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TWO CASES OF PERFORATION OF THE ILEUM.

By Captain R. H. C. Pryn.
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The following two cases present several points of interest, which will be indicated later.

Case 1.—Private W., aged 22. He was admitted to hospital on March 8, 1926, with a history of having been detained with his unit for one day with a temperature of 104°F., which was ushered in by a rigor. The blood-smear was negative to malaria. The date of his last inoculation for T.A.B. was March 1. On examination nothing definite was noted except a palpable and slightly tender spleen.

Treatment.—Milk diet. Mist. quin. sulph. ten grains t.d.s., which was discontinued after five days' trial, as it had no effect on his temperature.

Progress.—The patient's condition continued the same until March 15, when the perforation occurred. He did not appear very ill, his bowels were open regularly, and his motions appeared normal. His temperature, at first continuous and averaging about 102°F., became remittent on March 14. Blood was taken for culture and Widal on March 13. The blood gave pure growth of Bacillus pyocyaneus, and the Widal reaction was as follows: T—S in 2,500; A—S in 1,250; B—S in 2,500.

March 15: Perforation. At 10 a.m. the patient complained of some discomfort in the right iliac fossa, and there was some muscular resistance on that side with a little tenderness. His pulse was taken every half hour and charted, and he was carefully observed. I saw him again at 12 midday. His pulse had not risen, but just before he was examined he experienced a severe abdominal pain, his face became pinched and his abdomen very rigid and tender. At the same time he developed a very severe rigor and his temperature and pulse rapidly rose to 104.8°F. and 112 respectively. It was obvious that perforation had occurred, and he was placed in Fowler's position, rectal saline, half pint, and other restoratives being given.

Operation, 2 p.m.—The anaesthetic, which was administered by Major S. S. Dykes, R.A.M.C., was chloroform and ether, preceded by the usual injection of morphia and atropine.

A right paramedian subumbilical incision was employed. Serous fluid and bowel contents were present in the peritoneal cavity.

The lower four or five feet of the ileum were intensely congested, the appendix was normal, but there was what appeared to be a typical typhoid
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ulcer on the antimesenteric aspect of the ileum about ten inches from the ileo-caecal valve. The ulcer was situated in the long axis of the gut, and had a small perforation in its centre. It was invaginated by a row of Lembert sutures in the transverse axis of the gut, and the abdomen was closed after arranging for pelvic drainage.

After-treatment and Progress.—Patient was placed in the Fowler's position, continuous rectal saline with two per cent glucose was given, and later nutrient enemata of peptonized milk were added. Everything was withheld by the mouth for five days, and he was given a quarter of a grain of morphia twice daily for the two days following operation.

His condition improved markedly, and on the morning following the operation his temperature was 97°F., and pulse 68. He had no pain and his abdomen was supple, with little tenderness. His bowels acted normally on March 18, and culture of the stool demonstrated B. pyocyaneus. On March 20 (five days after operation) he was given citrated milk in small feeds at two-hourly intervals.

From the afternoon of the 20th he complained of feeling weaker, and though his temperature was normal and his abdomen supple and free from pain, his pulse showed a tendency to rise, until at 4 p.m. his temperature dropped from normal to 95°F., and his pulse rose to 132. Shortly after this he vomited milk tinged a peculiar light green (evidently containing B. pyocyaneus).

The patient died next day with a thready and uncountable pulse, but a normal temperature and supple abdomen with no pain or tenderness.

REPORT ON PARTIAL AUTOPSY BY CAPTAIN A. MEARNS, R.A.M.C.

Body is that of an emaciated man. Rigor mortis setting in; no cyanosis or post-mortem lividity.

Abdomen: The small intestine from two feet from the pylorus to the caecum is markedly hyperaemic and inflamed. About ten inches from the caecum there is an area of greater inflammation with a film of yellow lymph and fibrin thereon and on contiguous coils of intestine. On removal of this film a small perforation is seen surrounded by tiny erosions of the peritoneal surface in the position of the stitches, which have been absorbed. There is no other sign of peritonitis. The intestine is not distended, but contains green faecal matter.¹ The mucosa is generally inflamed throughout its length. Peyer's patches and solitary glands are not enlarged. The mesentery is hyperaemic, and the glands therein, especially those related to the perforation area, are inflamed.

Stomach and large intestine: empty and normal.

Spleen¹: Three and three-quarter ounces, is hyperaemic and friable.

Liver: Marked fatty degeneration.

¹ B. pyocyaneus was isolated later from the lymph, faecal matter and spleen.
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Case 2.—Private C., aged 24, a bandsman with a disposition which bids fair to rival that of Mark Tapley. He was admitted to hospital on February 13, 1926, with a history of two days' fever suggestive of malaria. Blood-smear showed malignant tertian rings. After the usual quinine treatment, including an intravenous injection of five grains of quinine hydrochloride, his temperature fell to normal in five days. Next day (February 19) his temperature started to rise again, and three days after this blood-culture demonstrated Bacillus typhosus. The primary attack lasted thirty-two days, and the temperature ranged round 104°F. At the end of this period the patient was very emaciated, but he had no lethargy and was cheerfulness personified. To the question, "How are you?" he would invariably reply with a cheery "All right, sir."

On April 5 he started a relapse, which lasted fourteen days, his temperature ranging round 103°F. On April 29 he started his final relapse, which lasted fifteen days, his temperature ranging round 102°F. It was this relapse which terminated in perforation. Throughout all this period he remained cheerful and there was no trace of any lethargy.

On May 12 the patient had had in all sixty-five days' fever. He was weak and extremely emaciated. For the past two days he had complained of some abdominal pain, and there was some tenderness and resistance in the right iliac fossa. At 9 a.m. he passed a solid brown stool, and it was noted that there were sloughs on it.

Perforation.—At 11.15 a.m. he became very cold, collapsed, and evidently had severe abdominal pain. There was board-like rigidity and great tenderness. His temperature was 97°F., and pulse 132. Though it was evident that an ulcer had perforated, it was at this moment, lying in bed, a living skeleton, with a hippocratic face, and in extreme agony, that he reached the acme of Mark Tapleyism. Bracing up his diaphragm and recti with a supreme effort, he said stoutly, "All right, sir." He was placed in Fowler's position, hot bottles were applied and eight ounces of rectal saline were given.

Operation, 12.45 p.m.—After preliminary intravenous saline, one pint, with one cubic centimetre of pituitrin and the usual injection of morphia and atropine, chloroform and ether were administered by Captain Sen, I.M.S. A right paramedian subumbilical incision was employed. There was much serous fluid and bowel contents in the peritoneal cavity. The perforation was found at the lower end of the ileum and was sutured with two transverse layers of Lembert sutures. The gut was very friable and injected, and the scars of several healed ulcers were noted. The abdomen was closed after arranging for pelvic drainage.

The patient showed a slight tendency to collapse for two or three days after operation, but made a wonderful recovery, and to-day, August 12, has completely regained his normal weight and health.
After-treatment was as follows: Fowler's position. Intravenous saline half a pint, and \( \frac{1}{1000} \) grain of digitalin were given soon after the operation, and continuous rectal saline was started at 5.15 p.m. One-sixth grain of morphia was given at midnight, and repeated at midday next day (May 14), and again at midday the following day (15). Two per cent. glucose saline was given continuously per rectum from May 14, and nutrient enemata of peptonized milk were added later. Nothing was given per orum until May 17, when sherry whey was given in portions of one ounce hourly, alternated with Brand's essence on the 18th, and the diet being gradually worked up from these small beginnings.

**Points of Interest.**

(1) *The Pathogenicity of B. pyocyaneus.*—It is interesting to note that the causative organism in Case 1 was apparently *B. pyocyaneus*, which was isolated from the blood on the seventh day of disease. The same organism was isolated from the blood of another patient, who ran the typical course of typhoid fever; though his diarrhœa was very severe, and his stool assumed the grass-green colour which one associates with the enteritis of infancy; he made a good recovery, but it was necessary to diet him on whey only for nearly a week. A few cases of enteritis and intestinal ulceration due to this organism have been described, but it is probable that this form of infection is more common than is supposed.

(2) *The Warning Signs of Perforation.*—It is noteworthy that in both of these cases the perforation was preceded by some abdominal discomfort or pain, and that there was increased muscular resistance and slight tenderness. In each case, too, the temperature for a day or two prior to the perforation was intermittent. This was noticeable in other cases which developed slight tenderness and rigidity, but did not perforate. I think it is very probable that an intermittent or remittent temperature is an indication that an ulcer is approaching the peritoneal surface, and that there is increased absorption of toxins from the peritoneum causing a swinging temperature. It would be interesting to have other medical officers' experiences regarding this point.

(3) *The Diversity of the Symptoms of Perforation.*—Whereas in Case 2 perforation was accompanied by the usual subnormal temperature and rapid, thready pulse of abdominal perforation, Case 1 had a marked rigor and a rise of temperature to 104.8°F., with a pulse of only 112. Pulse and temperature in cases of perforation seem to be very variable. In one case of gastric ulcer perforation, which I saw recently, the pulse two hours after perforation was only 40 to 50. The only constant signs of perforation would appear to be marked tenderness and hyperaesthesia, abdominal facies, and board-like rigidity of the abdominal wall.

(4) *Post-operative Peritonitis.*—Case 1 exhibits the seldom-seen symptoms and signs of post-operative peritonitis due in this case, not to
any error in technique but to the absorption of the sutures by the intensely inflamed and friable gut. In place of the usual symptoms of peritonitis we have the normal temperature, absence of pain, lack of rigidity and tenderness of the abdominal wall, but the rising pulse and increasing weakness of post-operative peritonitis.

(5) The Use of Morphia in the After-treatment of Perforative Peritonitis.—My experience with use of morphia in the after-treatment of perforative peritonitis is most happy, though its use is generally deprecated in textbooks. It appears to rest the gut, localize infection, and increase the absorption of fluids per rectum, which is so essential to toxin elimination. In no case have I seen any resultant distension which could not be controlled by a turpentine enema. My experience of this condition, it is true, is very limited, but I have been informed by surgeons of experience that morphia is a most valuable drug in the after-treatment of perforative peritonitis.

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FILLING FOR THE JOINTS OF TABLES.

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Some months ago it was suggested that I should try to find some satisfactory method of dealing with the joints of the tables in the dining-room at the Army School of Hygiene.

It is well known that the joints of the ordinary trestle table became filled with dirt, and that however well the table is scrubbed the dirt lodged in them is not removed.

In considering the question it must be remembered that there is always the unknown factor of how much the wood may shrink or swell; however small this may be it will obviously affect a perfectly hard resistant filling. In addition, the tables are subject to rough usage, being frequently scrubbed with a hard brush, soap and hot water.

It was therefore thought that a filling of such materials as beeswax and resin might prove to be of use. Claud Worth in his book, "Yacht Cruising," gives a recipe composed of resin, beeswax and linseed oil for filling spars, but this composition was found to be too soft. However, by varying the quantities, a mixture of resin 12 parts, beeswax 4 parts, and linseed oil 1 1/4 parts, produced a filling which was satisfactory, except that it was dark brown in colour. To overcome this, light amber resin and white beeswax were used, and though the colour of the resulting mixture was much
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