APPENDICOSTOMY IN PLACE OF COLOSTOMY FOR RELIEF OF OBSTRUCTION CAUSED BY IRREMOVABLE CANCER OF THE RECTUM AND COLON.

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I PROPOSE to show, in cases of cancer of the rectum and colon too far advanced for excision, that colostomy, in particular left inguinal colostomy, is often an operation in excess of the requirements; and that in such cases appendicostomy can afford sufficient relief, whilst avoiding the great discomfort and disability provoked by colostomy. There is no sufficient evidence that colostomy checks the progress of the cancer itself, and it does not prevent pain from setting in when the pelvic nerves become involved. Left inguinal colostomy is especially indicated for inoperable cancer of the lower part of the rectum; when the disease is situated higher up appendicostomy may be substituted.

Even when the colostomy has been performed in a completely successful way, yet the irregular escape of gas and faeces, excited by any unusual incident, is the cause of grave discomfort. The patient, if a man, finds himself unable to dispense with the services of a nurse, and when the advance is slow the continuous attendance of a nurse becomes very trying. If a wife or daughter acts instead of a nurse, the changing of the dressing, especially at night, induces weariness and disgust, and when time proves that the colostomy has been done for a non-malignant condition, then the limitation which the colostomy imposes upon an active life becomes a heavy burden; a man cannot go an hour from a lavatory because he cannot be sure when he may need to clean himself. One patient upon whom left inguinal colostomy was performed, for what was diagnosed as inoperable cancer, died seven years later, apparently not of the cancer at all. Another similar case has lived longer still, cut off from active life, as just mentioned. Both have bitterly complained to their friends of the excessive nature of the operation.

My practice of appendicostomy owes its origin to the late Mr. Keetley,¹ although I do not find that he or any subsequent writer on appendicostomy has advocated it as I do here. Moreover, in the reports of recent discussions on cancer of the rectum and colon by those especially interested in these subjects,² no one advocated any other alternative than colostomy for inoperable cancer; at the same time there appears in such discussions no due recognition of the great discomfort incidental to colostomy, even when perfectly successfully carried out.

Before using it as recommended in this paper I had successfully employed appendicostomy in several cases for the relief of tympanites complicating acute appendicitis. In two cases in which the tympanites persisted after the appendicitis, unrelieved by other measures, the reopening of the wound and the establishment of an appendicostomy afforded relief, and the patient recovered without a fistula persisting.

I have made the appendicostomy opening just at the funnel-like junction with the caecum as seen when the appendix is drawn out. Into this is inserted a winged rubber catheter, or a glass cannula with a flange which is fixed by turning in the margins as described in the gastrostomy method known by the names of Kader and Senn. Such a fistula will close spontaneously if the tube be soon left out, say after ten days. If a tube is kept in, a valvular fistula becomes established. If after, say, three months the catheter is then omitted to be regularly passed, the fistula will tend to scab or skin over, but is readily reopened.

By attaching rubber tubing and a funnel to the outer end of the catheter fluid may be run in or gas and faecal fluid siphoned off at will, without moving the patient or his dressings. When the distension has been once relieved an ounce or two of olive oil shaken up in a pint of soap and water, and run in early in the morning, will induce a motion per rectum in an hour or so, sufficient for the next twenty-four hours.

If olive oil is not sufficient, a drachm or more of castor

oil or magnesium sulphate may be added, but excess excites repeated motions and has to be avoided. Scybala are got rid of by increasing the amount of soap and water run in. When the motions are thus regulated there is but rarely any escape of gas or faecal fluid by the fistula, and the patient can get about with a pad and bandage over the fistula, without fear of having to change it or of any faecal odour being perceptible. Should he find later on, as in the few, that the bowels can be regulated by aperients and the catheter is no longer passed, the fistula will scab over and then no dressing at all is required.

The cases upon which I have performed appendicostomy divide themselves into three classes:

1. Cases of acute intestinal obstruction who survived only a few days.
2. Cases which lived for months whilst the disease pursued its course to the end.
3. Cases who returned to active life.

During this period I have performed left inguinal colostomy in two cases for inoperable cancer involving the lower third of the rectum, and in two other cases certainly suffering from inoperable cancer I advised that there were no sufficient indications for any operation at that time.

1. Cases of Acute Intestinal Obstruction in which Appendicostomy was done and Gas and Fluid Siphoned off until the Distension was Relieved.

- (a) Female, aged 53, with inoperable cancer of the sigmoid flexure. Appendicostomy was done on March 4th, 1910, and she died the next day.
- (b) Male, aged 63, with cancer of the splenic flexure and transverse colon. Appendicostomy was done on December 16th, 1909, and he died on December 23rd.
- (c) Female, aged 78, with cancer of the ascending colon and multiple growths all over the abdomen. Ileo-sigmoidostomy and appendicostomy were done on December 11th, 1908, and she died on December 13th.
- (d) Male, aged 32, with cancer of the upper part of the rectum. Appendicostomy was done on December 29th, 1910, and he died on January 8th, 1911.

There was in these cases no recurrence of the distension; the nurses frequently ran in fluid through the tube, and siphoned off faecal fluid without disturbing the patients; also faeces passed per rectum.

2. Cases which Survived for Some Months.

- (a) Female, aged 56, with cancer of the upper part of the rectum. Appendicostomy was performed on November 9th, 1910, and she died on June 12th, 1911. Meanwhile the patient got about, and did not suffer until about three weeks before death. She was under the observation of Dr. Francis of Uxbridge.
- (b) Female, aged 64, with cancer of the sigmoid flexure and a secondary mass in the anterior edge of the liver which came to involve the transverse colon. Appendicostomy was performed on March 25th, 1911, and she died on August 11th, 1911. She remained comfortable, and was able to get out in a bath chair. She suffered very little. She was under the observation of Dr. Collier of Westminster and Dr. Lush of Hampstead.
- (c) Female, aged 62, with cancer of the upper part of the rectum. Appendicostomy was done on November 7th, 1911, and she died on March 31st, 1912. She got about well at first and was under the observation of Dr. Bennion of Orpington. During the last few weeks she suffered a great deal of pain.
- (d) Female, aged 57, with inoperable cancer of the upper part of the rectum. She had become exhausted by irregular attacks of fever, the cause of which was obscure until the intestinal obstruction intervened. Appendicostomy was done on August 15th, 1912, after which she remained in a comfortable state without either obstruction or pain but with irregular elevations of temperature until her death on November 10th. She was under the care of Dr. F. H. Spooner.

The colleagues under whose observation these patients were after the establishment of the appendicostomy agreed with me in instituting comparisons favourable to appendicostomy, as affording a sufficient relief from obstruction. In none of these was there any marked haemorrhage or discharge from the growth. The fluid run in through the appendicostomy fistula every morning produced a sufficient motion and prevented any recurrence of intestinal distension and obstruction.

3. Three Cases have Returned to Active Life after the Appendicostomy.

- (a) Female, aged 65, with inoperable cancer of the upper part of the rectum. Appendicostomy was done on April 16th, 1912, and I saw her on November 15th. She had got a little thinner but was quite active, the abdomen flat, the fistulous opening in

which she was keeping the catheter surrounded by healthy skin. She had been running in only a small amount of olive oil and soap and water daily, but the growth was advancing and the amount required to be increased. She was under the observation of Dr. Glegg of Datchet.

(b) Male, aged 58, with inoperable cancer of the rectum at the level of the promontory, of which there had been symptoms for more than a year. Appendicostomy was done on November 2nd, 1910. A year later he came to the hospital to see me; he had been working meanwhile as a packing-case maker. He had passed a catheter through the fistula for three months, then, finding he could regulate his bowels by aperients through the mouth, he had omitted to pass it, and the fistula had become covered by a thin skin. He had latterly felt himself getting weaker, and proposed to work half time; the growth had made some advance. He attended again on November 25th, 1912—that is, two years after the operation; he had continued at work, and only complained of what he called "chronic diarrhoea."

(c) Male, aged 63, bachelor. A large fixed mass occupied the left inguinal region, in the centre of which was an abscess coming forwards to the surface, and upon this intestinal obstruction had supervened. Appendicostomy was performed on October 9th, 1909, and at the same time the abscess incised; it seemed to be situated in the middle of a mass of cancer round the sigmoid flexure. On November 28th he was able to leave the nursing home with the abscess healed. On February 10th he had recovered sufficiently to resume his previous active life, the bowels acting well when fluid was run into the fistula, and from which there was no regurgitation. He could manage this himself, and had only a manservant to attend on him. The mass in the left inguinal region had shrunk to a hard fixed mass. He continued under the observation of Dr. C. P. Sampson. In September, 1911, a friend who travelled with him on the Continent described him as in magnificent health.

Perhaps time may prove that in this case the disease was really inflammatory.

REFERENCES.

¹ Keetley. *BRITISH MEDICAL JOURNAL*, 1894, ii, 1112; 1905, i, 1299; 1905, ii, 863. *Lancet*, 1906, i, 1023; 1907, i, 1761 (Cavendish Lecture). *Proceedings Royal Society of Medicine*, November 10th, 1908, vol. ii, Surgical Section, p. 67. (Keetley died in December, 1909.)

² Discussion on Cancer of the Rectum and Pelvic Colon, by Mr. W. E. Miles and others, at the London Meeting of the British Medical Association (*BRITISH MEDICAL JOURNAL*, 1910, ii, 941), and by Mr. Harrison Cripps and others at the Liverpool Meeting of the Association (*BRITISH MEDICAL JOURNAL*, 1912, ii, 843).

GANGRENE OF THE VERMIFORM APPENDIX AND OF A COIL OF SMALL INTESTINE: OPERATION: RECOVERY.

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THE conditions in the case related below seem sufficiently unusual to be put on record:

A single woman, aged 31, gave the following history: In May, 1911, she had an attack of pain in the right side of the abdomen, which ceased after a few days. Six months later, on November 2nd, at 2 a.m., she was again seized by a similar but more severe and continuous pain. Dr. D. M. Mackenzie of Southall saw her, and diagnosed acute appendicitis. The bowels acted, but the pain increased rather than diminished. The woman, who was in domestic service, was taken in a cab to her own home on November 2nd, and was admitted to the Samaritan Free Hospital at 7 p.m. on November 4th, sixty-five hours after her illness began.

She was then flushed, and looked very ill. The temperature was 100° F. The abdomen, which moved only slightly in respiration, was tender and distended, there being marked resistance to pressure over the caecal region. The rectum was loaded, and an enema caused the bowels to act, after which the distension of the abdomen subsided, and all pain ceased.

When I saw the patient, about two hours later, she still looked very ill, but the flushed condition had given place to extreme pallor, the pulse was feeble (140), and the abdomen was flaccid, there being neither pain nor tenderness nor resistance to palpation anywhere. By combined pelvic and vaginal examination an ill-defined soft mass of tissue was felt in the upper part of the pelvis on the right side. The woman was not collapsed, and she felt very much better when the pain ceased. The relief was so great that I hesitated about operating, but the history and the conditions observed seemed to indicate that an examination by incision was necessary.

At 10 p.m., sixty-eight hours after the first onset of pain, a short incision was made parallel to Poupart's ligament on the right side, and immediately several ounces of bluish-black fluid of the consistence of serum escaped from the wound. This fluid had no resemblance to pus. It was apparently free in the peritoneal cavity, and my first impression was that a ruptured extrauterine foetus existed, and that the indefinite mass in the pelvis was blood clot. Further examination showed that a piece of intestine was gangrenous, and a second incision was made in the middle line to allow free access to the parts. A loop of small intestine in a necrotic condition was partially and lightly adherent round the lower end of the caecum. This coil after

being easily separated was wrapped in swabs, and placed out of the way in the middle of the abdomen. It was then seen that the vermiform appendix was gangrenous and perforated. It was adherent to the inner side of the caecum, and had been surrounded by the dark coloured fluid most of which had already escaped or been swabbed away. The appendix was removed by crushing and ligaturing its base and inverting the stump by a purse-string suture.

Then the unhealthy portion of small intestine was again exposed. It had a faintly putrid odour, and its surface over a length of about 12 in. was dead, being in some places quite black, in others having various shades of grey. The junction between the diseased and healthy parts was well defined. The bowel was double-clamped and divided above and below the necrosed portion and the mesentery of the isolated piece was cut away. There was just enough small intestine left attached to the caecum to allow a lateral anastomosis to be made after inverting and securing the retained divided ends of the bowel.

The peritoneal cavity was drained through both incisions, and there was a very free discharge of yellow serum for a few days, but except a looseness of the bowels, which continued for rather more than a week, there was no complication of any kind during convalescence, the highest temperature being below 101° F.

The patient came to the hospital on March 22nd, 1912, four and a half months after the operation, to report that she was quite well and that the bowels gave no trouble. She wished to know if she might emigrate to Canada, and I thought she might safely do so.

The necrosis of a coil of small intestine which occurred in this case is a condition which I have not seen before in association with gangrene of the appendix. Some years ago¹ I suggested that gangrene of the appendix frequently occurred without any symptoms until after a portion of its wall had died. I published a case² in which profuse haemorrhages from an opened appendix abscess cavity were associated with areas of gangrene.

These were seen when the apposed and apparently healed surfaces of the wound were separated with a view to finding the bleeding point. They consisted of dark-coloured superficial areas, about a quarter of an inch in diameter, scattered over the freshly exposed cut surfaces, exactly like cultivations of an organism upon a solid nutrient material. No bleeding point was found, but there was no further haemorrhage, and the visible necrotic areas gradually separated after the wound was laid open and drainage of its deep part was made very free. It seemed certain, therefore, that the necrotic areas were caused by the action of an anaerobic microbe which destroyed the wall of some vessel or vessels in the deep part of the abscess cavity. As there was no sign that the abscess would not heal well in that case until the first haemorrhage took place, it may be inferred that the cause of the necrosis did not induce any irritation or inflammatory reaction.

The gangrene of the intestine in the case now related seems also to have been due to some microbe in the fluid around the gangrenous appendix. It is hardly possible that the intestine could have been in the condition described for the three days, or very nearly three days, of the patient's illness. I am inclined rather to think that the pain was due to tension within the appendix; that relief was due to rupture of the appendix; and that the necrotic change in the bowel was very recent, being caused by an exceedingly rapid action of some micro-organism in the fluid that escaped into the peritoneal cavity after the patient's admission to hospital. Serous fluid of a yellow colour, and more or less clear, is often seen collected in a pool around a gangrenous appendix, although not held there by adhesions. In the case now recorded the fluid was of a very dark colour, and apparently it had a necrogenic effect upon the bowel.

It is, of course, conceivable that the condition of the bowel was the cause of pain, and that the cessation of pain was due to the emptying of the intestine by the action of the enema and to the consequent relief of tension within it; but it is very difficult to believe that an enema would act if the bowel had been even for a very few hours in the condition above described; and the pain was of very nearly three days' duration.

Pain is undoubtedly sometimes due to the escape of the contents of a vermiform appendix into the peritoneal cavity; but there is quite commonly a stage, as in this case, in which after the appendix has ruptured, and apparently immediately after its rupture, there is for a time complete freedom from pain.

It is a question whether an enema should have been administered when the patient was admitted to the hospital. In this particular instance the effect was good, for the operation was easier with the intestines collapsed than