on a different character, and its onset and cessation are both more gradual.

Vomiting occurs in two forms, which should be carefully differentiated. With the pain we have the bilious vomit due to dragging on the mesentery. Apart from pain, and in the later stages, we have the dark vomit of intestinal obstruction, with all the grave characteristics of that condition.

Wasting and anaemia are always marked, and frequently lead to a false diagnosis, such as tuberculous peritonitis or carcinoma.

Either constipation or diarrhoea may be present. The former is more usual in enteric intussusceptions; the latter occurs in colic cases, and is accompanied by the passage of blood and mucus.

A tumour is to be felt in the abdomen in most, if not all, of the cases. It presents the characteristics we have already described. In form it resembles a concave sausage. With each attack of pain it becomes firm, increases in size, and advances in position, following always the path of the colon. In 30 per cent. of all cases its apex can be felt by rectum. It is tender and manipulation brings on an attack of pain.

The abdomen is not distended till obstruction has become a marked feature. Emptiness on the right side and fullness on the left are frequently noticed and are very characteristic.

Such are the symptoms of a typical case, but they may occur in such masked form that diagnosis is practically impossible. Of 55 cases collected by Rafinesque, 27 were incorrectly diagnosed, and other writers give an even larger percentage of error. A patient with wasting, obscure attacks of pain, and an indefinite tumour presents a fairer picture of the average case, and suggests a wide field for diagnosis.

The treatment of these cases only differs from that of the acute infantile form in a few details. Laparotomy is as essential in the one as in the other, but here we are dealing with an older patient, and extensive operations can be successfully carried out. And we have the further incentive to resection that we can thus remove the cause, which so often is of a definite nature in these cases. Once the condition is suspected operation should not be delayed, for many cases terminate with startling abruptness in a few hours, and, in any event, operation during an acute exacerbation is a very grave proceeding. Spontaneous recovery is rare, for although cases where the intussusceptum has passed by rectum are not very common, the great majority of these have died.

I have only dealt with the leading features of a very wide subject. Those who wish to study it in greater detail will do well to refer to the papers I mention below. In these full references to the literature will be found.

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THE first State dental clinic for school children was opened in Vienna on March 13th.

On January 15th, 1913, the total number of students in the medical faculties of France was 8,247. Of these 7,400, among whom were 803 foreigners, were men, and 847, of whom 358 were French and 489 foreign, were women. The schools as distinguished from faculties of medicine had 1,497 students, of whom 1,287, including 29 foreigners, were men, and 210 women, of whom 9 were foreign. The numbers for the several faculties were as follows: Paris, 4,211, as against 4,170 in 1912; Lyons, 1,055; Bordeaux, 751; Montpellier, 699; Toulouse, 346; Nancy, 306; Lille, 285; Algiers, 156. Among the medical schools Nantes stood first with 255 students; next came Marseilles with 245, and Rennes with 148. The others had numbers ranging from 52 (Limoges) to 220 (Grenoble). Of the foreign students the most numerous were the Russians, of whom there were 831. Of these 585 belonged to the Paris Faculty, and 133 to Montpellier. Next came the Turks, of whom there were 85; of these 68 belonged to Paris and 11 to Montpellier. There were 67 Bulgarians, of whom 20 were at Lyons, 28 at Montpellier, and 12 at Nancy. There were 59 Roumanians, of whom there were 54 in Paris and 5 at Montpellier. Among other nationalities represented were England (13), Greece (24), South American Republic (22), all studying in Paris.

REMARKS ON TRANSVERSE COLOSTOMY AS THE OPERATION OF ELECTION.

BY

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In 1906, at a meeting of the old Clinical Society,¹ I ventured to draw attention to the question of the transverse operation of colostomy as opposed to the iliac method, and stated my belief that, of the two methods, the former was for many reasons the best. My views were at that meeting subjected to some criticism at the hands of certain leaders of the profession who had no better arguments to adduce than that the old iliac operation had always answered very well, that the control of faeces could not in the nature of things be so complete in the transverse operation, and that the length of colon excluded, being so much longer than that left by an iliac colostomy, could not but be a source of trouble.

I received these criticisms, coming as they did from such eminent authorities, in a somewhat chastened spirit, until on making inquiries I found that these gentlemen themselves had had very little more experience of transverse colostomy than I had myself, and two of them acknowledged that the question of anything better than the iliac method had never suggested itself to them. I therefore concluded that I had at least some ground for speaking on the subject.

Since that time I have continued to practise the operation of transverse colostomy as a routine method, and, judging from my own results, I have now very little doubt that the claims I put forward in 1906 were well founded; so much so that were I ever in the unfortunate position of having to undergo the operation of colostomy myself, I would stipulate most strongly for its performance by the transverse method, provided that the conditions permitted of its being done.

I am fully aware of the fact that the cases I have operated upon are not so numerous as to command the attention of surgeons who will never condescend to consider anything less than four-figure statistics, nor of those members of the profession who, being attached to the staffs of hospitals dealing solely with rectal conditions, are perhaps apt to look upon the work of others in their special domain as that of the unauthorized. It is not to such that I propose to address myself, but to those who, like myself, being attached to the staff of a general hospital, while dealing with a smaller number of such cases, have, from the varied nature of their work, developed a wider and perhaps more broad-minded outlook on surgery generally. I do not propose for a moment to attempt to defend the operation of colostomy, or make it out to be anything better than an unfortunate, and usually solitary, alternative to a very dreadful and necessarily fatal condition; it should never under any circumstances be performed if any better way out of the difficulty can be found; but that it merits the expressions of loathing and horror that are so frequently heaped upon it by those who have not stopped to consider its purposes, its results, and its surgical technique, I would most strenuously deny. Nothing is further from the truth than to say, as I have often heard said: "Better be dead than have a colostomy done."

It was with much interest and serious reflection that I read Mr. Paul's most excellent opening address in surgery at the meeting of the British Medical Association at Liverpool,² and while I realized that any statement coming from so well-known and famous a master of his craft as Mr. Paul must be accorded an attentive hearing, I must confess to no small measure of astonishment that not only does he advocate the lumbar route (which has long been considered obsolete) as a better method than the iliac, but that he refuses any place to transverse colostomy, and openly advises that it should never be performed. With all respect to Mr. Paul I would submit reasons why iliac and lumbar colostomy are not and cannot be in any way comparable to transverse colostomy, which, after practical experience, I have come to regard as the method *par excellence* from every point of view.

If we are to arrive at the ideal we must first of all have

a clear conception of what we consider the ideal—that is to say, what are the requirements which should be fulfilled by a really good colostomy? They may be stated as follows:

1. Good sphincter control.
2. Firm support for belt and plug.
3. Freedom from prolapse.
4. Accessibility.
5. Good spur formation.
6. Removal to a distance from the site of growth.

If these points are considered separately, I think it can be shown that the iliac operation—and what applies to the iliac will also apply, in some points more and in some less, to the lumbar—is singularly deficient in all of these desiderata, whereas the transverse operation has many advantages and few objections.

1. Good Sphincter Control.

Control of faeces in the absence of a natural sphincter depends on four conditions:

1. Elimination of the influence of gravity.
2. The formation of the most effective artificial substitute that can be devised for the natural sphincter.
3. The assistance of this artificial sphincter by a really efficient plug and belt.
4. The careful regulation of the diet and bowels in all colostomy cases.

In none of the first three of these points does the iliac operation satisfy our requirements. The best result obtainable is always marred by the imperfection of the control, and from time to time, sometimes unfortunately constantly, the patient is harassed by the extravasation of faeces when he is up and about, his life being rendered a misery to him by the constant necessity for repeated cleansing, and the unavoidable odour about his person. The reasons are not far to seek. The vertical position of the descending colon allows of a column of faecal matter accumulating above the colostomy opening, every fresh addition as it passes the splenic flexure increasing the weight of the column and the pressure on the artificial sphincter; thus the slightest exertion on the part of the patient tends to force this column past the sphincter, the influence of gravity being thus a very important factor.

2. Firm Support for Belt and Plug.

If this pressure is to be resisted, it must be met by a very efficient sphincter and a very efficient belt and plug. But what do we find? A sphincter made of the worst material and in the worst possible situation, and in a situation ill-suited to the requirements which the belt is expected to fulfil.

Now in iliac colostomy the sphincter may be placed in one of three positions, according to the length of meso-sigmoid.

- (a) In the substance of the oblique muscles.
- (b) In the linea semilunaris.
- (c) In the substance of the rectus muscle.

The first of these positions is that of the old method; it brings the opening too close under the vertical column of the descending colon; it is deficient in aponeurotic backing; and it is too close to the anterior superior spine of the ilium, with the result that when extravasation repeatedly occurs in elderly and thin people the skin over this prominence becomes macerated, and being rubbed by the belt, breaks down, and a painful ulcer, not unlike a bed sore in its intractability to treatment, is formed. Moreover, the action of these muscles is not particularly powerful at this point.

The second position is hopeless; the abdominal wall here is thin, aponeurotic not muscular, and the position has nothing to recommend it.

The third position is the best, but it is a long way from any fixed support; there is no aponeurotic backing, since the posterior sheath of the rectus muscle ends at the semilunar fold of Douglas; and this is the thinnest and weakest part of the rectus muscle. How do these positions suit the application of the belt? The belt to be efficient must have sufficient purchase to bring pressure on the opening. In all of these positions the alae of the pelvis are too widely separated to permit of this purchase, the abdominal wall, especially mobile at this point, simply giving to the pressure applied, and in this position a tight belt is not easily borne. Moreover, the slope of the loins and the prominence of the hips constantly tend to make the belt

"ride" upwards, and this necessitates the use of perineal straps if the belt is not to be quite useless; and this is especially so in women.

The fitting of a plug to a colostomy opening in any of these positions is also unsatisfactory, for to be efficient it must fit tightly without overstretching the opening or causing pain; and, although patients do not usually complain of the latter, the tendency of the opening to stretch is undeniable, since the muscle layer through which the bowel comes is lacking in aponeurotic support behind, and has only a comparatively feeble layer in front. The result is that frequently the plug has to be changed for a larger one in order to control the discharge of faeces, and ultimately the margins of the opening may become so flaccid that prolapse is favoured.

3. Freedom from Prolapse.

The comparative frequency with which this is seen in iliac colostomy is a strong point against the operation. It is true it does not occur in every case, but it occurs in certain cases, no matter how carefully the operation may have been conducted. One of the causes of the trouble has already been given; the other is again the effect of gravity; the conversion of the upper portion of the sigmoid into a receptacle subjecting it to dilatation, and the pressure of the vertical column of faeces in the descending colon bringing about a slipping down of the mucous membrane, if not actually of the bowel itself. I have more than once seen as much as 6 to 7 in. of bowel and everted mucous membrane protruding from the colostomy opening. Such prolapse is greatly aggravated by any excessive activity of the bowel, as from purgatives and irregularities of diet, of which it may, indeed, be to some extent the result.

4. Accessibility.

Although an iliac is more accessible to the patient than a lumbar colostomy opening (indeed, the latter could hardly be less conveniently placed), it is nevertheless in an awkward position, especially in stout patients with protuberant abdomens, since it tends to become overhung by abdominal fat. Again, when an action is intended, it does not permit of the placing of a receptacle over the opening while the patient is in the sedentary posture, unless the body is maintained upright, which position greatly lessens the purchase of the abdominal muscles for defaecation, and brings an undue strain on the inguinal regions.

For the comfort of the patient a colostomy opening should permit of accessibility both for cleansing and defaecation.

5. Good Spur Formation.

Some surgeons have denied the desirability of a double opening to a colostomy with a spur between, and maintain that the distal opening is bad because it catches any faecal matter which may pass the spur.

Personally I do not agree with this, and would always recommend a double opening and a good spur being made. If the operation is properly done and the plug fits snugly, nothing will pass the spur; and in cases of advanced rectal cancer it is a very great comfort to the patient to have the excluded loop of bowel washed out and cleansed of stinking debris and blood clot; and at times the pain may be much lessened by the introduction of various analgesic drugs. With a single opening, this could not be done. The idea that the excluded tract harbours a great quantity of secretion is entirely erroneous: it rarely harbours anything but a small quantity of the debris mentioned; but, if it did, surely the worst that could be done would be to shut it in by occluding the opening and compelling the bowel to absorb it, or pass it over the raw surface of the ulcer—the surest method of increasing the patient's anaemia and pain.

6. Removal to a Distance from Site of the Growth.

I have seen certain cases in which the proximity of a growth high in the rectum rendered the iliac operation difficult so far as carrying the bowel over towards the rectus muscle is concerned, the outer of the three positions having to be chosen. As the difficulty was caused by thickening and shortening of the meso-sigmoid, it is obvious that the iliac operation was unsuitable in these cases; in one of them the growth subsequently invaded the colostomy opening.

Thus it will be seen that iliac colostomy has little to recommend it, and a close comparison between the points above mentioned and those same points when applied to transverse colostomy will, I think, show the latter operation in a much more favourable light. The anatomical position of the transverse colon at once disposes of the effect of gravity in promoting extravasation; indeed, it does more, for since of the fixed points—the splenic and hepatic flexures—the former occupies a higher position, the colon passing between them, lying in the position of a hammock, it is clear that the passage of the faecal mass towards the stoma will, if this be placed to the left of the middle line, be accomplished *against* the force of gravity, consequently neither extravasation nor prolapse are likely to occur. I have never seen either of them in my own cases when once the belt and plug had been fitted; and with regard to prolapse Allingham has said, "Prolapse might happen, but we have not yet seen it, and it would scarcely be so likely to occur as in other places, for the transverse colon is in a way fixed at its hepatic and splenic flexures, and would thus tend greatly to prevent prolapse of the gut through the transverse opening."³

The portion of the bowel between the stoma and the hepatic flexure, from its position, acts as a receptacle, which, like the rectum, can be conveniently voided from time to time, and it is very remarkable to see the excellent control patients ultimately acquire over this act, the bowels being opened night and morning with great regularity, the patient gradually becoming aware of the need to void the contents of the colon. Such perfect control I have never seen in any case of iliac colostomy.

The sphincter provided for the stoma is as nearly perfect as anything can be. The opening should be made two inches to the left of the linea alba, and the same distance below the costal margin. There are excellent reasons for the efficiency of the sphincter when made at this point. The rectus muscle here is thicker and stronger than below the umbilicus, thus forming a deeper and firmer canal; it is reinforced *in front and behind* by powerful fibrous aponeuroses, which tend to moor the stoma in place. This anchorage is further strengthened by the linea alba internally, and the lineae transversae, one of which should fall above and one below the stoma. Owing to the shorter fibres of the rectus lying between these latter, the grip of the "sphincter" at the stoma is much more efficient than in the iliac operation.

The situation is admirable for the fitting of a belt; for not only are the loins here of a shape to hold the belt without slipping, thus doing away with braces, bands, etc., but a degree of pressure can be supported here with comfort which would be impossible below the umbilicus, this pressure being rendered possible by the presence of the costal margins and the presence of liver and the firm nature of the abdominal wall here.

Prolapse I have already dealt with; I have never seen it occur in any of my cases.

The position of the transverse colostomy opening renders it extremely easy for the patient to cleanse and care for it; no matter how obese he may be, the opening is never overhung by fat, as may be the case with iliac colostomy. The skin here is thick and not easily excoriated by the moisture of the mucous membrane. The evacuation of the bowels is most simply accomplished, for it can be performed in the sedentary attitude, the body being inclined forwards and a receptacle placed over the stoma. Owing to the depth of the intramuscular canal and the length of the mesocolon here, an excellent spur can be made when the operation is done by Maydl's method. That this spur is *always* better than that of an iliac colostomy I do not claim, but I have already given my reasons for the occasional defects in the spur formation in the latter, which defects are invariably absent in the transverse operation.

Besides this latter question of spur formation, removal of the colostomy to a distance from the site of the growth offers one other great advantage; there is no little doubt that the offensive odour of a colostomy is largely due to the proximity to and the ease with which the foul debris of an ulcerating growth is discharged from the iliac opening. I have seldom, if ever, known a transverse colostomy to be in the least offensive, but I have never known an iliac one that was not.

There is one other point in which transverse has a great advantage over iliac colostomy—that is, in cases of intractable fistulae of the rectum and anus, where a cure has been effected by temporary colostomy; the ultimate reconstitution of the colon is effected far more easily and far more safely and certainly in the case of the former than in that of the latter operation.

I have then endeavoured to lay out the points which to my mind support strongly the adoption of this method as a routine practice; and finally I would consider the objections that have been raised by certain surgeons to its performance.

The objection has been made that the subcostal position of the stoma is a more unpleasant one for the patient. I can only reply to this that none of my own patients have ever complained on this score; and the greater cleanliness and better control which this position gives goes far to overcoming this objection.

Again, it is contended that control *must* be more difficult, since the motions in the transverse are more fluid than in the descending colon. This I can answer from my own experience: it is a purely theoretical objection; there is so little difference in the contents of the two sections that there is nothing to choose between them. It is quite obvious that the life of a patient, no matter of what variety his colostomy may be, can never again be regarded as normal. That is to say, he must always so regulate his diet and fluid intake as to favour constipation rather than diarrhoea, and so keep the excreta as firm as possible.

Mr. Paul has made the objection that the position is not a good one in view of the possibility of a subsequent laparotomy; neither is any colostomy, iliac, lumbar, transverse, or caecal. But since these operations are commonly reserved for patients who are already doomed, the prospect of their ever having to undergo such laparotomy must be very small indeed. Case xv is an exception—the only one I have come across in my practice.

Lastly, an objection from one of the highest authorities on rectal surgery made to me personally, is one which I mention merely to show the extraordinary attitude so often assumed by certain surgeons who, because they cannot themselves see any good in a new method, would deny the possibility of its existence, when expounded by others. It was that "iliac colostomy having served its purpose for so many years, there did not appear to be any obvious reason why it should be abandoned." On such an objection I leave the more progressive of surgeons to pass their own criticism. My cases are, as will be seen, comparatively few, and this is accounted for, first, by the fact that I have only used those of which accurate notes have been kept, many being hospital cases of which the notes have been found worthless, or have actually been mislaid; and, secondly, because I have never submitted any patient to colostomy who could by any means be safely tided on to the end without it; thus I have often avoided the operation where, with less trouble or more precipitate action, I might have performed it.

CASE I.

M. C., aged 60, married; has had three children; advanced carcinoma of second part of rectum; iliac colostomy by Maydl's method; bowel opened on third and divided on fifth day. Belt fitted on twenty-seventh day.

Patient survived eight months. Control seldom complete, and extravasation occasionally troublesome; complained much of her condition. Towards the end prolapse of mucous membrane with every evacuation, manual reposition being necessary. Could never leave her house for any length of time. Painful excoriation about anterior superior spine, she being a thin woman.

CASE II.

E. J., aged 52, married woman; three children; very stout; advanced carcinoma of first part of rectum with secondary deposits in liver, and malignant ascites. Iliac colostomy by Maydl's method; bowel opened on third and divided on fifth day. About an hour after division the divided ends suddenly receded into the abdomen. Laparotomy immediately performed, Paul's tubes in either opening; abdomen sponged out and drained.

Patient died forty-eight hours later from shock. The conclusions to be drawn from this case are that the fifth day is dangerously early for the division of the bowel; and that when ascites is present it is especially so, since the oozing of ascitic fluid between the bowel and the wound margins results in delay in the formation of plastic adhesions. Since this case was done I have made it a rule never to remove the rod or divide the bowel before the tenth day.

CASE III.

E. P., aged 18, unmarried girl, with a fistula in the left iliac region, following the opening of an abscess resulting upon left salpingo-oophorectomy performed by another surgeon. Every means had been tried in hope of closing this fistula without success. Transverse colostomy by Maydl's method done, with a view to resting the fistula and allowing it to close. Bowel opened fifth day and divided on tenth.

Result excellent; control perfect; no extravasation or prolapse. Although discharge from fistula not entirely stopped, latter reduced to fine probe sinus at end of ten weeks. Patient, when apparently in perfect health at end of three months, and while waiting for reposition of colon, was suddenly taken with signs of acute intestinal obstruction. Operation was refused by her parents and she died unrelieved. *Post mortem*: Ileum caught by the loop of a fine adhesion, stretching from right psoas muscle to umbilicus. Colon below the stoma shrunk to diameter of little finger. Fistula track Y-shaped and leading to both sigmoid and small intestine, 4 in. above ileo-caecal valve.

CASE IV.

J. B., aged 50, widow. Advanced carcinoma of second part of rectum. Much ulceration and bleeding and great pain, defaecation causing agony for one or two hours. Iliac colostomy by Maydl's method resulted in very great relief, the bowel being opened at end of forty-eight hours and divided on tenth day. This patient lived five months. Control was never complete, and extravasation, in spite of repeated fittings of belts and plugs and careful dieting, caused her much misery, and she was practically bedridden owing to this from the time of her operation.

CASE V.

F. D., man aged 25, admitted for intractable chronic dysenteric ulceration of rectum; his motions being mixed with blood and mucus, and defaecation being accompanied by intense aching pain. Patient rapidly going downhill. Transverse colostomy by Maydl's method resulted in complete cessation of pain and great improvement in general condition. At the end of a year patient, finding his control so good and colostomy so satisfactory, refused to have the colon replaced. Owing to the fear of a fresh outbreak and of the formation of a stenosis of the rectum which even now threatened, this was not pressed. Two years or more after his operation this patient contracted pulmonary phthisis, of which he died.

CASE VI.

K. C., woman aged 55. Advanced carcinoma of rectum, involving second part high up, threatening obstruction, nothing but fluid motion passing; tenesmus and dragging pains; blood in motions; discharge very foul. Iliac colostomy by Maydl's method; meso-sigmoid thickened and very short. Bowel opened in forty-eight hours, and divided on tenth day. Subsequent control very difficult, owing to slipping of belt, she being small in the waist and wide in the hips. Complained much of the discomfort, and never could regulate her actions sufficiently to trust herself out of doors; consequently had to lead the life of an invalid to the end, which came eight months after operation. There was always a tendency to prolapse, moisture, excoriation, and foul discharge from the distal stoma.

CASE VII.

H. B., aged 45, suffering from faecal fistula through old laparotomy scar and stenosis of rectum. Six months previously patient had apparently undergone operation for pyosalpinx; this was followed by pelvic peritonitis, the formation of an abscess which burst into the rectum, and a second one which burst through the old wound and very soon discharged solid faecal material. Several attempts were made to close this sinus without avail, nearly all her excreta passing through it. It was then found that the rectum passing through a mass in the pelvis was tightly stenosed. Transverse colostomy by Maydl's method. Belt fitted at end of three weeks. Patient is alive and well eight years after operation. She tells me she has no difficulty whatever with the colostomy. Her control has always been so perfect that she can frequently leave off the belt. She knows exactly when the bowel requires evacuation, and has trained herself to do this morning and evening. She has never had prolapse, and only on one or two occasions has there been the least tendency to extravasation when she has taken a purgative. She does not experience any unpleasantness from the high position of stoma, and finds access to stoma much easier than it was to the old fistula, which closed entirely six or seven months after operation. The patient has been so perfectly comfortable that she has carried out her work for the past seven and a half years without any difficulty.

CASE VIII.

K. B., 47, sent to me by Dr. Sidney Beauchamp for the cure of an umbilical hernia. During convalescence was discovered to be suffering from carcinoma of rectum. Seen in consultation with Mr. (now Sir Anthony) Bowlby and Mr. (now Sir Alfred) Pearce Gould, who advised against excision. Transverse colostomy done by Maydl's method. Bowel opened on fifth and divided on tenth day. Belt fitted twenty-fourth day. This patient travelled to Devonshire at the end of the fifth week, and dined the same night in evening dress with her family. This she continued to do, leading her ordinary life and frequently motoring many miles in the day, to within four months of her death, which occurred over three years from the time of her operation. So satisfactory was her condition through-

out that none of her household except her husband knew that such an operation had been done. She wrote to me many times saying how perfectly satisfactory she found the colostomy.

CASE IX.

P. C., married woman, aged 49. Advanced carcinoma of rectum in the second and third part, with secondary deposits in the liver and sacral glands. Could only pass flatus and fluid. Great pain and tenesmus, and occasional distension and partial obstruction. Linen always stained with foul bloody discharge, the sphincter ani being quite inactive. Transverse colostomy. Bowel opened at once on a Paul's tube and divided tenth day. From time of operation bleeding, discharge, and pain ceased entirely, and patient began to sleep well at night. She lived for fourteen months. During this time her colostomy worked perfectly. In less than two months she had almost complete control. From this time she never had the least difficulty; there was neither extravasation nor prolapse, and she herself said that had she realized how little inconvenience she was to have she would not have hesitated so long to have the operation done.

CASE X.

D. M., man aged 61, admitted with signs of acute intestinal obstruction, no obvious cause being present. Colon distended as far as the splenic flexure. Symptoms had been present for three days, and patient was very ill and feeble. Transverse colostomy was performed and a Paul's tube inserted. Immediately an enormous quantity of flatus and faeces passed, and patient was relieved. Four days later he again began to vomit and become distended, and although the signs were obviously those of general peritonitis, he was too ill to undergo any further operation, and died on the sixth day. *Post mortem* was found general suppurative peritonitis resulting from a perforating ulcer of the ileum just above the ileo-caecal valve, due probably to the preceding distension.

CASE XI.

J. A., married woman, aged 71. Advanced cancer of the sigmoid colon, chronic obstruction becoming acute. Patient very feeble. Refused operation till third day of vomiting, and then accepted. Transverse colostomy. Patient unrelieved, and died of ileus on the second day.

CASE XII.

M. L., married woman, aged 62, under care of Dr. Donkin of Bexley. Exactly similar case to the above, the obstruction being acute. Transverse colostomy: bowel opened at once, a large amount of faeces and flatus escaped. Union, however, was defective, probably owing to debilitated condition of patient, and leakage occurred into the perineum, causing patient's death from general peritonitis on the tenth day.

CASE XIII.

E. W., married woman, aged 47, under care of Dr. R. T. Smith. Carcinoma of uterus. The whole pelvis appeared to be filled with a mass of growth, the rectum being almost completely obstructed. Transverse colostomy. Bowel opened third and divided tenth day. Belt fitted twenty-fourth day. Patient died more than two years later. From the time this patient received her belt, she had no difficulty in controlling her motions with the usual restriction as to diet, she remained comfortable up to the end, the bowels being opened night and morning; there was neither extravasation nor prolapse.

CASE XIV.

J. D., man aged 41. Carcinoma of rectum in second part, with secondary deposits in liver and glands. The patient was so ill and wasted that the question of operation was deferred, but as obstruction threatened, and he began to vomit, an iliac colostomy was done. The sigmoid mesocolon was found much contracted, and the bowel was rather tense when the rod was passed beneath it. It was opened as in the last case, but the result was negative, little or nothing but flatus passing; the vomiting, however, ceased. As it was clear that there was some obstruction higher up, it was thought unwise to open the transverse colon, and therefore a caecostomy was done. This relieved the patient, who, however, died of asthenia on the fifteenth day.

CASE XV.*

B. C., married woman, aged 42. Carcinoma of sigmoid. Laparotomy. No secondary deposits found; growth quite free. Growth with meso-sigmoid eventrated and fixed in position of iliac colostomy. Proximal loop opened on fifth day, the whole mass being resected on fourteenth day, leaving the parts in the condition of iliac colostomy. The patient is still alive and well five years after operation, but has always had great difficulty in controlling her bowels. She can never depend on her belt although many varieties have been tried, and lately she has suffered from prolapse; her skin is consequently often tender and excoriated, and she has to allow herself to become constipated in order to be able to do her housework. She is at present considering the question of transverse colostomy in order to obtain relief. A year later I removed this patient's appendix, obtaining a primary union in spite of the colostomy.

* Since this paper was written this patient has undergone two further operations, first for a non-malignant tumour of the right ovary, during which operation I did away with the lower colostomy opening by implanting the rectum into the transverse colon; and, secondly, for closure of the upper colostomy opening. This patient is still in hospital, but is doing well and is passing everything per rectum. She shows no sign of any return of her growth.

CASE XVI.

S. C., married woman, aged 20. Extensive carcinoma of the whole abdomen, probably commencing in the pelvis. Early acute obstruction. Transverse colostomy. Colon found so bound down and the mesocolon so infiltrated that it could not be brought over the rod; it was therefore stitched to the skin margin and a Paul's tube inserted. Patient was relieved of vomiting and pain, but the absence of a spur permitted a good deal of faecal matter passing beyond to stoma. Patient died of exhaustion a fortnight later.

CASE XVII.

J. V., man aged 60. Carcinoma of third part of rectum and anus. No obstruction, but great pain and bleeding on defaecation; some small glands in both inguinal regions. Transverse colostomy by Maydl's method and removal of all inguinal glands. Bowel opened fourth and divided on tenth day. Excision of rectum and anus four days after colostomy by direct route. Patient is alive and well three years after operation. He has never had the least trouble with the colostomy, and has excellent control, knowing at once when the bowels require relief. Tells me he frequently discards his belt in the hot weather, as he never suffers from extravasation or prolapse. There is at present no sign of recurrence.

CASE XVIII.

M. H., 69, married woman. Under care of Dr. Sidney Beauchamp. Patient had an umbilical hernia, with symptoms of intestinal obstruction, which were thought to be the result of it. At operation no strangulation was found but a narrow ring cancer of the splenic flexure. Transverse colostomy by Maydl's method. Bowel opened on table and divided on tenth day. Patient relieved; good recovery. Patient lived eighteen months. Up to last two months of her life she had no difficulty whatever with her bowels, the belt being comfortable and controlling the motions perfectly. During the last two months the growth invaded the abdominal wall and broke down, an abscess discharging beside the stoma. This ceased to discharge for some time, but again broke down, and ultimately the patient died of asthenia. Had this patient not been so aged and corpulent, the case would have been better served with an ileo-sigmoidostomy.

CASE XIX.

L. C., married woman, 57 years of age. Inoperable carcinoma of rectum in the second part. Admitted with acute obstruction, vomiting, and distension. Patient very ill, and transverse colostomy done simply to relieve distress, bowel being opened on table. Immediate recovery took place and colostomy worked well, but patient died of perforating ulcer of caecum on the eighth day.

CASE XX.

M. S., married woman, aged 57. Inoperable carcinoma of sigmoid. Patient going gradually downhill with bleeding, pain, sleeplessness, and recurrent obstruction. Transverse colostomy by Maydl's method. Bowel opened third and divided tenth day. Bleeding and pain ceased almost entirely. Patient obtained complete control as soon as belt was fitted, and although more or less an invalid owing to her weakness, was able to get about with comfort for months after her operation, and was still alive when seen twelve months from that date. There was never either extravasation or prolapse, and patient expressed herself as perfectly comfortable.

CASE XXI.†

R. C., man aged 57, suffering from carcinoma of second part of rectum, with bleeding, pain, and incontinence of faeces. Growth was removed by abdomino-perineal excision. Transverse colostomy done by Maydl's method as a preliminary operation. Bowel opened in forty-eight hours and divided tenth day. Patient, in spite of *Bacillus coli* infection of superficial layers of abdominal wound, made an excellent recovery. He has never had any difficulty with his wound and has done his work without discomfort, extravasation, or prolapse for nearly two years, and says he is very satisfied with his operation. There is no sign of recurrence.

CASE XXII.

S. S., man aged 65, suffering from malignant growth of transverse colon at junction of middle and left third. Laparotomy done at site of transverse colostomy and growth found slightly adherent to stomach and omentum. The whole mass with its mesocolon everted and fixed outside abdomen. Bowel opened on fifth day and whole mass resected on fourteenth day, leaving him with the condition of a transverse colostomy. It is now two years and eight months since his operation, and he is alive and well; he has done his work regularly since convalescence, and so satisfactory has his colostomy proved that he tells me he has "discarded his belt as he has perfect control without it, and never uses it 'unless he has taken a purge.'" In spite of the absence of the belt there is no prolapse. He wears a pad of cotton-wool over the stoma to protect it.

CASE XXIII.

F. J., man aged 41. Similar case to No. 21; transverse colostomy preliminary to abdomino-perineal excision of rectum. Patient unfortunately suffered severely from *Bacillus coli* infection owing to the tearing away of growth in the pelvis, where it was slightly adherent to the sacrum. He died on the fourth day.

† This patient has died of a recurrence since this paper was written.

CASE XXIV.

E. S., married woman, aged 62. Extensive inoperable carcinoma of second and third parts of rectum, with enlargement of liver and secondary glands. Transverse colostomy by Maydl's method. Bowel opened fifth and divided tenth day. Patient had perfect control and lived three months without discomfort or prolapse. Bowels were moved morning and evening. She died of asthenia.

CASE XXV.

M. M., married woman, aged 60. Similar case in all respects to the above, and equally satisfactory; neither extravasation nor prolapse, and patient is alive and able to get about without discomfort.

CASE XXVI.

J. W., unmarried woman, aged 57, sent to me by Dr. Donkin of Bexley. Carcinoma of second part of rectum, no glands and no enlargement of liver. Transverse colostomy done as preliminary operation to abdomino-perineal excision of rectum, the two operations being done under spinal analgesia, with the exception of forty minutes light chloroform anaesthesia. Sixteen months since operation, patient well and no sign of recurrence. Colostomy works well, and with belt she has complete control, is comfortable, has no trouble with her bowels, and is able to get about as well as ever. She expresses herself as being very pleased with the result of operation.

Thus of these 26 cases 23 have been done by the transverse and 6 by the iliac method. Of the former 3 were done for non-malignant and 17 for malignant conditions. Of the non-malignant 1 died of strangulation at three months, and 1 of phthisis at two years from operation, the third is alive and well to-day.

Of the malignant cases 5 are alive to-day, 1 at three years, 1 at two years, 2 at eighteen months, and 1 at a year from the time of operation; and in all of these this method of colostomy has fully justified the opinion I have formed of it, as it has also done in all cases in which the patients have lived sufficiently long to allow of an honest judgement being formed.

REFERENCES.

¹ *Clinical Society's Transactions*, 1906. ² *BRITISH MEDICAL JOURNAL*, July, 1912. ³ *Allingham, Diseases of the Rectum*, p. 432.

URACHAL FISTULA.

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As is well known, in early fetal life the allantois, the pouch from the lower end of the primitive intestinal cloaca, projects through the umbilicus. At the seventh month the upper portion of the allantois becomes normally closed and forms a fibrous cord, called the urachus, extending from the umbilicus to the urinary bladder, which is derived from its lower portion. Now and then the upper part remains patent, as the so-called urachal fistula, from which a certain amount of urine escapes upon attempts at micturition. In such a case any of the following conditions may be observed:¹

(a) A button-like papillary projection at the umbilicus with an orifice at its summit, through which a probe may be passed.

(b) The urine may escape at several points of a hernial protrusion, covered externally by mucous membrane.

(c) The orifice may be a mere deficiency in the linea alba.

The abnormality may be said to be one of degree, the greatest deformity being fissure of the bladder, in which condition the allantois has failed to close completely inside the abdomen, so as to form the urinary bladder, and the lateral borders of the latter are adherent to the sides of the cleft, while the anterior wall is entirely absent. Again, the cleft may be confined to the upper part of the bladder, which presents itself as a red protrusion just beneath the umbilicus, the parts below being perfect.² Whichever condition exists, there is a greater or less amount of discomfort and danger.

The following case is interesting, because of the size of the projection, the presence of an apparent pouch, and the rapidity of closure with practically no interference of a surgical nature:

Mrs. W., primipara, somewhat neurotic, was confined on May 19th, 1912. Presentation was normal, and, on account of a prolonged second stage and the patient's temperament, delivery was accelerated by forceps under an anaesthetic.