THREE CASES ILLUSTRATING THE SURGERY OF THE JEJUNUM.

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OPERATIONS upon the jejunum for conditions arising in that part of the intestinal tract are by no means frequent. Of the three conditions illustrated by the following cases rupture is probably the commonest; carcinoma occurs so seldom that not more than half a dozen successful resections for cancer appear in the literature; and no exact parallel to the congenital stricture—if congenital it be—has been found in an extensive search through published reports. The two latter cases are to be looked upon almost as curiosities, but their rarity is sufficient justification for their publication.

CASE I.—*Traumatic Rupture.*

H. J. L., aged 29, on October 2nd, 1908, at 6 p.m., had a meal of kippers, bread-and-butter, and tea. At 6.30 he went to the riding school of his regiment of Yeomanry, where, at 6.50 p.m., he was kicked by a horse. He lay down for three-quarters of an hour, and was then brought to hospital in a cab. He walked into the surgery, and appeared so well that the house-surgeon was in some doubt whether it was necessary for him to be detained. Whilst under observation, however, he vomited twice, and, being sent to the ward, collapsed as he was being got into bed, about 8.15 p.m. By 9 p.m. acute symptoms were well developed.

There was a slight abrasion over the left lower ribs in the nipple line; no fracture, no hæmatoma. The abdomen was extremely rigid, flat, and tender. The left flank and hypochondriac region were quite dull on percussion; the liver dullness was normal. He had passed water naturally, and there was no blood in it. The respirations, which were 24 on admission, had risen to 32; the pulse similarly from 72 to 84; the "abdominal facies" was well developed.

Operation.

At 10 p.m. the abdomen was opened in the left linea semi-unaris; there was a little slightly turbid fluid in the cavity, but no evidence of gross particles of stomach or intestinal contents, or of blood. A coil of small intestine was found very collapsed, and upon following this upwards a longitudinal rupture of the jejunum about 6 in. from the duodeno-jejunal flexure was exposed. The opening, which was about an inch and a quarter in length, gaped from three-quarters of an inch to an inch transversely, the mucous membrane pouting. No contents were escaping; in fact, though the duodenum was distended, the jejunum justified its name in its remarkable emptiness.

The opening was closed by two rows of sutures, the abdomen sponged out, and a tube passed to the bottom of the pelvis through a suprapubic opening. Massive injections of saline were given per rectum.

After-History.

There was some vomiting for four days after the operation, but the temperature never rose above 99.6°, and he was discharged to a convalescent home on November 13th.

He returned to see me a month or two later, complaining of occasional pains in the neighbourhood of the wound, which appeared to be due to adhesions; a course of massage relieved him, and he declared himself in perfect health. In a letter dated January 4th, 1910, he stated that he felt as well as ever he did, and asked permission to take up riding again.

The only point of interest in this case is that the rupture occurred in an empty coil of gut. It is possible that it might have been distended with gas, but there was no clinical evidence of free gas in the peritoneum. It is highly improbable that in this instance, at any rate, the rupture was a "bursting" rupture. It is noteworthy that although the duodenum was distended the paralysis of the few inches of gut intervening above the rent, was competent to prevent passage of the contents for at least

three hours. The percussion dullness in the flank is a curious clinical feature, and was due, presumably, to the empty state of the underlying intestine. The uneventful recovery illustrates the enormous importance of early operation and the innocuous nature of the bacterial content of the upper part of the healthy gastro-intestinal tract.

✓ CASE II.—*Stricture of the Jejunum, Probably Congenital.*

E. L., a married woman, aged 47, had had sixteen pregnancies, the last three years ago. Three of the children died in infancy; there were two miscarriages. When first "taken bad" at Christmas, 1907, she declared it was the first illness of her life. There was a sudden attack of abdominal pain followed by vomiting, and it may be said that until the operation, six months later, neither of these features was long absent. She was admitted to another hospital in February, 1908, and remained till the middle of April. I am informed that the principal symptoms were pain and vomiting; there was a good deal of pigmentation of the skin; Calmette's reaction was positive. She was thought to be suffering from Addison's disease.

On admission to the Westminster Hospital, July 3rd, 1908, under the care of Dr. R. G. Hebb, she described the pain, which was in the left hypochondriac and umbilical regions, but radiating to the groin, as "coming on gradually like labour pains." It was worse about a quarter of an hour after food. It was relieved by vomiting, which was copious. The heart,

lungs, and kidney showed no signs of abnormality. There was some pigmentation of the skin of the abdomen; there was no distension, no evident peristalsis, and no palpable tumour. The teeth were carious, and there was pyorrhoea alveolaris.

She stated that her original weight was 11 st. 12 lb.; on admission she weighed 7 st. 8 lb. A test meal on July 7th gave no reaction for free HCl; it was acid to litmus; there was a good reaction for lactic acid; pus was present. On July 13th lavage was commenced, and in about a week had relieved the vomiting considerably; loss of weight, which had continued at about 1½ lb. a week, was temporarily interrupted, and for one week she gained 2 lb. The temperature occasionally rose to 101° or 102° F. A blood count showed:

Serum to corpuscles	... 1—1	
Hæmoglobin	... 88 %	
Red blood corpuscles	... 5,690,000	
White blood corpuscles	... 5,300	
Polymorphs, coarsely granular	... 3 %	} 51 %
Polymorphs, finely granular	... 48 %	
Monomorphs, large	... 7 %	} 49 %
" transitional	29 %	
" small	... 13 %	
Platelets	... a few.	

A stomach wash on July 31st gave, on microscopical examination, mucus, oily material, fat crystals, debris; many minute blastomycetes and bacteria; cancer cells not observed.

Acid to litmus; no reaction for free HCl; lactic acid present.

Operation.

A diagnosis of obstruction at the pylorus was made, and in spite of the blood count it was thought probable that it was malignant; the absence of any palpable tumour suggested the possibility of removal, but the laparotomy, performed on August 12th, was in the first instance exploratory.

The stomach was withdrawn and found healthy; it was not notably dilated. On turning up the great omentum what appeared to be another "stomach" came into view, and it was thought for a moment an hour-glass viscus was being dealt with. It was recognized, however, that the second pouch was in fact the immensely distended duodenum, and upon tracing it towards the jejunum a lump was felt immediately beyond the flexure. This had precisely the appearance of a malignant stricture of the colon, looking, that is to say, as if a piece of string had been tied tightly round the gut. There were no adhesions, but it was not without considerable difficulty that the parts were arranged for excision and repair. A piece of gut about 7 or 8 in. in length was removed, the open ends were closed, and a junction was made by lateral anastomosis between the jejunum and the remainder of the duodenal pouch.

After-History.

Constant saline infusion per rectum was instituted immediately after the operation; there was some vomiting, easily controlled by a hypodermic injection of morphine; she was fed by nutrients for two days and then began feeds by the mouth. The temperature never rose above 100° after the operation. She

Fig. 1.—Case II. Stricture of jejunum: parts removed.
C The lumen admitted a probe with difficulty. D, Duodenum; J, jejunum.

was discharged on the thirtieth day. When seen on August 13th, 1909, exactly a year later, she said she was quite well. She never had any vomiting, and she had regained her normal weight, having put on more than 4 st.

In January, 1910, this patient was seen again. She complained that she was "getting very large in the stomach," but this seemed to be due merely to adiposity; she had been sick on one or two occasions and had now and again noticed "gurglings" in the abdomen, traceable it appeared to indiscretions in diet. She had also one or two other symptoms quite unconnected with the abdominal trouble. She seemed in good general health.

It is of interest, from the point of view of diagnosis in this case, that although the vomit was sometimes "green," no evidence of bile was afforded by the test-meal result or by the stomach washings. In the great majority of cases of stricture, malignant or benign, below the papilla, the presence of bile in the stomach has been an important feature. The blood count, too, was deserving of more attention than it received. An observation of one of the clinical clerks, that he had felt an indefinite swelling in the epigastrium on one occasion, though it was not confirmed, was probably correct; for the distended duodenum, when contracting, might easily have been felt. Nothing in the surgical procedure calls for remark; the only difficulties were those dependent on the depth and fixity of the duodenal remainder, and the necessity for rapidity due to the condition of the patient. The anaesthetic was admirably administered by Dr. Vivian Orr.

Upon cutting open the gut no "tumour" appeared; the mucosa for about an inch and a half above the stricture (which, when fresh, would only admit a probe, and actually held water) was atrophied and irregular of surface. During the process of hardening, for which purpose the lumen of the stricture was stuffed with wool, the mucosal surface suffered some damage, but the microscopical examination showed no evidence of malignancy, or of acute or chronic inflammation; there was no cicatrix, at any rate in the part examined, of old ulceration. A gland from the mesenteric parts removed exhibited no sign of malignancy.

As to the origin of this stricture, one can do no more than hazard a guess. The history points strongly to acute ulceration, but even an expectant eye cannot trace evidence in the microscopical appearances. In this opinion I have the support of Dr. Hebb, who kindly made the examinations. There were no attached bands, there was no specially well-marked retroduodenal fossa, and the situation of the stricture practically precluded its incarceration in such a pouch. It was beyond the track of the superior mesenteric vessels; there was no evidence of syphilis or tuberculosis. On the other hand, the situation at the duodeno-jejunal flexure does suggest the possibility of a congenital origin, and to this opinion I am inclined.

CASE III.—Cancerous Stricture of the Jejunum.

Mrs. S., aged 58 (for the notes of whose case I am indebted to Dr. H. T. Barron, of Tooting, by whom I was asked to see her),

had always been delicate but very active; she had an illness some years ago for which lavage was proposed and attempted, but excited such distress that it was abandoned. She was said to have suffered from "obstruction" on one occasion, but had been relieved by an enema. Dr. Barron says: "What may properly be called the 'present illness' commenced about the end of February, 1909, with distressing abdominal colic. I ascribed this to a meal of tinned lobster taken the previous day. The pains were relieved by treatment, but in the next week returned occasionally, being worse at night. Examination of the abdomen revealed nothing of importance save enteroptosis and some dilatation of the stomach, which, on percussion, seemed to reach about an inch and a half below the umbilical level. Five days later when travelling in a motor bus there was a return of acute abdominal pain, worse in the epigastrium, and nausea. She vomited in the street, and her husband thought she must have brought up several quarts. Two hours later I found her collapsed and still in very great pain. She has a well-marked susceptibility to opium and its alkaloids, verified on more than one occasion, so that I was not justified in administering it. For the next three or four weeks, spent more or less in bed, she had intervals of freedom from pain succeeded by exacerbations of pain and sometimes sickness. There was never any jaundice. Peristaltic movements were now visible in the upper zone of the abdomen and in the course of the ascending colon, and at my advice Sir William Allchin was called in. He considered that there was obstruction in the large intestine and probably also at or near the pylorus, presumably due to adhesions. The patient was extremely thin, but I had known her for three years and did not appreciate any alteration in her facies other than the immediate symptoms would account for. The stools were pul-taceous."

Fig. 2.—Case III. Cancer of the jejunum: parts removed.

Exploratory Operation.

On April 24th, 1909, the patient, who had been carefully prepared by scrupulous attention to diet and by numerous enemata, was anaesthetized by Dr. Cecil Hughes. On opening the peritoneum above the umbilicus a broad band of adhesions constricting the colon just beyond the hepatic flexure was found uniting the gut to the whole length of the gall bladder, which was small and shrunken; but contained no stones. The same mass of adhesions also dragged upon, kinked, and partly constricted the first part of the duodenum. The rest of the abdomen was

explored by the hand, but no other cause of obstruction was detected, and, as the conditions presenting offered an explanation of the symptoms, when they had been dealt with the abdomen was closed.

For three days there was a great deal of pain, then relief. A week later, when she had been taking solid food for two or three days, there was a recrudescence of pain and again visible peristalsis, this time in the lower zone of the abdomen. A fortnight after the operation a severe attack of vomiting commenced at 1 p.m. By 9.30 p.m. she had vomited over 100 oz. of fluid, although in the previous twenty-four hours she had taken less than 50 oz. by the mouth. The patient was collapsed.

Second Operation (for Acute Obstruction).

The patient was anaesthetized by Dr. N. W. Bourns. Upon reopening the abdomen, the coils of gut, which at the previous operation were all empty and contracted, were now sharply differentiated, and a coil of distended small intestine led one at once to a small annular tumour, which proved to be in the jejunum approximately 24 in. or less from the duodenal flexure. About 9 in. of intestine, including the growth and the corresponding mesentery, were excised, the open ends closed, and a lateral anastomosis performed.

The subsequent progress was uneventful, and I am informed that she is now able to get about comfortably, and takes food

well; she has, however, not put on flesh, and occasionally has pains in the abdomen, but they have not been bad enough to induce her to seek advice.

This case is of interest, in the first place, because there are only some 70 cases of carcinoma of the whole small intestine below the papilla available in the literature. From the point of view of diagnosis, moreover, it presents noteworthy features. The characters of the vomitus were suggestive of dilatation of the stomach, but unfortunately they were not specially tested for bile. The character of the stools is difficult to account for; no evidence of disease in the pancreas was forthcoming, yet it is improbable that the adhesions around the gall bladder, extensive as they were, modified to any extent the amount of bile reaching the intestine. At the first operation the ascending colon was greatly distended, whilst the transverse was collapsed beyond the adhesions. The stomach was not as much dilated as was anticipated, and, although the whole abdomen was explored manually, the little tumour, subsequently found, was not then discovered. Two facts may be pleaded in extenuation of this failure. First, the adhesions formed such an obstruction to the pyloric region of the duodenum and to the colon as seemed adequate to account for the symptoms; and, secondly, the great care which had been expended upon clearing out the intestines deprived one of the help afforded by contrast of dilated and contracted small intestine. At the second operation this feature led one at once to the site of the mischief.

The growth, as will be seen from the photograph, closely resembles in its macroscopic appearance the ordinary annular carcinoma of the colon, and microscopically proves to be a columnar or cylinder-celled cancer. A gland from the mesentery showed no evidence of metastasis. Inspection of the site of the previous operation showed that the adhesions had not re-formed, and that the colon was almost completely free from constriction where previously compressed.

REMARKS ON THYROIDECTOMY :

WITH ILLUSTRATIVE CASES.

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THIS paper is based upon 100 cases of the various varieties of goitre. Twenty-six of these cases underwent operation at the hands of the writer, with one death, giving a mortality at the rate of a little less than 4 per cent. It is submitted that this is not a high mortality, since no patient has been operated on who was not suffering from symptoms of thyro-toxaemia which had defied medical treatment, or from some other condition of the thyroid injurious to life or health. The operation when performed in any of these circumstances may be a comparatively straightforward procedure, or it may be, and frequently is, one of the most difficult operations in surgery.

The chief difficulties are from haemorrhage, shock, and adhesions. Haemorrhage and shock are mostly to be feared when dealing with the subjects of Graves's disease. The condition of so-called "acute thyroidism," said to have been responsible for so many deaths in the early days of the operation, is mentioned only to be doubted, and any such problematic danger is efficiently met by drainage during the first twenty-four hours. Adhesions, on the other hand, are a very real difficulty, and are apt to be particularly firm and numerous in old-standing cystic tumours of the thyroid, where they give rise to difficulties which are often almost insuperable. Shock frequently follows these operations, and though it is often called "acute thyroidism" it is not different from ordinary surgical shock. Danger from sepsis can practically be ignored in these days.

INDICATIONS FOR OPERATION.

It is my practice to refuse to operate in all cases of soft parenchymatous goitre in young girls, no matter how large the goitre may be, provided there are neither urgent pressure symptoms nor symptoms of hyperthyroidism. Many such cases have been sent to a medical colleague, and have got quite well without operation. If there is any apparent connexion between the enlargement in the neck and the menstrual functions, then some preparation

of thyroid material seems to have done most good. In the majority of such cases the enlargement of the gland is a sign of thyroid inadequacy, not of hyperthyroidism.

No case of Graves's disease is operated on until adequate medical treatment has failed to bring about any amelioration. By adequate medical treatment is meant six weeks in bed and a course of belladonna and strophanthus, or, better still, ammonium picrate. My attention was first drawn to the latter drug by Dr. F. E. Wynne, of Leigh; and the only case in this practice that ever recovered without operation did so after two months upon ammonium picrate. If there are no signs of improvement at the end of six or eight weeks the more vascular lobe is removed through a modified Kocher's incision, always under local anaesthesia, with the occasional addition of scopolamine-morphine in very restive subjects. If both lobes are greatly enlarged both are removed, particular care being taken to preserve the isthmus with an efficient blood supply. I have removed both lobes for adenomatous disease upon six occasions, and have seen no ill results.

All cystic goitres should be removed as early as possible, for they never improve under medical treatment, and are apt to give great trouble after middle life; as also goitres of whatever variety having retro-sternal or retro-clavicular outgrowths, or giving rise to dyspnoea from tracheal stenosis, as all these are apt to cause sudden death.

A rapidly growing goitre in any person over 30, especially if there is neither high temperature pointing to acute thyroiditis, nor rapid pulse suggesting Graves's disease, should be removed *en bloc*, as it is probably malignant. Fortunately such cases are extremely rare.

I feel some doubt about ever again performing thyroidectomy upon the subject of breast disease. In order to relieve pressure upon the brachial plexus and tracheal stenosis, I removed a large goitre weighing over 2 lb. from a patient of Dr. E. A. Doyle, now of Colne. The wound healed under one dressing, and the patient, a woman of 48, was up on the seventh day. Six weeks later it was discovered that a long-standing adenoma of the breast had become actively malignant. A radical operation was at once performed, and so far, fourteen months later, there is no sign of recurrence. The connexion may be merely coincidental, but it cannot be ignored. That there is some relation between the thyroid and the functions peculiar to women is a matter of common observation. In another case, also a patient of Dr. E. A. Doyle, the removal of a diseased ovary was followed by the disappearance of a soft goitre which had been for months associated with symptoms of moderate hyperthyroidism.

HAEMORRHAGE.

Trouble from haemorrhage is most often met with when operating upon the subjects of Graves's disease. Here one has to deal with enormous plexuses of enlarged, baggy veins, or rather sinuses, very easily torn. When confidence has been gained by frequent performance of the operation the wisest plan is to waste no time in clamping veins, but to control haemorrhage by packing in strips of sterile gauze, and then to isolate and ligature the superior thyroid artery as rapidly as possible, when the severest venous haemorrhage usually stops.

In dislocating the tumour forwards the superior thyroid artery is put very severely upon the stretch, with the result that when the artery is divided it retracts into the depths, and can hardly be found again. If the ligature happens to slip the resultant rush of blood is likely to disquiet the coolest operator. This accident happened to me about a year ago while operating upon a patient sent by Dr. Wynne. The deep cervical fascia had been split in the mid-line and the tumour was being freed from its numerous adhesions when copious haemorrhage took place from the deep accessory veins. This was controlled by gauze strips, and the superior thyroid artery found, ligatured with a single thickness of No. 2 chromic gut, and divided. Upon removing the plug the venous haemorrhage did not cease, as it usually does, but became so vehement that the neck muscles in front, as well as the sternomastoid, had to be divided and dissected back in order to find and clamp the torn vessels. The tumour was then removed, the inferior thyroid artery being secured without difficulty, but no sooner was this accomplished than the ligature upon the superior thyroid gave way, and such