

ing reached normal. The largest number of relapses was three. Some of the cases, however, are still in the hospital, and have not yet reached the point where the process may not be again relighted. They followed the usual course, and as a rule were less serious than the original attack, but exceptions were found, in one of which a severe hemorrhage put the patient's life in considerable jeopardy. None of these cases died.

The Widal test was positive in 168 cases (83.5%) and negative in 33. In two it was not tried. This is a smaller proportion than has previously been obtained at the hospital, or should be expected. Its absence was undoubtedly due in some to failure to seek the reaction over a sufficiently long period. An interesting group, small in number, remains in which the diagnosis of typhoid was made, though with some reservation, because they conformed more closely to that than to any other disease. They suggest the possibility that the infecting agent was not Eberth's bacillus, but one of the same family, and show the necessity of closer clinical and laboratory study.

The failure of the test as an aid in the early diagnosis was not infrequently exemplified, for it was not found in eight fatal cases, one of which was verified by autopsy, and was often first obtained so late that the nature of the disease was already evident, or even after convalescence was fully established, yet it proved at times of great value in doubtful cases, especially in those where some special feature had become so prominent as to be misleading. This has been well illustrated during the past year in cases which began suddenly with an attack of pleurisy or pneumonia. Its earliest appearance was the third day after the onset of the first symptoms; its latest, the sixtieth day. In the first instance the patient was a girl of thirteen, in whom the disease began suddenly with chills, nausea and headache.

Leucocyte counts were made in almost every case, usually during the first few days after admission, more rarely later unless some complication was suspected. The results are in line with the recognized fact that typhoid fever is not associated with a leucocytosis, since in 177, when no complication was suspected at the time, they numbered less than 8,000 in 145, and in 21 they were below 4,000; in 29 they were between 8,000 and 10,000, and in only 9 did they exceed the latter figure. The largest number was 15,000, but cases with leucocytosis are so infrequent that it seems probable that when it exists some complication is present, but unrecognized. They are of special clinical interest in showing that typhoid fever as a possible diagnosis cannot be excluded by a moderately high white count.

Twenty-six deaths (12.8%) occurred, for three of which perforation was responsible. Pneumonia was a distinct factor in nine, pulmonary tuberculosis in two, and meningitis in one. The others were due to the severity of the infection, with hemorrhage a contributing cause in four and alcoholism in one. Three entered moribund and died within forty-eight hours. Though the number of males was double that of females, the number of deaths in both sexes was almost the same, 14 and 12 respectively, giving a mortality of 10% among

the former to 18.7 among the latter. No conclusions can be drawn as to the influence of age on the death-rate, owing to the small number of cases in each decade, but the fact that four of the eleven who were over forty died is worth mentioning. Four only came to autopsy, in two of which the bacillus typhosus was found in the heart's blood; in the others it did not appear in the cultures from any of the organs. The process had invaded the colon in two and the cecum in three, in one of which the latter was transformed into an ulcerated pouch. The appendix was affected in two, an anatomical condition which may account in some instances for the abdominal pain of which so many of the patients complained, especially where it was located in the right iliac fossa, and where, when accompanied by local tenderness, a diagnosis between typhoid and appendicitis is difficult.

Two epidemics, apparently arising from a common source of infection, were represented in these patients: One occurred among the young people of a colored church, who went down the harbor on an excursion. Six cases came under the care of Dr. S. F. Courtney and three were sent to the hospital. One of the amusements indulged in was digging clams, which were afterwards eaten, and to them suspicion points as the cause of the disease. The other epidemic broke out among the boarders in a South End restaurant, and some 30 were affected, of whom 12 entered the hospital. The dissemination of the disease was traced to two of the maids who kept at work during the early stage of the disease, and whose uncleanly habits led to infection of the food.

The treatment employed may be dismissed in a few words; with several men in charge of the wards, it naturally varied somewhat in details, but on the whole was purely symptomatic. Cold sponges, occasionally a fan bath, were ordered when the temperature reached 102.5°. Tubs were not used. Intestinal antiseptics were given when indicated, and cardiac stimulants were freely ordered in the more serious cases, but less alcohol was used than several years ago. Milk formed the staple article of food, but considerable latitude in diet was permitted in some of the services. It is noteworthy as showing the change in medical opinion which has occurred during a comparatively few years, that no mention of the surreptitious banana or other baleful article of food as the cause of relapse was noticed.

TYPHOID FEVER AT THE MASSACHUSETTS GENERAL HOSPITAL.¹

BY HERMAN F. VICKERY, M.D., BOSTON,
Visiting Physician, Massachusetts General Hospital.

DURING my service at the Massachusetts General Hospital from July 1 to Nov. 1, 1902, there were under my care 49 cases of typhoid fever, of which three proved fatal, making a fatality of 6%. Of these, 32 ran an uncomplicated course. Among the other 17 there were six cases of relapse; four of phlebitis; two of suppurative otitis media; four with abscesses; three with hemorrhages, of

¹ Read at the Boston Medical Library, Dec. 15, 1902.

which one was fatal; one with mania; one with typhoid spine; one with pneumonia, proving fatal.

In general, the cases were characterized by mildness and a successful termination. Five cases came from a group of about 30, who boarded in one house on Columbus Avenue. The etiology of these last cases is still under investigation, and will doubtless be reported later.

In the observation of my 49 cases, the possibility of paratyphoid infection was borne in mind, but in no case was the diagnosis of this condition possible, because our pathological department had not yet in its possession cultures of the paratyphoid bacillus.

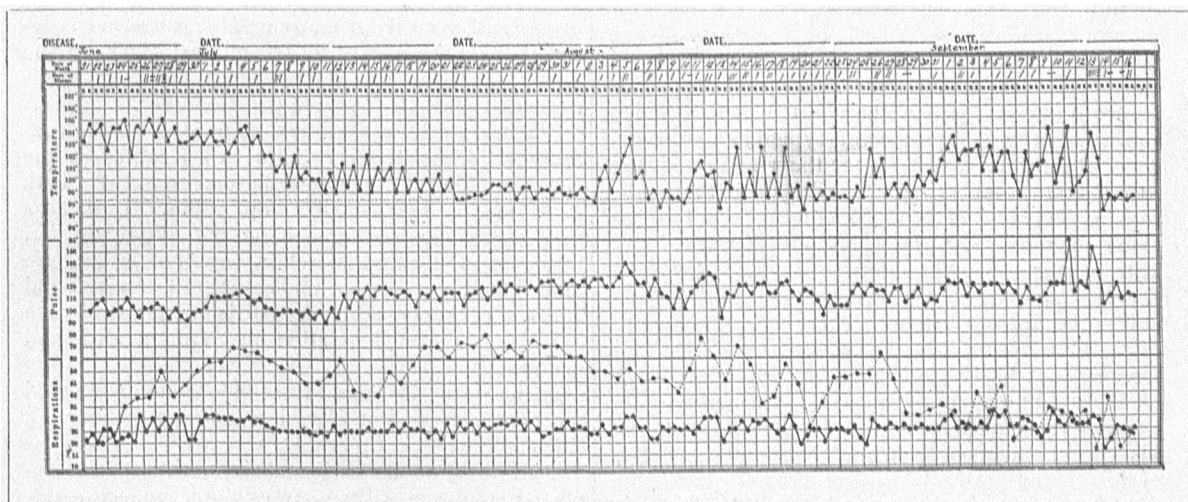
Forty-one cases gave a positive Widal reaction. In one case of probable typhoid no thorough examination was possible, because the patient insisted on leaving the hospital within twenty-four hours of his entrance, against advice. In the other seven there were repeated unsuccessful attempts to obtain a Widal reaction.

A diazo test was invariably made as a matter of

The youngest patient in the series was a girl of three years, with a positive Widal reaction, suppuration in both ears, and a white count of 8,800; later deep abscesses developed and the number of leucocytes increased to 13,000, 20,000 and 31,800, with final recovery.

Another girl of nine years was surreptitiously given an apple by her mother at a time when her temperature was 104.5°. She soon had stomach-ache, and the next day passed five ounces of blood by the rectum, and had two other smaller hemorrhages, but recovered.

The mildest case was that of a student whose family history, previous health and habits had been excellent. He was one of the Columbus Avenue cases. Entering on the fourth day, he received ten grains of calomel, followed by a Seidlitz powder. The fever did not last over eight days; and sixteen days after his attack began he was discharged, feeling, as he said, "better than for years." In his case the Widal was negative on the fourth and eighth days, but positive on the tenth.



TYPHOID SPINE.

routine. For purposes of comparison I have tabulated the results in 26 cases. In these the Widal and diazo were both positive 8 times; the Widal was positive but the diazo negative 13 times; the Widal was negative but the diazo positive in 1 case, and in 4 neither the Widal nor the diazo reaction was observed. In one case the diazo was present on the tenth day of illness, while the Widal did not appear until the twenty-fourth.

The diazo was observed in five cases, respectively, on the fifth, sixth, seventh, ninth and tenth days, and in two cases on the fifteenth day. When present it disappeared, as a rule, within a week of its first appearance, and in general it seemed to be of little assistance in making a diagnosis of typhoid fever.

One case had a peculiar onset. The patient was a teamster who had a cough for three days, but kept at work. On the fourth day while lifting a steel shaft, he felt his back give way, stopped work and went to bed. When he entered, three days later, he had a positive Widal and diazo reaction.

One patient with positive Widal and diazo reactions had a well-compensated aortic regurgitation, and ran a most satisfactory course, his pulse never reaching 100 till convalescence began.

One young woman had a mild attack, became delirious and announced that she was dead, and very consistently refused to take food, but a brief experience with forced feeding through a nasal tube induced her to swallow naturally, and she made a good recovery.

Another woman, whose husband had been insane and finally committed suicide, developed well-marked mania, and had to be fed by means of a tube for nineteen days; but she became convalescent, and was in a nearly normal condition when discharged.

One of the severest cases was that of a young servant girl who was profoundly toxic, and took nourishment very badly. No drugs seemed to have any beneficial effect upon her, except that negatively, I thought there was improvement when I omitted the strychnine which she had been receiving. Brandy, in a dose of two ounces, did not seem to

influence her in any way. She did, however, exhibit striking improvement upon the subcutaneous administration of normal salt solution, of which a pint was administered twice a day for thirteen days. Its effect was to diminish the toxic condition of her blood, so that her mind became clearer, her complexion more normal and her pulse stronger. In this case we endeavored for several days to measure the total amount of fluid ingested and excreted. On the average she received one hundred and fifty ounces in twenty-four hours, of which about ninety were returned, so that about two quarts were dissipated in the breath and perspiration. This patient, although apparently out of danger, was still very ill when my term of service expired. She has since become completely convalescent under the care of Dr. F. C. Shattuck.

The case with spinal complication was a recent graduate of the Institute of Technology, whose sister had exophthalmic goitre. He entered June 21, on the eighth day of his illness, under the care of Dr. E. G. Cutler, and pursued the ordinary course of a severe typhoid fever. I found him July 1 with nothing distinctive, except that his pulse was very dicrotic and rapid, one hundred and ten beats per minute. He became afebrile on the thirty-seventh day of his illness; thirteen days later his temperature arose in the manner of an acute infection, as shown by the accompanying chart, which is similar to that seen in many cases of typhoid spine, but it was not until eight days after the rise in temperature that he complained of a dull pain in the lumbar region. There was at no time any deformity of the spinal column. At the height of the process the knee jerk on the right side was absent; on the left it was exaggerated. There was no ankle clonus and no Babinski reaction. There was a small area of tactile anesthesia on the dorsum of the left big toe and just back of the toe, towards the dorsum of the foot; otherwise sensation was intact. He suffered very much from pain on the least motion of his trunk, and also from an involuntary twitching of his thighs. Dr. J. E. Goldthwait saw this patient in consultation and very kindly fitted him with a leather jacket, which, however, did not give the relief expected. He seemed somewhat benefited by raising the foot of the bed and fastening weights to his feet, so as to establish counter extension. After the comparatively short period of seven weeks he became convalescent, and when he left the hospital he suffered merely from a slight stiffness of the back.

Of the fatal cases one was a female nurse who had been taking care of a case of typhoid. She seemed exhausted and toxic upon entrance, with a pulse gradually increasing in rapidity, when she had repeated hemorrhages, discharging over two quarts of blood, and dying from exhaustion after the hemorrhage had apparently ceased. The autopsy showed unusually extensive ulcers in the ileum and caecum. There was one small stone in the gall bladder. Typhoid bacilli were found in the heart-blood, the liver, spleen, gall bladder and gall stone.

A second fatal case showed typhoid bacilli in the heart-blood, spleen, a supernumerary spleen, the liver and the gall bladder, and also a pneumonia due to pneumococcus infection, involving the lower lobe of the left lung.

The third fatal case was a laborer, forty-six years old, who drank whiskey habitually in large amounts. He entered nine days after ceasing work, with dyspnea, cyanosis, *à bruit de galop*, and some consolidation at the right base. He was profoundly toxic, and developed alcoholic delirium. No autopsy was obtained.

THE CLINICAL DIAGNOSIS OF TYPHOID PERFORATION.¹

BY JOHN C. MUNRO, M.D., BOSTON,

Assistant Visiting Surgeon, Boston City Hospital; Instructor in Surgery, Harvard Medical School.

OF the twenty-six cases reported in this paper all but one suffered from typhoid. Twenty-one of these I have seen in consultation at the Boston City Hospital in the last four years, the greater number in the last two years. I have added five recent cases through the courtesy of members of the staff, because, of late, the observations and records are more carefully made than during the earlier years of operation for perforation.

I have purposely utilized personal cases because my private records in many instances are more detailed than those kept by the clinical clerks of the hospital, and because I have emphasized the surgical rather than the medical point of view.

There are fifteen operations in cases with perforation, with one recovery. In two fatal cases the cause of the abdominal symptoms and of death could not be determined at operation. Two cases died and three cases recovered without operation. One case of peritonitis from a ruptured mesenteric gland died, one case of cholecystitis recovered and another of supposed cholecystitis died. One case exhibiting a Widal reaction died from pyelitis and cystitis.

In reporting the cases I have intentionally included those of supposed perforation in order to show all sides of the clinical picture.

Until we operate earlier than in these cases reported, and are willing to explore, unnecessarily perchance, where symptoms of perforation exist, we are still going to have our high mortality from general peritonitis. I believe a rapid exploration through a muscle-splitting incision in a typhoid patient without peritoneal infection or serious organic lesion is practically harmless. We must make an exploratory investigation occasionally in order to save the larger number of genuine perforations by timely interference. The decision as to the ability of the patient to withstand a possible needless exploration should be decided by the surgeon and not by the physician. To quote from Osler in this respect, he says: "To leave the diagnosis of perforation to the attending physician is in too many cases to sacrifice the life of the patient."

In each of the seventeen cases of perforation, the symptoms early in the course of the fever varied a good deal. Some cases had no signs indicating abdominal disturbance; others had nausea and vomiting, slight and severe, abdominal tenderness with and without spasm, and distention with and without other signs. In other words, a combination of one or two symptoms suggesting peritoneal lesions might

¹ Read at the Boston Medical Library, Dec. 15, 1902.