ENTERECTOMY FOR MALIGNANT DISEASE.*

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THE indications for as well as the limits of operations on organs covered by peritoneum are altering with such startling rapidity that it is most necessary that we should review our position in regard to them at comparatively short intervals of time, and this is my excuse for speaking on a subject already so amply dealt with in all surgical textbooks, for when we reflect that twenty years ago the peritoneal cavity was looked upon as sacred ground, which must only be trespassed upon with the greatest precaution and anxiety, and that it is now regarded as *par excellence* the scavenger which is best able to rectify the errors and dispose of the refuse of the intruding surgeon, we see that all the grounds upon which we based our rules of procedure at that time must be discarded, and we must rearrange our ideas accordingly. We have only to go back three years, and we find in Treves's *System of Surgery*, published at that time, the statement that, "as a rule, if a growth causing obstruction (of the intestine) is found to be malignant, it will be left *in situ* and short circuiting done." Now although this still applies to a good many cases, I do not think we should find many surgeons who would adopt it as a rule, and the two cases I propose relating are with a view of controverting it.

In discussing the question of enterectomy, it is, of course, necessary to draw a sharp line between that done for malignant disease and all other conditions. Marvellous feats have been performed in abdominal surgery in cases of punctured wounds, bullet wounds, simple growths, or inflammatory conditions; but in malignant disease we are confronted with certain difficulties which do not exist in other affections, and to understand this it is necessary to consider for a moment the characters of the malignant growths we meet with in the intestine.

I believe histologically the only variety is that known as cylindrical-celled epithelioma or cylindroma, though of course various degenerations may occur, such as colloid, which are sometimes described as varieties. The growth commences in Lieberkuhn's glands and the deeper parts of the mucous membrane, and in its early stages appears to the naked eye as a plaque or nodule, which gradually spreads round the bowel, following the course of the vessels. However far it extends, it still retains to a remarkable extent the type of the glands from which it starts, and thus a growth possessing horrible and malignant properties may so faithfully mimic a simple structure that, if a small portion be examined alone, it is difficult to say whether or not it is malignant. Luckily this type of growth does not tend to spread to surrounding lymphatic glands till somewhat late in the disease, and then only slowly.

It follows from this short sketch that we are not likely to get much evidence of the presence of a growth until it has advanced so far that the bowel is obstructed either by an outgrowth or by the elastic intestinal wall becoming replaced by the new growth, which has a strong tendency to contract, imitating the result of tying a piece of cord round the bowel. This is just what occurs and what forms the distinctive difficulty of dealing with malignant disease as opposed to other forms of intestinal disease; I mean the progress made by the disease and the state of intestinal distension.

We know of no special symptom at present to distinguish the slight digestive disturbances and constipation of the early days of malignant disease from those due to functional disturbances, and in fact in these days of patent liver pills we are seldom consulted about the principal symptom, constipation, till it is almost absolute. It seems to me we cannot expect or hope for really good results till either we can discover some early distinctive symptom or can feel justified in opening the abdomen to examine suspicious cases. I hope I do not give the impression that I am an advocate of exploratory operations to save the trouble of exhausting all other aids to diagnosis, a crime of which surgeons have been sometimes accused, but I maintain, on the one hand, that no one can diagnose an early stage of malignant disease of the intestine from symptoms and external examination only; and, secondly, that we are rapidly approaching a time when we can guarantee our patients an abdominal wall not weakened by the opening and an infinitesimal risk to life from the mere exploration.

Our failure to be able to arrive at an early diagnosis is the more unfortunate as the type of growth we have to deal with is of low malignancy compared to that occurring in other parts of the body, and only tends to invade glands slowly and late, so that we might hope to achieve unusually good results if we could get at it in as early a stage as, say, mammary or tongue cancer. Of the different parts of the bowel, the large is by far the most commonly attacked, and here the gland invasion is slower than when the small bowel is affected—another favourable point. If you will allow me, I will now shortly relate two cases illustrating some of these points.

CASE I.—J. J., aged 35, was sent to me in June, 1900, by Dr. Jones of Polypant, with the following history: He had always been constipated, especially so the last three years. For eighteen months he had been subject to occasional attacks of pain coming on after two or three days' constipation, and, after lasting two or three hours, terminating in a loose action. Two months previously a little dark blood appeared on a motion, and had been noticed several times since. Motions now always porridge and unformed. For two months Dr. Jones had been cognizant of a hard lump in the abdomen. In the previous eighteen months the patient had lost 14 to 20 lb. in weight. Now eats well and has no pain or vomiting after food. I found a hard, rounded, nodular mass lying just to the left of the midline, half-way between umbilicus and pubes, about the size of a tangerine orange (as usual); it could be moved freely in all directions, especially upward and to the left; in fact, it could be made to disappear into the kidney pouch. No left kidney could be palpated.

It was evident that the man had a malignant growth, and that the lumen of the bowel was seriously narrowed, but I did not feel certain at this first examination whether it had originated in the colon or had invaded it secondarily to the kidney.

After spending a few days in trying, without much success, to diminish the intestinal distension, the abdomen was opened by an incision through the left rectus. A growth was found involving the whole circumference of the transverse colon, and puckering up the great omentum. Its under-surface rested on a coil of jejunum, which it had invaded deeply. Was one now to do a double enterectomy with the intestine in a state of distension, and in a patient much reduced in strength, or to leave a man in the prime of life to die a miserable death in a few weeks from intestinal obstruction? I decided on the former, and at once had an intravenous saline injection commenced and kept up slowly all through the succeeding operation, altogether 5 pints, with brandy 5j and liq. strych. mx. The jejunum was first dealt with, 4 in. being excised, and the ends approximated with a Murphy's button, and next the colon, of which 8 in. were excised together with the great omentum, and a large wedge of meso-colon with infected glands. The bowel was united with a Mayo Robson's bone hobbin, considerable difficulty being experienced with the portions lying between the widely-diverging layers of the mesocolon, and haste being imperative on account of the patient's condition.

The next few days were anxious ones on account of the difficulty of feeding, but he was tided over these. On the fifth day he had stomach pain, hiccough, and distension, followed by the evacuation from the upper end of the wound of a collection of very foul pus—no doubt a leak from the colon junction. (Chlumski, by an elaborate series of experiments on dogs, shows that the intestinal junction weakens to the fourth day, and then strengthens till by the tenth it is as strong as normal.) The button was passed on the nineteenth day. At the end of the fifth week he passed a motion bigger than a working man's thumb. His weight progressed as follows: August 6th, 8 st. 13 lb.; August 15th, 9 st. 6 lb.; August 21st, 9 st. 8½ lb.; September 1st, 9 st. 12 lb. On October 26th he appeared before the Plymouth Medical Society weighing 11 st. 8 lb. He could walk five miles, eat anything, and his motions were formed and normal.

In June, 1901—twelve months after the operation—I heard of his death. No necropsy could be obtained, but I gather from the report that he must have had a recurrence in the dorsal vertebrae.

CASE II.—A man, aged 35, was sent to the South Devon and East Cornwall Hospital by Dr. Kelly in November, 1900, on account of intestinal obstruction. The symptoms began three weeks previously, and for three days there had been complete obstruction in spite of medicine and injections. On admission there was great distension with visible peristalsis. *Per rectum* the finger could reach no narrowing, but pressing up as firmly as possible I could feel a small lump in the recto-vesical pouch bob away from my fingers; and feeling convinced from the history that the obstruction was due to a growth low down in the gut, I suspected the lump of being a prolapsed loop of sigmoid containing a growth, and consequently opened the abdomen as for a left inguinal colotomy. The growth was found as expected; it completely encircled the bowel but was not of great extent, and its mesentery just permitted of its being brought out on to the abdomen, where it was fixed. Next day the growth was excised with about 5 in. of bowel and a small gland in mesentery, a Paul's tube tied in the proximal end and the distal end gently ligatured with a strip of gauze over a gauze plug inserted into it. On the fifth day the Paul's tube came away, and on the fifteenth day I proceeded to reunite the ends, all intestinal distension having by this time subsided and the patient's condition being good. An elliptical incision was made round the open ends of gut just clear of the edge of old incision and carried down through the peritoneum, the ends of gut brought out, the thickened portions removed, and the fresh ends brought together over a Mayo Robson's bone hobbin, reinforced by interrupted catgut sutures. The only difficulty was due to the fact that to get clear of the disease I had to go as far down towards the rectum as possible, and even then was only just clear, so that I was working in rather a hole. The ends having been united were dropped back and the abdominal wound brought together.

An uninterrupted recovery followed, and the hobbin was so completely absorbed that, though so close to the anus and carefully looked for, no trace of it was ever seen. The growth was examined by Dr. Bushnell, and reported to be a typical cylindrical-celled glandular carcinoma. This patient is in robust health, above his normal weight, passes good-sized motions without difficulty, and has no trouble from the scar.

These two cases are both illustrations of growths originating in the commonest position—namely, large bowel, though the

* Read before the South-Western Branch of the British Medical Association at Plymouth.

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 eucaine.

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