aged 52. The cut ends of the oesophagus and duodenum were closed by suture, and a lateral anastomosis made between the oesophagus and a loop of small intestine. The patient was alive nine months later. [This case is, perhaps, open to question. A lateral anastomosis with a normal oesophagus would be difficult or impossible.]

Harvie removed the stomach and 3 cm. of the duodenum from a woman aged 46. The oesophagus was united directly to the duodenum. Recovery followed.

Dollinger.—The whole stomach was removed from a man aged 37. A loop of small intestine was sutured to the oesophagus. The patient recovered, but a few days after the operation a biliary fistula formed, owing, it was presumed, to imperfect closure of the duodenum.

Herczel.—Complete removal of the stomach from a woman aged 42. The oesophagus and duodenum were closed, and a lateral anastomosis made between the former and a loop of small intestine. Sutures were passed between the diaphragm and the anastomosing loop to avoid traction on the sutured line. The patient a year and ten months after the operation had gained 18½ kilo. in weight.

Rivera removed the whole stomach from a woman aged 36. The patient recovered and remained under observation for fifteen months.

Gurrea y Hurtado removed the stomach from a woman aged 41. The oesophagus and duodenum were united by suture. Recovery followed.

Fedoroff performed total extirpation upon a man aged 35. The oesophagus was united to the duodenum by suture. The patient died on the fifth day of peritonitis.

Vander Veer removed the whole stomach from a woman aged 42. The duodenum and oesophagus were united by a Murphy button. The patient died the following day, and at the necropsy it was found that the attachment between the oesophagus and the duodenum had given way.

There are thus 16 cases in all. The ages range between 35 and 66. There were 6 deaths; 10 recoveries.

On reading through the records it will be seen that the junction between the oesophagus and intestine has been made in the following ways:

Oesophagus to duodenum	{ By simple suture.
	{ By the Murphy button
Oesophagus to jejunum	{ By simple suture.
	{ By the Murphy button.

Oesophagus and duodenum both closed by suture and a later anastomosis made.

Oesophagus closed by suture, the open end of the duodenum stitched to the skin = duodenostomy.

CASE.

The case upon which I operated was the following:

Mrs. R., aged 49, seen with Dr. Oldfield, had been ailing for four to five months. Pain after food was the symptom first noticed, this quickly became so severe that solid foods were abandoned. Gradually it was found that liquid foods began to cause distress, and eventually these could be taken in only very small quantities. If a teacupful of milk were taken a portion of it was rejected almost at once. There had gradually been a loss of weight, but altogether only about 1 st. had been lost. On examining the abdomen a hard ovoid mass was found lying transversely across the lower part of the epigastrium. When an attempt was made to inflate the stomach by administering portions of the two halves of a scidlitz powder separately, a considerable part of the fluid swallowed was almost instantly ejected as foam from the mouth. There was no perceptible stomach resonance either before or after inflation, and a diagnosis of carcinoma giving rise to a "leather-bottle stomach" was made. The condition and the risks of operation were fully explained to the patient, who elected to submit to operation, and hoped that an attempt would be made to remove the whole growth. Her condition was poor, but no evidence of other disease could be found.

On June 26th, 1902, the abdomen was opened. The whole stomach was seen to be invaded by growth, and the glands along both curvatures were enlarged. The stomach was free from any but the lightest adhesions, and no secondary nodules could be seen in the liver. The whole stomach was therefore removed. The steps of the operation in the early stages were similar to those I described in the BRITISH MEDICAL JOURNAL on April 25th, 1903. The cut end of the duodenum was closed by suture. On the lower end of the oesophagus a small clamp was temporarily applied. An anastomosis was now made between the oesophagus and a loop of the jejunum pulled upwards through a rent in the transverse mesocolon. After the posterior layer of a continuous suture of fine Pagenstecher thread had been passed the jejunum was opened. A rubber stomach tube was now passed down the oesophagus and onwards into the distal portion of the jejunum, and kept in this position while the anterior suture was applied. After the completion of the circular suture a second line of continuous suture was passed. At intervals this was interrupted, and at each interruption a stitch was taken through the diaphragm, so as to fix the jejunum up to its under surface. The suturing was not so difficult as I had anticipated. The oesophageal tube certainly made the hold on the parts

more secure. At the completion of the stitching half a pint of peptonized milk was passed through the tube and "milked" downwards in the jejunum. The patient was very much collapsed after the operation, and despite all our endeavours died of shock in six hours.

COMMENTARY.

In addition to the cases recorded above, numbering 17, including my own, there are 3 cases operated upon by Professor von Mikulicz, the details of which have not yet been published.

It was at one time considered doubtful whether a complete extirpation of the stomach, even if possible, could be a legitimate procedure. It was argued that by the time so much of the stomach was involved as to make desirable its complete removal, other growths in the liver or elsewhere would be found which would effectively preclude any possibility of a radical operation. But an examination of many records, specimens, and cases has shown me that in some cases, very exceptional it is true, the whole stomach may be infiltrated when, even on minute *post-mortem* examination, no secondary deposits could be seen. Two cases of my own have satisfied me of this fact, in one I had performed jejunostomy, in the other no operation had been done. In both so much of the stomach was involved as to make a complete removal necessary if extirpation of the growth were attempted. In neither case were there complex adhesions, distant lymphatic enlargements, or secondary growths of such a character as to forbid resection, to be found after the most careful examination. In a certain very small proportion of cases, therefore, a complete removal of the whole stomach may be demanded if resection of the growth is considered desirable. So far as the difficulties in the operation are concerned, it may safely be said that they are less than would be anticipated. The stump of the oesophagus and its peritoneal investment might certainly be planned upon a more generous scale, but there is nevertheless enough for the purpose. The oesophagus can be freed from its opening in the diaphragm by stripping with the finger, though this is probably not desirable. There is the risk of pleural infection. In my case it seemed that the oesophagus was looser when the patient's neck was fully flexed, the chin being pressed down on to the sternum. The use of the oesophageal tube was certainly a great help, and I would urge its employment upon any who may be called upon to do the operation. Complete extirpation of the stomach is, therefore, not merely a piece of brilliant surgical gymnastics. The operation has its place in surgery.

It may not be inadvisable to enter a protest against the description of any operation as a "complete" or "total gastrectomy," when a larger or small portion of the dome of the stomach is left. It is inaccurate and untruthful.

REFERENCES.

¹ Boston Medical and Surgical Journal, May, 1898. ² Ibid.

A CASE OF DOUBLE PERFORATING GASTRIC ULCER.*

By L. LOVELL KEAYS, M.R.C.S., L.R.C.P. LOND.,

Late Assistant Surgeon, Royal Herbert and Auxiliary Hospital, Woolwich, and House-Physician, Middlesex Hospital.

On being summoned to see a girl taken suddenly ill I found the patient was quite dead. The following facts were elicited from her parents and friends.

Previous History.—E. M., female, aged 16, single, a general servant at a country inn. The family history was remarkably good; her mother and father were both alive and well, and of nine other children all were healthy except one sister who was slightly anaemic. She had had no previous illnesses of any importance apart from what will be described below. The patient had always enjoyed good health until about twelve months before when she complained of "indigestion," evidenced by pain after food and heartburn. This increased to actual vomiting immediately after food, followed by immediate relief from the pain. The vomit was described as being frothy, abundant, fairly clear and containing particles of food more or less unchanged. It tasted "nasty and acid." There had never been an attack of haematemesis nor had any signs of melæna been noticed. There was a definite history of acute epigastric pain in January, 1902, which in view of the subsequent necropsy it is interesting to note. The patient took nothing but liquids for some days and rapidly recovered from this attack. Again in September, 1902, she was ill and

* Extracts from a paper read before the East Sussex Branch of the British Medical Association.

sought medical advice, but no evidence of perforation was obtained and recovery was once again very rapid. Symptoms of chlorosis such as scanty menstruation, shortness of breath and constipation had been noticed for two years. Other details could not be obtained from the friends and so we come to the history of the fatal illness.

History of Fatal Illness.—Up to April 13th, 1903, the girl had been in very good health and free from all digestive troubles. On this day she performed her ordinary duties as usual up to 1 p.m., these being laundry work, and were somewhat heavy. She then complained of a severe pain in her left side over the hypochondriac area. She had dinner, however, but felt much worse after it, and was given hot gin and water to allay the pain as it was so severe. It was most acute in the stomach—in fact, right over the epigastrium; and she had to take to her bed. The pain at time went on extended to the whole chest and back of the shoulders. It continued to be very severe up to 4.45 p.m., when it became distinctly easier. All night there was intense thirst, and the pain continued, although to a less degree. Drinking made the pain worse during the afternoon only; at night it had but little effect on it one way or the other. During this time there had been no signs of collapse, as far as one could gather from the friends. The next morning, the patient seeming to be no better, a medical man was sent for, although she herself was quite against it, saying she felt better. But she looked very white, and her abdomen was noticed to be somewhat tumid. The pain was then quite localized and in the epigastrium. Suddenly there was an attack of acute pain, and death followed almost immediately at 9.45 a.m. on Tuesday morning—that is, less than twenty-two hours after she was first taken ill.

Post-mortem Phenomena.—On my arrival the patient was quite dead—very pallid, and to all appearances dead as a result of haemorrhage. The abdomen was distended, tympanitic in the upper parts, and dull in the flanks. Liver dullness could not be obtained. The legs were not drawn up. Rigor mortis set in very rapidly. A perforated gastric ulcer was of course inferred, probably with haemorrhage. The necropsy was done the following day. Weather mild. Rigor mortis still present. Some post-mortem staining. The body was well nourished. On opening the abdominal cavity it was found to be full of slightly turbid fluid, smelling somewhat acid, and containing currants, milk, and other food material. The quantity was prodigious, amounting to between a gallon and a gallon and a-half. This is comparable to the enormous quantities of fluid expelled in acute gastric dilatation. The peritoneum was slightly injected generally, and especially near the stomach. In the neighbourhood of the pylorus there was a mass of loose flimsy adhesions between the stomach, great omentum, liver, and duodenum. Without in any way disturbing the organs, a large circular perforated ulcer could be detected on the anterior surface of the stomach near the cardiac end, and nearer the lesser curvature than the greater. The perforation freely admitted the index finger, being about five-eighths of an inch in diameter. It had injected slightly uneven edges, although of the typical punched-out appearance. The stomach being carefully turned over, it was found that the cardiac end was fairly free, but that the posterior surface of the stomach was adherent to the peritoneum immediately behind, although the adhesions were not at all firm. On carefully removing the stomach a second perforation was discovered on the posterior surface and immediately opposite the anterior perforation. In size it was about three-eighths of an inch in diameter, and admitted the little finger. It presented the typical appearance, but the edges were more even, and gave the impression of being in the process of healing, and the adhesions posteriorly were firmer than those in front.

The observations, therefore, seem to point to the anterior perforation being subsequent to the posterior. The stomach itself was somewhat enlarged, but the walls were of about the normal thickness, if anything slightly hypertrophied. On careful examination of the interior of the posterior wall a distinct scarring or puckering could be found, indicating a previous ulcer, if not an actual perforation. It showed the radiating puckerings very clearly. The other organs do not call for much description. The liver, kidneys, and spleen were pale and flabby, as a consequence, no doubt, of the chlorosis. The heart was apparently normal. The layers of the right pleura were firmly adherent, especially over the right cupola of the diaphragm. The oesophagus was of abnormally small calibre. In fact, great difficulty was experienced in finding it, although the organs were all systematically removed and examined.

Nothing beyond narrowness was found however. The brain and membranes were apparently normal.

REMARKS.

The above notes give the essential features of the case, and I think one is justified in making the following comments on the case:

1. The very sudden and tragic nature of the case. The girl apparently was in the best of health, and died within twenty-four hours of being taken ill of double perforation of the stomach.

2. The absence of any very clear and tangible symptoms of perforation. In reading these notes it must not be forgotten that they were written after a necropsy, and that the girl herself was unwilling to call in a medical man less than two hours before her death.

3. The extremely rare occurrence of a double and practically simultaneous perforating gastric ulcer.

4. Finally, what is to be learnt from a case of this nature? Granted for a moment that a diagnosis of gastric perforation had been made and the anterior perforation been sutured, we should still have had the posterior perforation to consider. True, there were a certain number of adhesions, but in manipulating the organ during the operation these might easily have been torn through and thus leave an untreated perforation. Working, as is usually done, with a limited incision in the abdominal wall, it might easily have been overlooked, and so the operation would probably have failed. Hence it seems that in cases like these the operator should always make sure that there is only one perforation before closing the abdomen.

In this case, however, it seems improbable from the symptoms that so serious a condition as perforation would have been diagnosed. It was unfortunate that the patient was not seen before death, as it is well known how the symptoms get exaggerated after death, and I must admit that I have in no way made less of them in these notes. Does this not suggest that exploratory operations should be done more frequently in doubtful cases? A simple laparotomy carries with it very little risk, and may save a patient's life.

Since writing the above I have done a necropsy for a fellow-practitioner on another case of perforating gastric ulcer. In this case the girl was upon a holiday, and died in less than eighteen hours from the time she was taken ill, without the exhibition of any symptom pointing to perforation.

EXCISION OF A PERFORATED GASTRIC ULCER—RECOVERY.

By E. OLIVER ASHE, M.D.LOND., F.R.C.S.ENG.,
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THE following case may be of interest from its bearing upon the vexed question whether a perforated ulcer should be excised or simply stitched up:

Mrs. S., aged 32, a very thin, slight woman, was first seen on July 7th, 1902, at 6.15 p.m.

Previous History.—She had been fairly well for some months, but for the last few weeks had suffered from indigestion, with a good deal of pain after food. She had had the same kind of pain for several years on and off, and I had treated her for it some two years previously, but it soon got well and I had not seen her since. On this day she had moved into a new house, and had worked much harder than usual getting things straight. About 4 p.m., having had no food since breakfast, she made some cocoa and sat down to rest, but before drinking any of the cocoa she was suddenly seized with most acute pain "in the stomach," but not definitely localized. As this pain continued in spite of hot applications, I was sent for.

State on Examination.—On my arrival she was lying on her right side, curled up with shoulders bent forward and knees drawn up, moaning with pain. The abdomen was tender all over and the abdominal muscles were excessively rigid, but I thought I could detect a little fluid in the peritoneal cavity. The pain was most intense in the right iliac and left hypochondriac regions, but equally severe in both these situations. She had not vomited, but did so whilst I was examining her, the matter brought up being a little mucous brownish fluid (? cocoa), not at all suggestive of blood. She was cold and collapsed, with a quick and very feeble pulse. The bowels had acted that day, menstruation had been quite regular, and there was no hernia. The diagnosis of perforation of a gastric ulcer seemed fairly obvious, though there was a faint possibility of rupture of an early tubal pregnancy, but it was very evident that operation was necessary.

Operation.—The patient was removed to hospital and the operation was begun at 9 p.m. In deference to the opinion of two of my colleagues, who rather inclined to the tubal diagnosis, a small opening was first made below the umbilicus. When the peritoneum was opened