abdominal pain. A hypodermic of quinine was given and blood smear taken together with a capsule for Widal examination. The latter gave a positive reaction of 1 in 100. The infant was at once placed on strict enteric conditions. From 28th August to 7th September, the temperature kept up at a steady level of about 102°—103°F. as examination of the accompanying chart will show. Typical spots were noticed on the 1st September, *i.e.*, apparently on 13th day of fever, somewhat later than usual. The bowels gave no trouble, the infant was taking whey and water only, no drugs, and sponged every time the temperature touched 103°F. or over. The infant had at first been very restless but after a few days settled down in a peaceful way and gave very little trouble in nursing. From the 3rd September onwards he was given small doses of brandy at frequent intervals. Brandy I scarcely regard as a drug in enteric, and I am not sure the infant would not have done as well without it. The next eight days shows a fairly typical enteric chart with pulse

and respiration not out of proportion to the temperature.

On the 25th day the temperature reached normal, I hazarded an opinion that in about four days more the fever would be at an end. This illustrates the danger of prognosis. True; for the next few days the temperature touched normal for a few hours, but as a glance at the chart will show, it was not till the 36th day that the temperature finally remained subnormal. No cause could be assigned for the irregular pyrexia, certainly no complication showed itself, and the infant did not appear to go back in any way. Naturally this was a keen disappointment to those in attendance and a warning to myself in future to be more careful in prognosticating the end of an attack. The so-called crisis of the 21st day, so dear to the lay mind, I have quite put aside in the enteric of infants. Little more need be said of the case—the infant made a complete recovery, nothing but whey with a little cream was given till eight days after the temperature remained normal. This may seem excessive caution but, at least, it is a fault on the right side and the infant thrived on it. The addition of fresh lime juice was much appreciated by the patient, who could scarcely be appeased with enough. This is of passing interest in connection with Sir A. Wright's researches on the blood in the later stages of enteric, where he has shown that the addition of citrates to the diet is of value in preventing post-typhoidal thrombosis.

The next case, F. M., *æt.* 2 years, illustrates quite a mild case, and one, that, except for the reaction of Widal's test, might have escaped notice and been treated as a simple continued fever, with the obviously greatly increased risk of spreading infection. The child was noticed to be seedy on the 18th of August, but was not brought to the hospital till the 22nd. There was nothing in the patient's appearance to indicate the case as one of enteric, and the diarrhoea was looked upon as a simple case of food irritation. Two days later the temperature still being high, the blood was examined by Widal and gave a positive reaction of 1 in 80. The spleen was now just palpable, no eruption, no epistaxis, slight abdominal distension. The case ran a very straightforward course and the temperature dropped to normal on the 21st day and continued subnormal throughout convalescence. Why this patient should have had such a mild attack and others have such severe ones is very difficult to surmise. The child was not of pure European extraction, and not under anything like as favourable conditions as some of the other patients. The former factor may probably have been the chief one in the mildness, remembering the nearly universally mild cases that one meets with in native children.

Another case, H. J., male infant, *æt.* 22 months, is a marked contrast to the preceding. Unfortunately the temperature chart has been lost. On

looking back on this case one wonders how an infant could possibly pull through such a prolonged and severe pyrexial disease. For twenty-five days the patient had high fever, and it was not till the 40th day that the temperature remained subnormal. There was no interval of apyrexia, so one may conclude that it was not a case of an early relapse, nor was there any second crop of spots. The most formidable complication was frequency of the stools accompanied by much straining which taxed the infant's strength sorely. In this case *m ii* of *Tr. opii.* in starch solution was given *per rectum* with beneficial effect. The infant had unfortunately been fed on undiluted milk for the first week or so of pyrexia before a Widal's test showed the real nature of the complaint, and to this fact I ascribe the irritable condition of the bowel which persisted in spite of a thorough (as far as could be safely done) eliminative treatment. Once thoroughly on whey diet the abdominal symptoms markedly abated. There were three small hæmorrhages, enough to make one proceed very cautiously. The infant ultimately made a complete recovery, having added to its stature in a most surprising fashion. I have noticed this marked increase in length in other cases, an increase which appears to be out of all proportion to the duration of time of the illness.

Conclusions.

The following are some of the facts that have been impressed on me as a result of the study of these cases of infantile enteric:—

(1) That enteric in infancy (by this I mean up to the age of two years) is by no means so uncommon a complaint as has hitherto been considered. I believe many cases of mild irregular fever are really cases of enteric, very mild clinically, it is true, yet none the less important when one comes to consider the spread of the disease. Certainly in native children in India it has been shown that they may contract the disease in such a mild form as to be running about and playing most of the time, in which case it is only too likely that the disease will be overlooked. Whether European children get it so mildly is not a subject on which I am competent to speak. Personally I doubt it, the mildest of my cases have been severe enough to be confined to bed and treated as obviously "sick," and the severest of them have been exceedingly ill and given one many an anxious moment.

(2) That the *prognosis* on the whole is favourable, provided that the complaint is early recognised and the patient put under suitable "enteric conditions." With the aid of Widal's reaction now-a-days there should be no excuse in not diagnosing a case.

(3) That *whey* is infinitely the best diet for an enteric infant. Whey—good nursing—water—a minimum of drugs—sum up in my opinion

the main features in dealing with a case of enteric, simplicity of treatment is thus ensured.

(4) Constant watching over the patient. Two visits a day is the absolute minimum, personally I prefer to see my patient thrice daily. In this way the slightest change can be noted and the onset of a complication forestalled or at least mitigated.

(5) That the length of the disease is more likely to exceed 21 days than not, and one must plan a campaign accordingly.

(6) That it is very unwise to prognosticate the cessation of the attack when the temperature comes to normal, no matter how gradually it may have done so. Irregular pyrexia for another week or ten days seems to be rather the rule than the exception.

(7) That in cases when a stimulant is needed, good brandy, not too much diluted, is the best restorative. In cases seen thrice daily, the effect of repeated small doses of brandy can be well watched and regulated if necessary.

(8) That complications of a serious nature are much less common than in the case of adults, especially when the "simple" treatment advocated above is adopted. Heart failure from prolonged pyrexia, is, I think, the chief thing to guard against, at least in this country.

In conclusion I may add that the use of Benton's Diet Sheets such as are supplied to many hospitals, is of very great value and service in attending a case of enteric fever. By its means one can follow the progress of a case hour by hour and each day compared with the state of affairs on the preceding one.

DELUSIONS IN YOUNG PEOPLE WITH SPECIAL REFERENCE TO THOSE DUE TO DEMENTIA PARANOIDS.

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A DELUSION is usually described as an erroneous belief of the falseness of which its possessor cannot be persuaded of by reasoning nor by the evidence of his own senses, and which is contrary to the general belief of persons of his own race, age, standing and training.

A person who believes that he can raise men from the dead or one who states that he is a canary or another who believes that he has no feet, when obviously possessed of the usual number, can reasonably be said to be suffering from a delusion and from that fact deduced to be insane; though, on the other hand, it by no means follows that all insane persons have a delusion—very many have none whatsoever.

Delusions are, however, met with in a very large number of the different varieties of insanity, yet it may be said roughly that relatively they are most uncommon in young insane adults, and it is precisely to their presence in such people