first also furnishes a good example of the manner in which they sometimes become disseminated—namely, by implantation, and is, as far as I know, the only example of excision of two separate portions of gut for cancer. The first was done with the bowel in a state of distension, and though successful should not be taken as a precedent, for one of the cardinal rules upon which I wish to lay stress is that wherever possible the gut should be efficiently drained when distension exists before an attempt is made to reunite the ends. It is the disregard of this rule which has made the death-rate so high until recently. For the fluid in the distended coils is practically a cultivation of the *B. coli communis* in a high state of virulence, and it is not reasonable to expect the intestine to resume its functions while filled with this. The first case also illustrates the great extension which is added to our field of operations by the use of intravenous injections of saline fluid, with the addition, at the operator's discretion, of strychnine and brandy, for it is impossible to believe that such an operation as that described could have been borne by an exhausted patient suffering from intestinal obstruction without its aid. It also illustrates what I think is a very important point—namely, the method of giving it. It is no good waiting until the anaesthetist tells you the patient is very bad and his pulse failing, and then in a panic sending assistants and nurses scurrying about to get the necessary apparatus to transfuse him. Everything must be arranged beforehand, and the transfusion started at the commencement of the operation and made to extend over the whole time it is in progress.

The second case is an example of the typical and ideal method of proceeding after discovering a malignant tumour of bowel—namely, its removal in three or more stages:

1. Consisting of the delivery and fixation of the growth and contiguous bowel outside the abdomen.
2. Opening and drainage of the gut above the growth.
3. Removal of growth.
4. Freeing and uniting ends of bowel and repair of abdominal wall.

Some of these four stages may, if necessary, be combined—for example, 1 and 2 may be done at one sitting if the need for relieving distension is urgent, but it is always best to allow, if possible, twelve hours to elapse between them, to give the peritoneal surfaces a chance of erecting a barrier against general infection.

Then, again, 2 and 3 may be combined, as in my second case; and this is a very useful combination, and can generally be carried out, as, if you are going to tie in a Paul's tube, you may just as well cut away the growth; it requires no general anaesthetic—packing swabs wrung out of a solution of cocaine round it is quite enough.

Four must always be a separate and carefully planned operation, but the method chosen for uniting the ends is capable of great variation; 200 plans for effecting it have been described, and about 20 of these survive as reasonable and practicable, but I will not prolong this paper with any description of them.

The usefulness and simplicity of any one plan over any other lies not so much in the superiority or the reverse of the method as in the familiarity of the operator with the details of the plan he is employing. Surgeons A. and B. might each be getting excellent results, the one with simple suturing, and the other with the employment of some mechanical aid, as a bone bobbin or metal button, but let A. suddenly adopt B.'s method and B. take A.'s, and they would both be disappointed for a time, chiefly from the extra time taken, for in this, more than any other operation, every minute saved is an important gain, as the severity of the operation is in an almost exact proportion to its length.

One word on the question of anaesthetics in these cases, and I have done. It has been too long considered essential before opening the abdomen to give a general anaesthetic, and the custom dies hard; but in a simple opening for the relief of distension, or where the delivery and fixation of a loop of gut is contemplated, it is a great advantage to the patient, and quite easy to do, after an injection of eucaïne.

Of course, I do not for a moment claim this as in any way original, but if it were more generally adopted, especially in cases which have to be relieved at very short notice without any preparation, a great many lives would be saved which are now registered as dying of exhaustion or from the anaesthetic.

NOTE.—In July, 1902, the second patient was seen, and found to be in good health, and again in November, 1902.

THREE CASES OF ACUTE INTUSSUSCEPTION IN THE SAME FAMILY.

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THE following is the history of 3 cases of intussusception occurring in a family of four children, 1 ending fatally and 2 being relieved by operation. I can find no account of a similar series of cases in any of the works on the subject that I have consulted.

CASE I.—This was not diagnosed as such by the medical man then in attendance, or, if so, the mother was not made acquainted with the fact; but from the accounts of the mother and friends there can be little doubt that it was a well-marked case of intussusception. The child was born in 1895, and was brought up chiefly on the breast, but occasionally was allowed to have other kinds of food, and, no doubt owing to this, suffered from attacks of diarrhoea and abdominal pain. When 5 months old it was one evening seized with sudden pain and screamed violently. It vomited all the food it was given, and passed several motions, which the mother describes as looking like apple jelly. All next day it was in great pain, and vomited a quantity of greenish-brown fluid which smelled "like a motion." It also passed a considerable quantity of blood, and became very collapsed and sunken about the eyes. On the third day it died.

CASE II.—This child, a boy, was born in 1900, and was strong and healthy up to the age of seven months, when he began to have the usual digestive troubles connected with teething. One evening a little blood was passed in the motion, and during the night he cried a good deal. Next day he threw up his food, and more blood was passed by the bowel. In the evening the vomit became brown and offensive. Next day more blood was passed, and the sickness continued. The mother at last became alarmed, and called in the doctor, who at once diagnosed intussusception, and had the child removed to the Barnet Victoria Cottage Hospital. Drs. W. Thyne and D. R. G. Corrigan operated, and found an intussusception, which was reduced without much difficulty. The child made a good recovery, and has not since had any serious abdominal trouble.

CASE III.—This child was born in 1901, and, with the exception of an attack of broncho-pneumonia in the spring, had good health till he began to cut his teeth at 7 months, when there was some trouble with the bowels, occasional attacks of diarrhoea alternating with constipation. On May 6th the child seemed quite well till the evening, when some blood was passed in the motion, and an hour later he began to scream and to vomit his food. More blood was passed, and the mother, who by this time had become an expert in these matters, diagnosed intussusception, and brought the child to the surgery. He was then collapsed, the eyes sunken, and the pulse rapid and feeble. The abdomen was not distended or rigid, and it was easy to palpate an elongated lump in the upper part of the right lumbar and umbilical regions. As soon as the necessary preparations could be made an operation was performed. With the assistance of Mr. W. H. Elam, the anaesthetic being given by Dr. W. Thyne, I had not much trouble in reaching the intussusception by a linear incision above the umbilicus sufficient to admit two fingers. It was easily reduced, and the patient suffered little from shock. Recovery was uninterrupted.

It is difficult to account for the occurrence of these cases in the same family. In all three there was a history of digestive troubles due no doubt to careless feeding, accentuated in the last two by dentition, and this is given by most authorities as a frequent cause. Added to this, one would expect that there must have been some congenital condition common to all three, which in the presence of an exciting cause such as the above would be sufficient to determine the occurrence of intussusception. It has been suggested by Leichtenstern that an abnormally movable caecum predisposes to ileo-caecal invagination, while a caecum firmly fastened down may give rise to the ileo-colic variety. One can also imagine that when, from some cause, one part of the bowel is abnormally fixed, and an adjacent movable segment is thrown into violent peristalsis, a similar condition of things is produced to that brought about in the experiments of Nothnagel, where one segment of the bowel was paralysed and an adjacent one stimulated, an intussusception being thereby produced.

None of these conditions were distinguished at the operations, but only the most limited examination was possible (or desirable) through the small incision. One can, however, only come to the conclusion that the occurrence of a somewhat rare malady in three children out of a family of four is to be considered something more than a mere coincidence.

I am indebted to Dr. Thyne for permission to publish these cases.

CASE OF VOLVULUS OF THE CAECUM.

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WITH NOTES ON THE OPERATION BY

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SIR FREDERICK TREVES, in his *Intestinal Obstruction*¹ says: "More than two-thirds of all cases of volvulus of the intestine are instances of twist of the sigmoid flexure about its mesenteric axis," and he quotes only one case of volvulus of

the caecum, and that ended fatally on the ninth day.² It seemed to me desirable, therefore, that notes of the following case should be put on record.

The patient was a spare, delicate spinster, aged 52, of an exceedingly nervous temperament. She had suffered from constipation since childhood, the bowels seldom or never acting without aperients, and of late years she had been subject to severe attacks of dyspepsia, but there was no previous history of any serious illness. On Sunday, January 20th, 1901, I was sent for, and her sister gave me the following details of her present illness: For the last month she had suffered severely from indigestion, accompanied by constipation. For this she had taken stronger aperient medicine than usual. On the previous day the bowels had acted three or four times very freely, and after the last action she was seized with sharp pain in the lower part of the abdomen, which caused her to feel very faint, and she vomited. The pain continued on and off for three or four hours, and then gradually subsided.

Her condition when I saw her was as follows: She was in bed, complaining of some discomfort in the lower part of the abdomen, more especially in the right iliac region. There was occasional feeling of nausea. The abdomen moved freely on respiration, and was not distended. There was some tenderness on pressure in the right iliac region, but no definite resistance. The temperature was subnormal; the pulse 68; the tongue was furred. There had been no action of the bowels, nor had any flatus passed since 10 p.m. the previous evening.

She was ordered milk and soda water in small quantities, and an effervescent mixture of soda and ammonia. No aperient or sedative was given.

She had no return of the pain, passed a good night, and on January 21st felt quite comfortable. The bowels had not acted, nor had any flatus passed. She still complained of nausea, and had vomited her milk once. Examination of the abdomen revealed nothing fresh, nor was there any change in the temperature and pulse. The urine passed in the previous twenty-four hours was normal in quantity, and contained no albumen.

On January 22nd the temperature went up to 99° and the pulse to 76. She complained of a good deal of intermittent pain in the lower part of the abdomen. She vomited four times after the milk. There had been no action of the bowels nor passage of flatus. It was noticed for the first time that the abdomen was slightly swollen in the middle line below the umbilicus, and the tenderness on pressure was somewhat more marked. Examination of the rectum and vagina revealed nothing abnormal. An enema of soap and water was ordered, but it returned without any result. Hot fomentations were applied to the abdomen, the medicine was discontinued, and the feeds of milk and soda water were diminished to 3 iij every four hours.

On January 23rd the patient felt much more comfortable. She had had no return of the sickness or pain. The temperature was the same as on the previous day, but the pulse had risen to 88. Nothing had passed per rectum. The distension below the umbilicus was markedly increased, especially in the hypogastric and left iliac regions, where a distinct swelling could be seen about the size of two fists. This on manipulation was felt to harden and contract, and was taken to be a coil of intestine. The enema was repeated, but without any effect.

On January 24th, finding the patient's condition and symptoms unaltered except that the pulse-rate was steadily mounting, I decided to get Mr. Fripp to see the case with me, with a view to an exploratory operation. Although the patient's general condition was good, it was clear that there was complete obstruction of the bowels, and that any further delay was inadvisable.

REMARKS BY MR. FRIPP.

I saw the case with Dr. Bisshopp on January 24th, at 2.45 p.m. In view of the absolute obstruction for five days, and of the tender lump below and to the left of the umbilicus, and of the excellent general condition of the patient, I concurred with him in advising an exploration.

We discussed the various causes which appeared most probable in this particular case to account for the symptoms, and inclined most to a diagnosis of either malignant stricture of the sigmoid or volvulus. Volvulus is one of the rarer forms of intestinal obstruction, and, except in the sigmoid, it is very rare indeed; even in the sigmoid it is much more rare than a malignant stricture. It is seldom diagnosed before

operation. In the case under review, the possibility of the obstruction being due to this cause was held to be likely, chiefly for three reasons:

1. The previous history of chronic constipation.
2. The definite tumour to be felt in the region of the sigmoid.
3. The fact that though obstruction had been absolute for five days, neither its onset nor its continuance had been marked by any local or general signs of acute strangulation.

The negative evidence gathered from a rectal examination could not be allowed to weigh against a diagnosis of cancer of the sigmoid, for the stricture is often too high, and also forms too small a mass to be detected by the finger. But there were wanting in this case the two distinctive signs which are most suggestive of malignant stricture of the sigmoid, namely, a history of blood or mucus upon, and altered character in, the stools during the last few weeks or months, and a distension of the whole area, more or less, of the large intestine. The palpable lump in this case was, as already stated, quite localized to the sigmoid region.

The abdomen was opened in the middle line below the umbilicus, Dr. Bisshopp assisting and Dr. Malden giving the anaesthetic.

The case well exemplifies the advisability of selecting the middle line for every laparotomy which is at all of an exploratory nature. Had the presence of a tumour in the left iliac region tempted us to make our incision at that spot we should have found it necessary to make another incision more to the right, in order to enable us to deal with the condition revealed. The same remark applies to intussusception. The lump in such cases may be felt high up in the abdomen, or well to either side, but its reduction involves its being forced to retrace its steps through a circular course whose centre is just below the umbilicus, and it is at this spot that the incision will give most easy access to the lump throughout its retreat. Two fingers were inserted through the small median incision, half-way between the umbilicus and the pubes. A small quantity of blood-stained fluid escaped from the peritoneal cavity. It was at once apparent that the cause of the prominence of the abdominal wall (to the left of and below the umbilicus) was a single coil of intestine which was distended for some seven or eight inches of its length.

The incision was extended in the middle line sufficiently to permit of a thorough examination of this distended loop: it proved to be the large intestine; its two extremities converged to and ended in a small pedicle.

It was, therefore, clear that the suspicion of volvulus had been confirmed, and from its position it appeared likely that it was of the commonest or sigmoid variety. However, the discovery of an appendix attached to the distended gut engorged almost to blackness, and swollen to the size of the little finger, proved that we had to deal with one of the rarer forms involving the caecum.

The volvulus was easily untwisted, and then it was plain that the distended part consisted of the caecum and the ascending colon, provided with an abnormal mesocolon sufficiently long not only to allow of its intestine undergoing a twist through one complete circle about its own mesenteric axis, but also to permit the distended loop to take up a position well over in the left iliac fossa. The mass was the size of two fists placed side by side. It was soft and heavy, but the wall of the gut did not appear to be altered in thickness, and though it was purple with congestion there was no evidence of peritonitis or ulceration. In spite of the obstruction having been complete for five days, and of the distension being considerable, there were no adhesions, nor any cracks of the peritoneum.

The contents of the distended bowel were easily expressed into the ascending, and then onwards into the descending colon, and as the volvulus showed no inclination to return the abdomen was at once closed.

The first motion was passed six hours after the operation. The after-history was uneventful, though a good deal of trouble was experienced in re-establishing regular action of the bowels. The wound healed by primary union, the stitches being removed on the eighth day. The patient is at the present time in excellent health. She wears an abdominal belt, fixed with an indiarubber pad containing air over the position of the caecum. The bowels are kept open by a mild aperient pill taken three times a day after meals.

REFERENCES.

- ¹ London: Cassell and Co. 1899. ² Vide Avery, *Path. Soc. Trans.* vol. ii, p. 222.