**ULCER OF STOMACH: ACUTE HÆMATEMESIS :
GASTROTOMY :****ARREST OF HÆMORRHAGE AT THE BLEEDING SPOT: VENOUS
THROMBOSIS IN BOTH LEGS: RECOVERY.**

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THE following case is of interest because it raises the question of the surgical treatment of hæmatemesis due to gastric ulcer.

S. S., aged 19, a domestic servant, was admitted into the Newcastle Royal Infirmary on December 15th, 1900, suffering from hæmatemesis.

History.—She had suffered from epigastric pain, coming on two hours after taking food, for the last twelve months. She had vomited the contents of her stomach after severe attacks of pain, but never to her knowledge any blood. On December 14th, at 11 P.M., she went to bed without any pain, although two hours previously she had had some. She was awakened by a feeling of nausea, vomited a large quantity of bright red blood, and then fainted. A doctor saw her, and ordered her immediate removal to the hospital. She was admitted at 3 A.M. on December 15th, and vomited a large quantity of bright red blood in the accident room.

Condition on Admission.—She was a fairly well-nourished woman, but very blanched, with a pulse of 88, and weak. She was free from pain, but apathetic. Except for a little tenderness over the epigastrium on deep pressure, there was nothing abnormal to be detected.

Diagnosis.—Gastric ulcer, with erosion of a large arterial branch.

Operation.—On December 15th, at 3.30 A.M., chloroform was administered, and a median incision was made from the ensiform to the umbilicus. The pylorus and anterior surface of the stomach were examined without detecting anything abnormal. On tearing open the lesser omentum, an indurated patch was felt on the posterior surface of the stomach near the lesser curvature, not far from the pyloric end. The affected part could not be withdrawn from the abdomen, so the surrounding area was packed off, and an incision 3 inches in length was made in the axis of the stomach and in its posterior wall. A small punched out ulcer, the size of a threepenny-piece, with a little surrounding induration was seen, and there was recent blood clot in it. Owing to the difficulty of access, the only way to control the bleeding in this area was to pass a purse-string catgut suture around the ulcer, and then obliterate it by tying it tightly. The opening in the stomach was then closed, first by a continuous catgut suture traversing all the coats of the stomach and so rendering the wound watertight, then by a row of interrupted Lembert sutures (catgut) covering any protruding mucous membrane. No drainage was used, and the abdominal wound was closed by a row of silk-worm-gut sutures traversing all the layers of the abdominal wall. Strychnine gr. $\frac{1}{8}$ was given hypodermically during the operation, which was well borne.

Subsequent History.—The patient, though very weak, soon became comfortable; the temperature was normal but the pulse kept over 100. As soon as the chloroform sickness passed off she was given hot water by the mouth and then equal parts of barley water and milk, at first in small quantities; nutrient enemata were ordered as well. On December 20th feeding was entirely stomacic, namely, barley water, milk, chicken, tea. On December 26th the sutures were removed, and, except for a small abscess in the abdominal wall, due to a suture, the incision was healed. On December 28th the pulse was 132, the temperature 100.4° F.; she was complaining of pain in the pelvis, and vomited a little clear fluid. On December 30th the pulse was 120, the temperature 101.3° F., and she complained of pain in the left leg, and there was tenderness in the course of the internal and external saphenous veins. The leg and foot were white and swollen. On January 4th, 1901, the left leg was still white and œdematous but was improving; pain commenced in the right calf, and the leg was swollen and œdematous. On January 7th the right calf was very painful, the foot and leg œdematous, and there was great tenderness over the right saphenous opening. The left leg was much improved, the pulse was 132, and the temperature 102° F. She complained of pain in the lower part of the abdomen; the bowels were loose. On February 5th the patient had been getting up for a few days. She was losing her anæmic appearance and eating ordinary diet without pain. There was slight œdema in the lower part of the legs at the back after she had been up. Her pulse was 86 (sitting). She was discharged on this date.

REMARKS.

It has fallen to my lot to witness two *post-mortem* examinations on patients who have died from hæmatemesis secondary to gastric ulceration. In both cases large vessels were found eroded with visible holes in them—in one case the gastroduodenal artery. The clinical history of each was the same—namely, recurrent copious hæmorrhages, which resisted all medical treatment. It seems to me that there are two classes of these cases which demand surgical aid: (1) When hæmatemesis is often repeated till it is threatening life; (2) copious recurrent arterial hæmorrhage. Surgeons must expect to find considerable difficulty in locating the site of the bleeding, especially when the ulcers are multiple. In cases where a large vessel is eroded only surgical treatment can save the patient's life.

Another point of interest in the case is the occurrence of venous thrombosis in the saphenous veins of both limbs. Are we to regard this as of septic or aseptic origin? By

aseptic I mean thrombosis due to clotting from a feeble heart's action and a watery condition of the blood. My colleague, Mr. W. G. Richardson, has collected many cases of thrombosis following abdominal operations, typhoid fever, *post-partum* hæmorrhage, etc. They were mostly anæmic from loss of blood, and there was a remarkable coincidence in the onset of thrombosis—namely, ten to fourteen days after the loss, and often on the patient getting up. Again, certain sites seemed to be chosen which would suggest some additional mechanical factor—namely, the popliteal vein (flexion of the knee), saphenous opening, the common iliac veins, especially the left (pressure of a loaded bowel). The course of these cases suggested that the origin was not a septic one: (1) because constitutional disturbance was slight; (2) there was no pus formation; (3) they soon recovered, and the vascular channels became re-established.

**A CASE OF GASTRIC FISTULA: OPERATION:
DEATH.***By C. F. M. ALTHORP, M.B.LOND.,
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A GASTRIC fistula is probably the rarest of the sequelæ of gastric ulcer. The death-rate from gastric ulcer is given as 10 per cent.; of these cases, 7 per cent. are due to acute perforation, and nearly 3 per cent. to hæmorrhage, leaving only a small fraction to be accounted for by perigastric abscess and by gastric fistula. Dr. Murchison could only find recorded 25 cases of gastric fistula in a period extending over three centuries; Wölfler collected 56 cases of acquired gastric fistula. Of these only 4 were cured by operation. Middledorff in 1859 was the first to close a gastric fistula by a plastic operation. This consisted in raising a bridge-shaped flap of skin at the lower border of the fistula, drawing it over the fistula, and uniting it with the upper freshened margin. This was the operation performed by Billroth on March 16th, 1877, in the clinical case generally quoted in surgical textbooks. Billroth cured another patient with gastric fistula by Middledorff's operation, inserting a catheter into the fistula, below the flap of skin. In this way he avoided the digestive action of the gastric juice. A case of gastric fistula was also reported by Kronheimer in the *EPITOME of the BRITISH MEDICAL JOURNAL* for December 22nd, 1900.

Since Billroth's time great advances have been made in gastric surgery. One of the greatest steps has been the separation of adhesions between the stomach and surrounding structures, as advocated by Mayo Robson. In my case a local plastic operation was out of the question. The gastric juice was constantly running out of the fistula, irritating the surrounding skin. In addition, as the result of the abscesses, the middle portion of the left rectus muscle surrounding the fistula now consisted of scar tissue and septic sinuses. It also seemed to be of importance to ascertain the condition of the pylorus, since the physical signs suggested some dilatation of the stomach.

At this stage an attempt might have been made to "sound" the interior of the stomach by passing a soft catheter through the fistula, and trying to ascertain the condition of the pylorus. Had this been successful the pylorus would have been found immediately to the right of the fistula, and the patient in this way could have been fed up until she became in a better condition for surgical interference.

Precautions against shock having been taken in the way of warmly wrapping up the patient, giving a rectal injection of brandy and strychnine hypodermically, on December 7th, 1900, ether was given, and the stomach was washed out through the fistula. The index finger passed easily through the fistula into the interior of the stomach. Three small sponges, each with a piece of silk attached, were packed into the stomach, preventing the escape of gastric contents, and allowing the stomach to be drawn up by means of the pieces of silk. The walls of the fistula were rubbed over with pure carbolic acid, and the surrounding skin made surgically clean. An incision was made 2 inches in length above and to the right of the fistula, the object being to reach the peritoneal cavity clear of the adhesions. This I succeeded in doing. The finger at once found a thick pedicle passing up from the stomach to the anterior abdominal wall, and measuring 3 inches from above downwards and $\frac{1}{2}$ inch from side to side. The stomach was not dilated, and apart from the thickening around the fistulous track, no evidence of disease was dis-

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covered. The oval piece of abdominal wall surrounding the fistula and forming the stomach pedicle was rapidly cut away from the rest of the parietes by means of blunt-pointed scissors. As the division of the abdominal wall was made, pads of sterilised gauze were tucked in, quite cutting off the area of operation from the general abdominal cavity. The piece of abdominal wall was then cut away from the stomach, the opening in which readily admitted the index finger. The interior of the stomach was explored and found to be empty, not dilated, and free from disease except in the neighbourhood of the fistula. The pylorus was situated immediately to the right of the fistula; was patent and free from disease. The fistula appeared to be the centre of a large ulcer, situated near the pylorus, on the greater curvature of the stomach. There was much thickening and matting of the great omentum around the ulcer, forming a mass very suggestive of malignant growth. To have excised this, so as to remove all scar tissue, would have been a more serious undertaking than the condition of the patient warranted. The edges of the fistulous opening in the stomach were freshened, and three rows of silk sutures inserted. The first was continuous, and passed through all coats of the stomach. Interrupted Halsted's sutures formed the second row; and a third continuous suture further strengthened the wound. Over all a piece of omentum was drawn and fixed by stitches. The abdominal wound was closed by through-and-through silkworm-gut sutures. The patient was very collapsed at the end of the operation; but, by rectal stimulation and feeding, and after injecting a pint of saline solution under the breast on two occasions, she got over the shock, and was able to take brandy, Brand's essence, milk, and other fluids in small quantities by the mouth. On the third day after the operation she was warm and comfortable, her temperature was 101° F., and her pulse 120. The abdomen was flat and not painful. The wound was dry. She retained rectal feeding, and was taking a fair quantity of fluids by the mouth. She, however, developed pneumonia, and died on the sixth day.

At the *post-mortem* examination there was found pneumonia at the right base. The abdominal wound was dry. There was no peritonitis, and no escape of stomach contents from the wound in the stomach; but the latter was not clean, and there had not been any attempt on the part of the wound to heal. The pylorus was healthy and not narrowed by the ulcer. There was no dilatation of the stomach. The ulcer surrounded the fistula, and was situated immediately to the left of the pylorus on the greater curvature of the stomach. The great omentum was matted and thickened, and formed a large mass which simulated malignant disease. On microscopical examination the ulcer was found by Dr. Eurich not to be malignant.

PERFORATED ULCER OF THE STOMACH.

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M. W., an unmarried millhand, was admitted to the Bradford Royal Infirmary on November 16th, 1900.

History.—She said that for several years she had suffered from pain after food, and the pain had never been very severe. At times she had been sick, but had never noticed blood in the vomit. She suffered from headache and palpitation, with shortness of breath on exertion. Her diet consisted chiefly of tea and bread, and very little meat or vegetables. At 12.30 P.M. on the day of admission she ate two slices of bread and butter and drank a pint of tea. She worked after the meal until 3 o'clock without any pain. At 3 o'clock she experienced very severe pain below the ribs on the left side, the pain soon extending over the whole abdomen. She felt very faint and weak, and was sick slightly once. She was taken by her friends in an electric car to the centre of the town, and from there in a cab to her own home. She was seen shortly after her arrival by Dr. Hector Monroe, who correctly diagnosed her condition, and sent her into the infirmary.

Anamnesis.—When seen at the infirmary she was not greatly collapsed; the pulse was 88, irregular, and rather small. Her temperature was 96° . Her nose and ears felt somewhat cold. She complained of pain over the whole abdomen, especially in the left hypochondriac region. The abdomen was not distended, but the walls did not move on respiration. The abdominal muscles were tense, and this was especially marked over the tender area. Hepatic dulness was not diminished; other parts of the abdomen were resonant.

Operation.—At 8.30 P.M. a 4-inch median incision was made above the umbilicus. Turbid milky fluid escaped on opening the peritoneum. The stomach presented in the wound, and on drawing it down a circular hole, about a quarter of an inch in diameter, was found on its anterior surface near the cardiac end and close to the small curvature of the stomach. The thickened edges of the opening were easily brought together by three interrupted catgut sutures. Part of the stomach wall was then inverted, and a row of continuous silk sutures applied. The fluid was mopped up, and care was taken to cleanse carefully the pouches in front of the spleen and right kidney and the upper surface of the liver. A third row of continuous sutures were now inserted in the stomach wall, and the omentum fixed over. On drawing up the omentum the whole of the abdomen was filled with milky fluid and half-digested bread. This was rapidly sponged and washed away, and a Keith's drainage tube, passing down into Douglas's pouch, was inserted above the pubes. The upper wound was closed with a plug of gauze passed down to the wound in the stomach. The operation lasted an hour and ten minutes.

Progress.—The patient had a somewhat restless night, and on the following evening the pulse had risen to 136 per minute, but after this time it gradually improved. The temperature rose to 101° on the night following the operation. Some milky fluid was pipetted from the Keith's tube on the day after the operation, but on the second day only clear serous fluid escaped, and the tube was removed. The patient made a good recovery.

The points of interest in this case are:

1. The absence of any indication of gastric ulcer before perforation. The position of the ulcer bears out Mr. Mayo

Robson's observation that latent ulcers of the stomach are generally situated near the cardiac end, and close to the lesser curvature.

2. The absence of any apparent exciting cause for perforation is notable in this case.

3. The pain and tenderness correctly localised the position of the ulcer, and the marked tension of the abdominal wall at this part made the diagnosis more certain.

4. The repeated movements of the patient spread the extravasated material over the whole abdomen.

5. The cleansing power of the peritoneum over its lower zone was markedly shown in this case, but it is doubtful whether the result would have been so good had the food not been of so simple a nature, or the ulcer near the pyloric end of the stomach.

A CASE OF SUBPHRENIC ABSCESS: OPERATION: RECOVERY.

BY

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The following case is of interest when compared with those described by Mr. Horrocks and by Mr. Althorpe.

S. T., female, aged 25, unmarried, weaver, was seen in consultation with Dr. Hibbert, on November 28th, 1900, and subsequently sent into the infirmary for operation. The previous medical history was unimportant except that for some months before the onset of the present illness the patient had been anæmic and ailing, with a poor appetite and a general feeling of *malaise*. There had been no symptoms pointing directly to the stomach, no pain after food, no vomiting, and no tenderness on pressure over the epigastrium. Three weeks before admission she came home from her work feeling generally ill but with no pain, and sat down to her tea. In the middle of the meal she was suddenly seized with acute pain in the left hypochondrium, which rapidly extended across the whole of the upper part of the abdomen. Poulitices were applied almost continuously for three days, and then as the pain, though somewhat relieved, still remained severe, Dr. Hibbert was sent for. During this time she was not seen by a doctor, and the only treatment made use of was poulticing. When Dr. Hibbert saw the patient he found her a good deal collapsed and complaining of acute pain in the left chest; there was a loud rub in the left axilla, and the breathing was somewhat shallow. There was no cough or expectoration; the temperature was high and there was great restlessness.

The condition remained much the same for the next fortnight, except that the pain extended across the abdomen, being most intense in the epigastrium; the dulness at the left base became more marked, and the patient wasted considerably. The temperature during this time was very irregular. Dr. Hibbert tapped the left chest and drew off a pint and a half of clear serum; this relieved the dyspnoea somewhat, but otherwise had no effect. Three days later Dr. Hibbert again aspirated, but on this occasion only obtained a few ounces of clear serum.

The following were the conditions present two days after the second tapping: There was dulness and deficient entry of air at the left base behind up to the seventh rib and on the right side up to the ninth rib; in the left axilla there was absolute dulness as high as the fifth rib, and the lower costal margin was slightly bulged; in the epigastrium there was a prominent swelling over which the note was tympanitic, the skin in this region being somewhat boggy. A bell note was obtained in this region. Immediately below the tympanitic area the note was impaired but not dull. About 3 inches below the rib margin and running almost horizontally across the abdomen, from the left anterior axillary line to an inch to the right of the middle line, a very hard prominent edge could be made out, which was tender to palpation. The liver dulness was diminished. The heart apex could be seen to be in the fourth left space close to the sternum. The respirations were shallow, 26 to the minute, and there was very little movement of the lower portion of the chest. The patient was much wasted, and had a markedly abdominal expression. The so-called "diaphragm phenomenon" was not observed. The temperature was 103° , and the pulse was 110, small and somewhat thready. The diagnosis of subphrenic abscess on the left side was made, and, as the home conditions were such as to render operation in her own house out of the question, it was decided to remove her to the infirmary. The patient came into the hospital the following day, and was then seen by Dr. Wood, who agreed with the diagnosis, and arranged to operate as soon as she had somewhat recovered from the shock of her removal from her home.

Operation.—Gas and ether, followed by chloroform, were given on November 30th, 1900. An exploring needle was introduced into the seventh intercostal space, in the posterior axillary line, and a syringe of bloody serum readily obtained. This collection of fluid was not evacuated at once, as it was thought desirable, owing to the patient's grave condition, to avoid shock as far as possible. An incision 2 inches long was made in the epigastric region in the middle line. The peritoneum was seen to be oedematous, and on opening it there was a rush of gas, followed by a quantity (about a pint) of very fetid pus. The abscess cavity was well shut off from the peritoneal cavity by strong adhesions. The heart could be felt beating through its roof; to the left were the lower ribs, while the floor was formed by the liver and adherent stomach. The