NOTES ON 215 CASES OF ENTERIC FEVER.

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ENTERIC FEVER.

BETWEEN the years 1890-98 (inclusive) there have been treated in Charing Cross Hospital 215 cases of enteric fever, those remaining under treatment at the end of the year 1898 not being counted. Of these cases, 131 were males and 84 females, the disproportion being probably due to the relative number of beds available for each sex in the hospital.

Age.—The ages of the patients may be tabulated as follows:

Age.	1 to 10.	11 to 20.	21 to 30.	31 to 40.	41 to 50.
Males ...	20	52	45	10	4
Females ...	11	24	37	9	3
Total ...	31	76	82	19	7

Between the ages of 1 and 5 years, 7 boys and 3 girls were admitted for enteric fever. The youngest patient was a little boy of 2 years, recently discharged from the hospital. The oldest patients were 3 men of 46, 48, and 49, and 2 women of 45 and 46 respectively. It thus appears that 158 cases, or over 73 per cent. of the whole number, occurred between the ages of 11 and 30.

Occupation.—As might be expected, no definite influence of occupation on the incidence of the disease could be traced.

Number of Attacks.—In no instance could it be definitely determined that a previous attack of this disease had occurred. The most probable instance of such an occurrence was afforded by a young woman who gave a history of a previous attack of typhoid fever from which she had suffered as a child, but the symptoms which she developed in the hospital were somewhat anomalous, being characterised by severe joint pains and subcutaneous nodules, so that a suspicion of rheumatism could not be excluded in spite of the resistance of the disease to salicylate treatment. In another instance a patient had been discharged as cured of typhoid from a fever hospital, and was admitted to this hospital about a fortnight afterwards. It was not determined for how long she had remained free from fever before she left the fever hospital, but it cannot be doubted that the illness for which she was admitted to Charing Cross Hospital was a relapse and not a fresh attack.

Season.—The distribution of the cases throughout the year was as follows:

January ...	9	July ...	9
February ...	9	August ...	9
March ...	5	September ...	35
April ...	6	October ...	47
May ...	7	November ...	43
June ...	11	December ...	25

The last four months of the year thus account for 150 cases out of 215, or nearly 70 per cent., the actual maximum being in the month of October.

SYMPTOMS, COURSE, AND COMPLICATIONS.

Onset.—A gradual onset, with headache and weakness, was noted in far the greater number of cases. A sudden attack with a definite rigor occurred in five instances, while in two others sudden vomiting was the first warning, and abdominal pain in a similar number. In one instance the attack began with all the symptoms of acute pneumonia, and only revealed its true nature after the patient had been some days in hospital. In two cases it was stated that the illness began with a fit (convulsion), but the account of this occurrence was not in either instance very clear (both males aged 24 years). Epistaxis occurred at the onset in six instances.

Abdominal.—Looseness of the bowels was the rule in this series of cases, but constipation was prominent in about one-sixth of the number. In several cases at the onset constipation had occurred, but the patients had taken aperient

medicine, which was followed by a period of diarrhoea. This latter occurred to a severe extent, so as to need interference, in 22 cases in the hospital. Vomiting was troublesome in 15 instances, persisting with some degree of frequency throughout the illness. Pain in the abdomen was a prominent feature in 15 cases, apart from those in which perforation or peritonitis occurred. The spleen was recorded as being enlarged (palpable) in 42 instances; it was very rarely found of normal size in fatal cases, so that it is probable that, owing to its softness or from some other reason, it often escaped recognition. Hæmorrhage from the bowel occurred in 21 patients. In one case it occurred at the onset of the disease, being possibly due to capillary oozing or comparable to the epistaxis of this period. It was also met with in 2 cases on the seventh and ninth days respectively, and in 3 others on the fourteenth. The latest period of its occurrence was on the fifty-seventh day in one instance. Six cases of these 21 ended fatally (28.5 per cent.). Perforation of the intestine by an ulcer occurred twelve times, and was invariably fatal. Peritonitis without perforation was found in 1 fatal case. In 4 cases localised swellings occurred in the abdomen; in 2 of these the condition appeared to be due to some local distension of the intestine situated on the left side of the abdomen (1 case ended fatally). In 1 patient an indefinite mass was found in the hypogastrium, which gradually disappeared. In the fourth instance (a child aged 7) persistent dulness was found in the right iliac fossa as a sequel during convalescence. Traces of albumen in the urine were not infrequent; larger amounts suggesting actual kidney mischief were found in 20 cases. Acute nephritis occurred in 1 patient (a male aged 19) along with acute pneumonia.

Thorax.—Acute pneumonia occurred in 10 cases, and a probability of its occurrence existed in 7 others. In 1 case, however, in which all the signs of this condition were noted in the lungs during life, after death only intense congestion of the bases was found, so that it is probable that actual pneumonia may be less frequent than would seem to be the case. Well-marked pleurisy occurred as a sequel in one case, but pains in the side suggesting its occurrence, without physical signs, were found in several more.

Nervous System.—Some degree of delirium towards night was found in the great majority of cases of any severity. A greater degree than this was found in 23 patients, in 5 of whom it was of an active type, the patients getting out of bed or behaving violently. In 3 cases great irritability of temper was a prominent feature, and in another instance, not included in these statistics, the patient was exceedingly morose and sulky throughout the illness. In a recent case, still in the hospital, a considerable degree of delirium, even during the daytime, persisted for over a week after the patient's temperature had fallen to normal.

Headache as an initial symptom was not often absent. It generally ceased by the tenth day, but in at least one instance it persisted as long as the nineteenth day. It occurred in a few cases late in the disease, apparently as a result of general weakness and exhaustion. Retention of urine is recorded in 8 cases, generally at the beginning of the attack, but in 1 case it commenced on the twenty-first day of the illness, and continued for the ensuing fortnight. In 2 cases cystitis occurred, as the result (presumably) of catheterisation. Pain in the limbs or back at the beginning of the attack was not infrequently complained of. Joint pains¹ in the course of the malady occurred in several cases; in 1 case they were improved by salicylate treatment, in another no improvement followed the use of this drug. Increase of knee-jerks and ankle clonus appear to be not uncommon in protracted cases. In a boy aged 12 a definite paralysis of the left foot occurred along with this condition (Appendix, Case III). Possibly the fibres of the pyramidal tracts share in the general failure of nutrition, and their function may be thus impaired or actually interrupted, as in the case mentioned. On the other hand, loss of knee-jerks was twice observed, accompanied in one instance by footdrop and pains in the legs, showing actual peripheral neuritis (Appendix, Case II). In another case paralysis of the right ankle-joint occurred, and was accompanied by the existence of a patch of anæsthesia over the outer malleolus, evidently due to the same cause, though the condition of the knee-jerks is not stated. In a recent case (not included), well-marked "strisæ

atrophicæ" were developed on the anterior surface of the legs just above the knees, and more slightly above the ankles and above the great trochanters. The condition appears to occur in other illnesses accompanied by defective nutrition, as the same marking was seen in a boy lying in the same ward at the time, the subject of chronic tuberculosis, and also in a case of anorexia nervosa.

Temperature.—In the majority of cases the temperature did not rise to as much as 104° F., which was attained in only 96 cases. Of these 27 had a temperature of 105° or over, 106° F. being only twice reached (both fatal cases).

Cardio-vascular.—The pulse was not generally much increased in frequency, 120 beats in the minute being quite exceptional. In two cases there was bradycardia (both young males), with frequency of 40-60 throughout the illness, rising to normal in convalescence. Irregularity of rhythm was twice recorded.² Thrombosis of veins occurred in 7 cases, the femoral vein being the seat in 6 of these, in one case associated with blocking of the saphena, which once occurred alone. In one fatal case (male, 38 years) thrombosis of the pulmonary artery was found *post mortem*, pale decolorised clot, extending even into the medium-sized branches of the arteries in both lungs. Embolism of the right common iliac artery with consequent gangrene of the leg was the cause of death in one case (Appendix, Case iv). Epistaxis occurred in 12 cases altogether, including the 6 already mentioned, in which it marked the onset of the illness. It was met with as late as the twenty-second day. Hæmoptysis was present in 7 instances, and hæmatemesis in 4 others. A hæmatoma of the auricle occurred in 1 fatal case.

Cutaneous.—The typical typhoid rash was noted as present in 146 instances, or 68 per cent. In a few cases it was profuse, occurring even on the extremities; in one woman of 29 years the spots presented central vesicles. Irregular rashes were not uncommon, occurring in 18 cases (over 8 per cent.). They consisted generally of erythematous patches on the body or limbs, sometimes described as mottled (morbilliform) or as diffuse redness (scarlatiniform). In one case elevated wheals were the main feature, accompanied by a few vesicles, but without itching. Actual bullæ occurred in a child aged 5 years, situated over the great trochanters. These rashes were frequently followed by desquamation, and occurred at all periods of the disease, even during convalescence. It is possible that in some cases they were the result of enematæ. They occurred most frequently in young patients (only 3 over 20), and more often in females than in males (11 to 7). A petechial eruption was twice observed, one case ending fatally.

Boils or carbuncles were troublesome sequelæ in six instances, three of these being members of one family who appeared to have some constitutional liability to this affection. Alveolar abscess occurred in 2 patients during convalescence, but may have been a mere accident. An axillary abscess occurred in 1 case and an abscess over the sacrum in another. A parotid bubo was observed in 1 case. Erysipelas was met with as a complication in 1 case during the early part of the illness, and appeared to be the cause of the fatal issue (Appendix, Case v). Epididymitis was a sequel in 3 cases, but cleared up satisfactorily. Tonsillitis occurred once during convalescence, probably as an accidental coincidence. Soreness of the mouth (stomatitis and gingivitis) was complained of in the early stages of the disease in 5 cases. Sore throat was a frequent early symptom, occurring in 30 cases, in 5 of which actual dysphagia was present. Otitis was also frequent (28 cases), children being, as would be expected, most liable to the trouble. Periostitis was a complication in 4 cases, 3 being women; the tibia was the seat in two cases, a rib in another, and the sternum in the fourth case. In this last case it occurred on the twenty-fourth day, in the others it was a sequela.

False membrane was formed in the throat in 2 cases, in 1 of which it was associated with offensive nasal discharge. No bacteriological examination of the membrane was made so that its nature must remain doubtful.³ Purulent nasal discharge without the presence of membrane in the throat occurred in one instance.

Three pregnant women are included in this series of cases, all of whom recovered. In one case the child also lived. A

case in which the disease originated in the puerperal period ended fatally from heart failure.

Relapse or recrudescence occurred in 59 cases. The longest period for which a patient remained free from fever before the relapse was twenty-six days. In one case, a child of 5 years, four relapses took place, and in nine other patients two relapses were experienced. Of the cases in which relapse occurred only four died, from which it appears that prognosis is at any rate not worse in these cases. It would seem, indeed, to be actually better, perhaps owing to the patient taking the disease by instalments.

Duration.—Counting from the assigned onset to the day when the fever finally ceased we find that of 162 non-fatal cases, in 25 the disease ended within twenty days, 6 of these being free from fever within a fortnight (abortive cases); 66 more patients were apyrexial within thirty days, 36 others within forty. In 24 more cases the temperature fell within fifty days; in 16 others it remained febrile to between fifty and seventy days of the onset. Five patients were not free from fever till over ten weeks had elapsed; one of these, the little girl of 5 already alluded to, who suffered from 4 relapses, being ill for a total of ninety-two days. In fatal cases pneumonia caused the most rapid termination, 1 case dying of this complication on the ninth day. One patient died of perforation of the intestine on what was believed to be the tenth day of the illness, but the usual date of this accident was from the eighteenth to the thirtieth day. In 1 case it occurred as late as the fifty-fourth day in a relapse. Cardiac failure in severe cases occurred for the most part from the twentieth to the thirtieth day. The longest duration in a fatal case was sixty-two days, the patient dying of thrombosis of the pulmonary artery.

MORBID ANATOMY.

Fatal Cases.—Forty cases ended fatally, giving a percentage mortality of rather over 18.5 per cent. *Post-mortem* records were found of 35 cases. Perforation of the intestine occurred in 14 of these cases (40 per cent.). In 3 cases multiple perforations of the small intestine had occurred (3 in each); in 1 other the large intestine was the seat of the perforating ulcer. General peritonitis occurred in all these cases except one, in which a localised pelvic abscess resulted. (Appendix, Case vi.) This case was not diagnosed during life as enteric fever. Hæmorrhage from the bowel was only the direct cause of death in 1 case. Pneumonia was found *post mortem* in 8 cases, in 4 of which it was double. It was associated in 2 cases with subpleural hæmorrhages. In 1 case acute nephritis occurred along with pneumonia. Pericarditis occurred in 1 case, and meningitis (Appendix, Case i) in 1 more. Peritonitis without perforation, thrombosis of the pulmonary artery, and embolism of an iliac artery, each caused 1 death. Erysipelas at the beginning of the disease has been already mentioned as causing the death of 1 patient. The rest of the fatal cases were due to cardiac failure from the severity of the disease. One patient (male, 46) died from exhaustion four days after his temperature had become normal. The spleen was recorded as enlarged in 27 cases; the greatest weight attained by this organ was 20 oz. Laryngeal ulcer is only recorded in 1 case; in another, in which symptoms of laryngitis had been marked during life, no actual ulceration was found. In 21 cases the large intestine was the seat of typhoid lesions, from which it appears that it is the rule rather than the exception for this portion of the bowel to be affected. In 3 of these cases the lesions extended as far as the sigmoid or rectum. In 3 cases the appendix was affected, in 2 of which actual ulceration had occurred.⁴ One case of perforation of the large intestine has been already referred to. In 2 patients dying in early stages of this illness acute inflammation of the gastric mucous membrane was found; in 1 case an actual ulcer was present.

Age.—Three patients under 10 years succumbed (10 per cent.), 1 child aged 5½ years dying of actual perforation. From 11 to 20, 10 patients died (13 per cent.); from 21 to 30, 17 deaths occurred (20 per cent.); from 31 to 40 there were 6 deaths (30 per cent.); and above 40, 3 deaths were recorded (43 per cent.). It thus appears that the percentage mortality varies directly with the age of the patients.

PROGNOSIS.

Six ambulatory cases of enteric fever are included in this

list; all of these proved fatal. Violent or active delirium was also invariably fatal. Cyanosis was a sign of grave import, only 1 case of 5 in which it occurred recovering. Hiccough occurred before death in 2 fatal cases. It did not necessarily prove the presence of peritonitis. Thin watery offensive stools were observed in 1 case with similar termination. Of 27 patients with a temperature reaching 105° F., 10 died (40 per cent.); 2 in whom 106° F. was reached, both succumbed. On the other hand, a pulse of over 140 persisted for days and yet recovery took place. Among cases in which hæmorrhage from the bowel occurred the mortality, as before mentioned, was 28.5 per cent., as against a total percentage mortality of 18.5 per cent. Only 1 case was directly fatal, but this complication evidently increases the gravity of the outlook. Floccitation and carphology were not incompatible with a favourable termination, nor was pregnancy a bar to recovery. Absence of delirium was not always a good sign, at least 1 severe and fatal case being accompanied by clearness of mind throughout.

TREATMENT.

As a rule, treatment was expectant and consisted of liquid diet, absolute rest, and attention to symptoms. The routine medicine was dilute hydrochloric acid, with syrup of orange and water. Excessive fever was treated by tepid, cold, or iced sponging. Ice-cradling was also employed with less visible benefit. One case treated by raising the bed clothes on a cradle away from the patient died of double pneumonia. Antipyretic drugs were not frequently used, with the exception of quinine, which appeared beneficial in some cases. Of antiseptics, turpentine was most frequently relied upon, and was taken well in most instances. The same cannot be said of naphthalene, which frequently caused sickness. In at least one case the pills in which it was contained were persistently passed in the motions unaltered. Antityphoid serum was used in a few cases without visible effect. In 1 of these cases a relapse subsequently occurred.

APPENDIX OF CASES.

CASE I. *Meningitis*.—S. W., male, aged 10, admitted, under Dr. Green, May 25th, 1892. The illness had begun suddenly on May 10th, with headache, pain in the abdomen, and diarrhoea. The child's temperature on admission was 104° F., and fell gradually for the next ten days, reaching normal on the twenty-fourth day of the illness. The main symptoms throughout were continual vomiting and obstinate constipation. The abdomen at first was retracted, but the liver was apparently enlarged and reached nearly down to the umbilicus. Later on the abdomen became somewhat distended. The patient wandered mentally at first, but this condition gradually improved. Death took place on the forty-fifth day, three weeks after the temperature had reached normal. The diagnosis had in the first instance been typhoid fever; later a suspicion of tuberculous peritonitis was entertained.

Post-mortem there were found old healing typhoid lesions of the small intestine in the neighbourhood of the ileo-cæcal valve, with simple cerebral meningitis. The spleen was normal. There was a congenital hernia through the diaphragm, accounting apparently for the displacement of the liver.

CASE II. *Early Thrombosis: Peripheral Neuritis*.—E. B., female, aged 22, servant, admitted under Dr. Green, September 21st, 1895. The disease began on September 15th with shivering. On admission there was pain and tenderness in the left groin, and a distinct venous cord could be felt in the upper part of the thigh. There was œdema of the leg. The urine contained a considerable quantity of albumen. The temperature at its highest reached 104.6° F.; it fell gradually, and nearly reached normal by the twenty-fourth day. On the eleventh day the patient complained of pain in the legs, but no cause beyond the thrombosis, which was gradually clearing up, was found. On the fourteenth day she brought up blood twice in vomiting, and a slight hæmorrhage from the bowel occurred on the twenty-first day. Three days later slight desquamation was noticed on the abdomen, palms, and soles. On the twenty-ninth day a recrudescence occurred. On October 16th (thirty-first day) pain was complained of in the hands and feet, and the knee-jerks were found to be absent. On the following day a condition of partial "foot-drop" was found. This gradually passed off, and the temperature became finally normal on the forty-first day. The patient was severely ill both in the first attack and the recrudescence; in the latter the pulse for days was over 140, reaching 152 beats to the minute on one occasion.

CASE III. *Paralysis of Left Foot*.—R. B., a boy aged 12, was admitted on October 14th, 1895, under Dr. Abercrombie, on the eighth day of the disease. He then suffered from headache, and was irritable but not delirious. No typical spots were then found. *Tâche cérébrale* could be obtained. Two days later he was delirious, and took his food with great reluctance. There was fairly marked bronchitis. Spots appeared on the twelfth day of the disease. On the fifteenth day he was fed by the nasal tube because of the trouble in getting him to take nourishment, and this method of feeding was continued till November 13th, the thirty-sixth day of the disease. The patient continued in a curious irritable condition, resenting all interference, and refusing to speak. On November 11th an erythematous rash appeared on the body and limbs, but passed off rapidly. On November 13th a relapse occurred, with pains in the limbs and fresh spots, and more bronchitis a few days later. The patient became much emaciated, and the mental condition continued. On December 11th it was

noted that he persisted in biting holes in the sheets. On December 16th a fresh relapse occurred, after the temperature had been normal for six days, and lasted one week. On January 16th the patient complained of numbness in the left foot, and a sensation of "pins and needles." The knee-jerks were found to be increased, and ankle-clonus could be obtained. The left foot was in the "dropped" position, and the patient could not move it. A few days later there was considerable tenderness over this shin, and ankle-clonus had disappeared. The knee-jerks remained brisk till February 1st, when some movement of the toes had returned. Gradual improvement then took place. Towards the end of the illness the boy became almost completely bald.

CASE IV. *Embolism of Femoral Artery*.—C. M., male, aged 19, blacksmith, was admitted on October 5th, 1897, on the eleventh day of the disease, under the care of Dr. Green. The onset had been with headache, pains in the back and vomiting. On admission he was suffering from sore throat and dysphagia, and was delirious and restless. The usual rash was seen on abdomen. Five days after admission (sixteenth day) he was seized with sudden intense pain in the right thigh; the leg was found pale, and soon became white and cold. Pulsation ceased from the first in the tibial arteries, and shortly became imperceptible in the popliteal. The patient survived the occurrence till October 4th, signs of gangrene meanwhile appearing in the leg, with a line of demarcation in the middle of the thigh.

Post-mortem there was found embolism of the right common iliac artery, with secondary thrombosis. Typhoid ulceration was well marked in both small and large intestines, and there was an infarct in the right kidney. The spleen weighed 8½ ozs.

CASE V. *Erysipelas*.—F. N., male, aged 16, a packer, in October 24-31, 1898, was admitted under the care of Dr. Bruce on the twelfth day of the disease. Temperature 104° F.; typical rash. Two days later an erythematous patch appeared on the nose and neighbouring areas of cheeks. This rapidly spread to the orbital regions, and involved the whole of both cheeks. Antistreptococcus serum was injected, and the temperature, which at one time reached 105.4°, fell somewhat. A doubtful presystolic bruit developed over the præcordial area. Two further injections of serum were given on following days but the patient did not rally. From the severity of the inflammation surrounding the orbit, it appeared that had the patient survived, the tissues surrounding the eyes would have sloughed, an apparent line of demarcation being visible on the face.

Post-Mortem Examination.—The Peyer's patches in the small intestine were swollen but not ulcerated, and the large bowel was unaffected. The spleen was much enlarged, weighing 19½ ounces. Death at this early stage of the disease was apparently due to the erysipelas and not to the typhoid infection.

CASE VI. *Perforation: Localised Abscess*.—J. T., a kitchenmaid, aged 40, was admitted on July 12th under the care of Dr. Abercrombie for swelling of abdomen and pain. At the end of June she had been seized with severe pain in the abdomen and faintness. She took to her bed, and for the next fortnight was continually sick after all food. On admission she appeared anemic and emaciated, the abdomen was somewhat distended, and coils of intestine in movement were visible and palpable. The uterine fornices were obliterated and the uterus fixed in a hard mass, suggesting malignant disease. An ulcer was found in the rectum apparently communicating with an abscess cavity in the centre of the mass. The temperature of the patient was remittent, averaging 101° F. (103° to 98.4°). The stools were liquid and contained small quantities of pus. Operation was advised by Mr. Boyd, and while the patient was under an anæsthetic the size of the cavity was made out to be 2 to 3 inches in diameter. It was irrigated and drained. The patient gradually sank.

Post-mortem there were found typical typhoid ulcers of the intestine, both large and small, some healing, some sloughing. One of these had perforated, giving rise to pelvic abscess, which had subsequently burst into the rectum. Two other points of perforation also existed in the small intestine.

NOTES.

¹ In a recent case acute arthritis occurred, affecting both knees and ankles. Pain was also felt in the shoulders. One knee-joint contained a fair quantity of fluid. The patient, aged 13 years, cried out if the affected joints were touched. The condition was apparently unaffected by salicylate of soda, and some degree of ankylosis remained during convalescence. ² In a recent case a systolic bruit, slightly conducted into the axilla, developed in the course of the disease. It persisted and gave the impression of being pericardial, or at all events exocardial, in nature. ³ In a case still remaining in the hospital diphtheria bacilli were found in the false membrane, which invaded the trachea. Tracheotomy was performed, and the patient now appears convalescent. ⁴ In a recent case actual perforation of the appendix vermiformis was found, along with two perforations of the small intestine.

AN UNUSUAL CASE OF CARDIO-PULMONARY
RALE.

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A PATIENT recently under my care presented a remarkable cardio-pulmonary physical sign.

He was a young man, aged 21, a footman, and was first seen by me on April 15th, 1899. His complaint was of cough and spit, with general weakness and "a tickling sound in his throat." He had begun to have cough and spit two months earlier, also pains in the left shoulder and on the left side of the chest in front. He had had no hæmoptysis, but had been getting thinner, and had had some undue perspiration at nights. His digestion had kept good, and he could take his food well, and his bowels were regular. A week or ten days before his first visit to me he first noticed a clicking sound in his throat when he took a long breath, which