THE TREATMENT OF DIFFUSE SEPTIC PERITONITIS DUE TO APPENDICITIS, ILLUSTRATED BY FOUR RECENT CASES.

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Thanks largely to the teaching of Murphy and Fowler the mortality of these cases is not so great as it was a few years ago, but it is still very high. I noticed last year in one of our journals, that out of five cases operated on in one of our big military hospitals, there were three deaths, a death-rate of 60 per cent.

Four cases have recently been under my care; they all had diffuse septic peritonitis, and, on opening the abdomen, there was an immediate spurt of fluid, under tension, not from a localized abscess but from a general diffusion in the general peritoneal cavity.

Case 1.—I was asked to see the patient late one evening. He was in a collapsed condition, face anxious and drawn, abdomen rigid, especially on the right side, where it was acutely tender on palpation; there was no movement with respiration, pulse 120, temperature 102°F., respirations 20, the bowels were not open.

He stated that he had been suddenly seized with violent pain the night before, and since that time had been vomiting frequently. As he had only just been brought into hospital and was in such a collapsed condition, I postponed operation till the following morning. He passed a bad night, and, except that he did not appear to be so collapsed, his general condition was unchanged next morning.

Operation.—An incision was made through the outer edge of the right rectus sheath; as soon as the peritoneum was opened thin, very foul-smelling fluid gushed out. The appendix was found to be gangrenous and perforated in its distal portion; there were no limiting adhesions, and the general peritoneal cavity was intensely inflamed. The appendix was ligatured and removed, the stump being inverted with a purse-string suture. The various steps of the operation were carried out quickly, the bowel being handled as gently and as little as possible. No attempt was made to either irrigate or swab out the peritoneal cavity or pelvis. In these cases there is not the slightest necessity to do so, there are no adhesions, and the fluid flows in the line of least resistance, namely towards the wound. Irrigation would only disseminate still further the infection, and swabbing simply removes layers of protective lymph and produces bare patches through which the toxins can more readily enter into the general blood-stream.

The appendix having been removed, glass drainage tubes leading down to the bottom of the pelvis were placed in the lower angle of the wound, the upper portion of which was closed in layers with iodized-formalin catgut.
Throughout the operation the patient’s thorax was kept raised at a higher level than the abdomen, and he was removed to bed in this position, and placed at once half sitting up, as recommended by Fowler. Immediate proctoclysis was commenced with 1 oz. of sugar added to each pint of the normal saline solution, the sugar being added in the hope that some of it would be absorbed and help to keep up the patient’s strength. As soon as the influence of the anaesthetic had passed off, he was encouraged to drink cold water, and was given a powder every third hour containing ½ gr. of calomel, and 3 gr. each of salol and bicarbonate of soda. By the following morning he had absorbed 7 pints of the saline per rectum; the wound was discharging freely, and the improvement in his general condition was most marked, his face having entirely lost the anxious and drawn expression of the previous day; temperature, 98.6° F., pulse 74, respirations 18. His bowels acted on the third day, and from that on his progress was satisfactory and uneventful, with the exception that he developed a somewhat troublesome cough, but this soon passed off, and he was up and about with his wound soundly healed about five weeks after the operation.

Case 2.—The patient stated that he had been feeling ill for four days, but had not reported sick as he thought the symptoms would wear off. He complained of the usual pain on the right side of the abdomen; the right rectus was rigid and acutely tender; temperature 101·6° F., pulse 90, respirations 28, bowels not open.

It was decided to operate at once. The peritoneum was found to be full of foul-smelling fluid, and the appendix was gangrenous and perforated. It was removed, and the further treatment carried out on the same lines as the previous case; he never looked back, and was discharged from hospital, quite recovered, five weeks from the date of admission.

Case 3.—The general condition and abdominal symptoms were similar to the last case; temperature 100·6° F., pulse 104, respirations 28. On opening the abdomen there was again a quantity of dark-coloured fluid containing flakes of lymph, but it was not as foul-smelling as in the other cases. The appendix, though intensely inflamed, was not gangrenous, nor could I find any perforation; it was removed with some difficulty, as it was bound down with numerous old adhesions. His treatment was similar to the other cases. The bowels acted on the second day after operation, and his further progress was quite satisfactory for a fortnight, when his temperature commenced to go up, especially at night, and he subsequently developed a right-sided empyema. This was drained, a portion of the eighth rib in the posterior axillary line being removed for the purpose. His abdominal wound healed rapidly, and he is now quite well.

Case 4.—This patient was admitted at six o’clock in the evening in a very collapsed condition, and suffering from very acute pain. He stated that he had been ill for two days, but that the intense pain had
only come on a few hours previously. Pulse 100, respirations 26, temperature 97.8° F. The abdomen was distended, and very tense. He was operated on at 8 p.m. that night; the abdomen was full of foul-smelling purulent fluid, which gushed out as soon as the peritoneum was incised. The appendix was rather tightly bound down with old adhesions, its tip was gangrenous and perforated. He was treated in the same manner as the other cases, but his condition did not improve so rapidly after the operation; for a week he was in a critical condition owing to intense toxæmia, with paralysis and distension of the intestines, and frequent vomiting; his temperature was continuously below normal. He was treated by washing out the stomach twice a day with an alkaline solution, and was given pituitary extract intramuscularly. Saline proctoclysis was kept up almost continuously for a week.

Four days after the operation his bowels acted, and since then his progress has been steady and satisfactory. He is now quite well.

In conclusion, I should like to emphasize some points, which I think are important in treating cases such as the above:—

Operate as soon as possible, and with as little disturbance of the inflamed intestines as possible; their vitality is already lowered, and any pulling about will increase the shock from which the patient is already suffering, and will also tend to cause paralysis of the intestines themselves. Do not irrigate or swab out the peritoneal cavity, it will do more harm than good.

Remove the appendix, which is the source of the trouble.

Use glass drainage tubes, they do not adhere to the intestines in the way that rubber tubes do, they do not become blocked so easily and are easily removed and easily replaced. Gauze for abdominal drainage is an abomination and should, I think, never be used, it sticks to everything and blocks the wound instead of draining it. Use iodized-formalin catgut for sewing up the wound; in these septic cases silk or linen is liable to cause subsequent trouble, and plain catgut becomes absorbed too soon. Keep the patient's thorax raised during the operation, and nurse him in Fowler's semi-sitting position. Commence proctoclysis at once and continue it till the patient is able to drink freely without vomiting; he should be given water and encouraged to drink it from the time he comes to from the anaesthetic. I put all my appendix cases on ½ gr. doses of calomel with a few grains of salol every third hour till 5 gr. of calomel have been taken, or till the bowels have moved; it tends to prevent putrefaction in the intestines with flatulence, stasis and distension, which are very serious complications when they occur. I have not gone into the treatment of these cases by vaccines and antitoxic serums, as owing to being abroad till recently I have no personal experience of their value, but I think that material for an autogenous vaccine ought to be obtained at the operation; it will then be ready, if required, at a later date.