

PRIMARY EXCISIONAL SURGERY IN THE TREATMENT OF ULCERATIVE COLITIS*

by

J. C. Goligher, Ch.M., F.R.C.S.

Professor of Surgery, Leeds University, and Surgeon, Leeds General Infirmary.
Formerly Surgeon, St. Mary's Hospital and St. Mark's Hospital for Diseases of
the Rectum and Colon, London

MY REMARKS ARE intended to supplement those of my fellow-opener, Dr. Fred Rankin,† dealing with the surgical treatment of ulcerative colitis. But I should like to preface them by expressing my profound regret that he has been prevented by illness from being present to deliver his paper, to which we have listened with such interest as it was read by Dr. Frank Glenn. I should like to say, moreover, how highly appropriate I consider it that the chief surgical speaker selected to open our discussion this morning should have been an American for, after all, the modern radical surgical management of colitis originated in America. We in this country are deeply conscious of our great debt of gratitude to American surgeons for their splendid pioneer work in this field, and, also, if I may say so, to that enterprising American patient, Mr. Rutzen, for his introduction of the adhesive type of ileostomy bag, which has so revolutionised ileostomy care.

My observations are based on our recent experiences at St. Mark's Hospital, where, just as in most American centres, the really striking development in the last few years in the treatment of ulcerative colitis has been the shift in emphasis from purely *diversional surgery* to *excisional surgery*—and *primary excisional surgery* at that. This change of policy has been due, *first*, to the realisation that there is an undoubted predisposition to carcinomatous change in the diseased bowel, as Bergen (1928), Rankin (1939), Cattell (1953), and Counsell and Dukes (1952), among others, have so clearly shown and that the affected segments are safer removed than merely defunctioned by ileostomy; and, *secondly*, to the experience that ileostomy alone sometimes fails to halt the progress of the disease, especially in the more severely toxic cases operated on, albeit reluctantly, during an acute exacerbation which has not responded to medical treatment. The suggestion of Gavin Miller, Gardner and Ripstein (1949) to try to avoid these failures by combining colectomy with ileostomy as the primary procedure and thereby eliminating right away the greater part of the septic, often paper-thin colon, seemed worthy of trial: and for the last two and a half years primary excisional surgery of some kind has been the routine with us at St. Mark's for our cases of colitis coming to operation. We have now treated 74 cases along these lines and Table I indicates the types of operation performed and the immediate mortality.

* Opening paper in discussion on Ulcerative Colitis at the Annual Meeting of the Association of Surgeons of Great Britain and Ireland at Leeds on May 14th 1954.

† Dr. Rankin died on 22nd May 1954.

PRIMARY EXCISIONAL SURGERY IN THE TREATMENT OF ULCERATIVE COLITIS
OPERATIVE MORTALITY AND CAUSES OF DEATH AFTER PRIMARY EXCISIONAL SURGERY
FOR ULCERATIVE COLITIS AT ST. MARK'S HOSPITAL

Nature of Operation	No. of Cases Treated	No. of Hospital Deaths and Causes of Death
Ileostomy + Colectomy	51	2 $\left\{ \begin{array}{l} \text{8th Day, P.M. = Peritonitis} \\ \text{21st Day, P.M. = ? Cause} \end{array} \right.$
Ileostomy + Procto-Colectomy ..	14	0
Colectomy + Ileo-Rectal Anastomosis	9	0
All Operations	74	2 = 2.7 per cent.

You will see that the overall mortality has been gratifyingly small—only 2.7 per cent. I should explain, however, that this series includes no cases operated on for massive haemorrhage or frank perforation, but it does comprise many very ill patients including eight on whom operation was undertaken because a fatal outcome seemed absolutely certain on continued conservative treatment. Three of these eight patients were examples of acute fulminating colitis, and the other five were suffering from very severe exacerbations of chronic relapsing colitis. With a disease as unpredictable in its course as ulcerative colitis, from which even moribund patients may occasionally make the most dramatic spontaneous recoveries, it would obviously be unjustifiable to assume that, if operation had been withheld, all, or even the majority of these eight patients would have succumbed. But it is noteworthy that with emergency colectomy or procto-colectomy only two did die. I may mention for comparison that in a previous series of 61 cases of ulcerative colitis treated by ileostomy alone in the first instance there were five similar desperately ill patients on whom operation was performed as a life-saving procedure, but with only one survivor (Counsell and Goligher, 1952). Though primary excision may seem a formidable undertaking in some of these very ill patients, overwhelmed as they are with toxæmia, it would appear to offer a reasonable prospect of success. I would therefore plead that surgeons should no longer be obsessed with the necessity for avoiding operation during exacerbations of the disease, but should be prepared to intervene with a timely colectomy or procto-colectomy if the patient is clearly failing to respond to conservative measures and rapidly approaching a dangerous state.

OPERATIVE TECHNIQUE

And now I should like to direct your attention to a few points in the technique of primary excision. As has been shown in Table I, three different operations were employed by us.

(1) Ileostomy with colectomy

This was used in 51 cases. It was most commonly performed through a long left paramedian incision extending from the pubis almost to the

costal margin (see Fig. 1). Usually this gives excellent access to all parts of the colon, including the difficult splenic flexure, which can be rendered even more readily accessible if the precaution is taken to tilt the patient 25 or 30 degrees to the opposite side so that the small gut gravitates into the right half of the abdomen. Only very rarely has it been found necessary to supplement this incision with a transverse cut across the left rectus muscle. Practically invariably the colectomy was completed by exteriorizing the terminal sigmoid attached to the rectum as a suprapubic colostomy at the lower end of the main wound (see Fig. 2). This method is quick and simple and very safe, but it suffers the disadvantage of

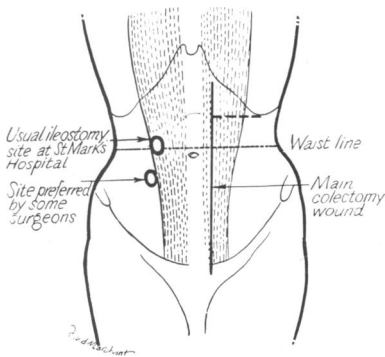


Fig. 1. Diagram showing position of main incision for primary colectomy and favoured sites for the ileostomy.

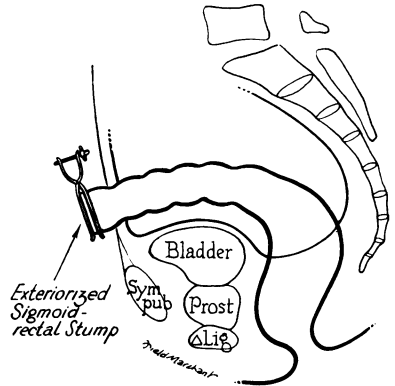


Fig. 2. Diagram showing method of completion of colectomy by exteriorizing the terminal sigmoid colon as a suprapubic colostomy.

necessitating a formal abdomino-perineal operation for removal of the remnant at the second stage. This is an undoubted inconvenience for the patient, but that it is not dangerous is shown by the fact that there have been no fatalities following rectal excision in these cases. We have had virtually no experience of the alternative method of completing the colectomy by dividing the rectum low down in the pelvis and closing the rectal stump by suture below the pelvic peritoneum, in the hope of being able to remove it entirely from below at the second stage (see Fig. 3). This operation has seemed to us more liable to be followed by sepsis and we have not been convinced that it would always be easily possible to excise the rectal remnant from the perineum alone. Consequently we have preferred to leave the rectum undisturbed at the initial operation.

(2) Ileostomy with procto-colectomy

If one is going to mobilise the rectum at all at the time of the colectomy it is tempting to go a little farther and remove it entirely by adding a perineal phase, particularly if, as at St. Mark's Hospital, one has a colleague readily available to co-operate synchronously at the lower end. In 14 cases in this series we were unable to resist this temptation. Of

PRIMARY EXCISIONAL SURGERY IN THE TREATMENT OF ULCERATIVE COLITIS

course this step has meant additional trauma and haemorrhage, but all 14 patients treated by primary procto-colectomy have made smooth recoveries, and they included two gravely ill cases.

(3) Colectomy with ileo-rectal anastomosis

This is admittedly a highly controversial procedure. The ideal case for it is of course one with a completely uninvolved rectum, but, whatever may be the experience in America, we in this country seldom see such

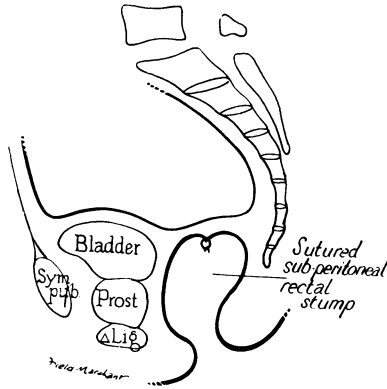


Fig. 3. Diagram showing alternative method of terminating colectomy by dividing rectum itself with closure of the stump by suture and its burial under the pelvic peritoneum.

cases in which the rectum has been spared by the disease. Actually only one of our nine patients treated by this operation had an absolutely normal rectum ; in two others, previous rectal involvement was indicated by mucosal and submucosal scarring, whilst in the remaining six cases, the rectal mucosa showed evidence of active disease, but these patients were selected for this type of operation because the changes in this region were relatively slight and there was no contraction of the rectal wall, no stricture, abscess, or fistula. It was realised that the proctitis might subsequently flare up and lead to septic complications, or be responsible for the eventual development of carcinoma, requiring the subsequent removal of the rectal stump and establishment of an ileostomy. For we remember that this was necessary in several of Mr. Gabriel's patients treated by the somewhat similar Devine type of ileo-sigmoidostomy a few years ago (Gabriel, 1952, 1953). However, in view of the recent more favourable reports on operations of this kind by Corbett (1953) and by Aylett (1953a and b), it was resolved to give colectomy with ileo-rectal anastomosis a trial, it being hoped that by resecting the upper part of the rectum along with the colon and thereby reducing the amount of diseased bowel retained, the risk of complications would be diminished. It was reckoned moreover that even if further trouble did ensue necessitating

subsequent removal of the rectum, the operation might none the less have justified itself if it enabled the patient to carry on with normal continence for three or four years before this was required.

The union between the ileum and rectal stump was effected by a straightforward end-to-end anastomosis, about half the rectum being preserved in most instances (see Fig. 4). Convalescence was uneventful in all cases. The patients are fully continent, but have experienced a phase of quite severe diarrhoea for several weeks before settling down

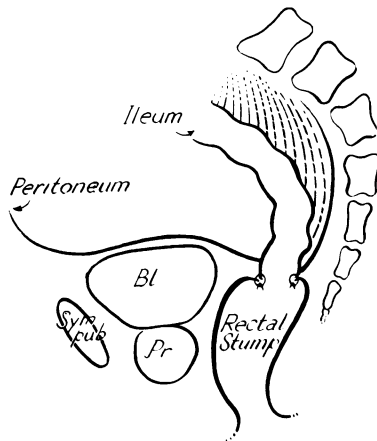


Fig. 4. Diagram showing end to end ileo-rectal anastomosis after colectomy.

to four or five motions a day and one or none during the night. Sigmoidoscopy has shown that the rectal mucosa, if inflamed before the operation, has sometimes improved afterwards, but has usually remained unchanged or eventually returned to its previous condition. What has been particularly gratifying is that these patients have improved in general health just as after ileostomy and colectomy, and even though blood and mucus are still passed in a number of them, it has been possible to maintain their haemoglobin at a satisfactory level.

So far all these patients are satisfied with their results—some of them intensely so—but obviously a very much longer period of follow-up will be necessary to evaluate this operation. The results so far obtained, however, would seem to justify the continued use of ileo-rectal anastomosis as a *primary procedure* in selected milder cases of colitis, and perhaps indeed to warrant its trial as a *second stage procedure* after preliminary ileostomy and colectomy in more severe cases or cases with grosser rectal involvement. But despite the possible broadening of the indications for retention and use of the rectum in this way I doubt if ileo-rectal anastomosis will ever be suitable for more than a small proportion of the patients requiring surgical treatment for ulcerative

PRIMARY EXCISIONAL SURGERY IN THE TREATMENT OF ULCERATIVE COLITIS colitis. For the majority it seems probable that a permanent ileostomy will remain essential. That being so I should like to say something on the very important subject of ileostomy management.

ILEOSTOMY MANAGEMENT

I should like to emphasize right away that *successful ileostomy care commences in the theatre* with proper fashioning of the ileostomy itself and that no amount of attention lavished on the subsequent fitting of



Fig. 5. Diagram to show how stenosis develops at skin level in ileostomies (and colostomies) established by orthodox technique.

ileostomy appliances can atone for serious errors of operative technique at this stage. Some of the more important points requiring consideration are the following :—

(1) The Site of the Ileostomy

Opinions differ as to the site of election. I would say that the only really important thing is that the opening should not be too close to the umbilicus or anterior superior iliac spine, and that it should be made not in the line of a main wound scar, which might make the subsequent

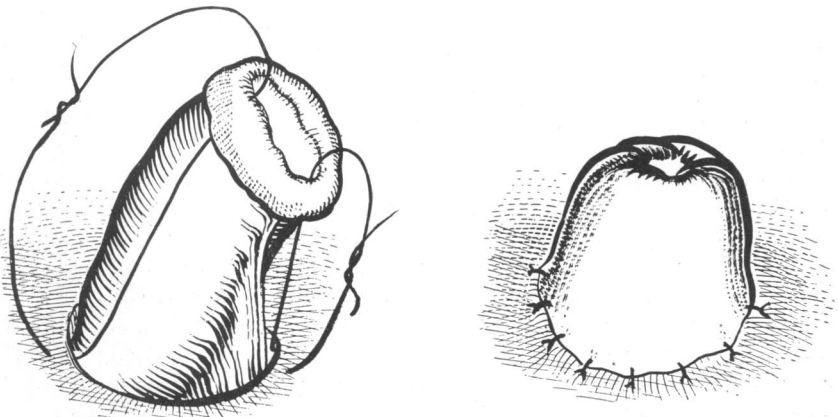


Fig. 6. Diagrammatic representation of ileostomy (or colostomy) with immediate muco-cutaneous suture : (a) silk sutures being inserted ; (b) sutures tied turning bowel back on itself and providing a muco-cutaneous suture line.

secure fitting of an adherent ileostomy bag more difficult, but at a separate stab wound with removal of a disc of skin and division of the anterior and posterior rectus sheaths across the line of their fibres in case they should constrict the bowel. Most of the ileostomies at St. Mark's have been made in the waist line though the majority of American surgeons apparently favour a somewhat lower level (see Fig. 1). I think that if an adherent appliance is employed this latter position is probably preferable. A badly sited ileostomy should be re-sited.

(2) The Amount of Projection of the Ileum

It is essential that the ileum should project well beyond the skin of the anterior abdominal wall, and a common cause of ileostomy leakage despite a well-fitted adherent appliance is inadequate ileostomy protrusion. The correct management for this state of affairs is a remodelling of the ileostomy. I would say that the optimum amount of projection is about one to one and a half inches. A larger ileostomy bud than that is difficult to fit satisfactorily with a bag.

(3) The Actual Ileostomy Technique

We have very little experience of the methods of coating the outer side of the projecting ileum with a skin graft, either a free graft as recommended by Dragstrad, Dack and Kirsner (1941) or a pedicle graft as employed by Monroe and Olwin (1949) for we have generally preferred to have the external surface of the bud covered with ileal mucosa. If this state of affairs is secured by spontaneous slow eversion and downgrowth of the mucosa as the granulation tissue surrounding the end of the ileum is converted into fibrous tissue and contracts there is liable to develop a ring of stenosis at the skin level (see Fig. 5*a* and *b*) which may be very troublesome. To avoid this complication of colostomies or ileostomies we have followed the lead of Patey (1951), Butler (1952) and Brooke (1952) and attempted to secure primary epithelial apposition by muco-cutaneous suture (see Fig. 6*a* and *b*). Our experience so far is that this technique is generally successful in eliminating stricture formation though we wonder if it may not predispose slightly to the formation of prolapse. When immediate muco-cutaneous suture is performed the ileostomy bag, preferably of adhesive type, is applied immediately in the theatre.

(4) Minimising the Danger of Intestinal Obstruction after Ileostomy

The commonest form of obstruction after ileostomy is that which occurs in the immediate post-operative period, due possibly to oedema of the ileostomy opening—the so-called *ileostomy dysfunction or crisis* of Warren and McKittrick (1951). In our experience this is a much less frequent complication now after primary colectomy or proctocolectomy with immediate muco-cutaneous suture of the ileostomy than it used to be after ileostomy alone. Only some 10 per cent. of our primary colectomy cases have been so complicated compared with nearly 50 per cent. of the patients treated solely by ileostomy in the first instance (Counsell and

PRIMARY EXCISIONAL SURGERY IN THE TREATMENT OF ULCERATIVE COLITIS

Goligher, 1952). Dysfunction generally responds to conservative measures—the frequent passage of a rubber catheter into the lower ileum through the ileostomy and the administration of appropriate intravenous fluids.

Apart from this type of obstruction, however, a true mechanical obstruction may arise as an early or late sequel in patients with an ileostomy, as it does in cases with a colostomy. Thus Cattell (1953) reports a late mortality of 3 per cent. from this cause in the ileostomy cases at the Lahey Clinic. The actual obstructive mechanism varies from case to case, but a very important one, and one that has already been responsible for late obstruction in two of our 145 surgically treated cases of ulcerative colitis, is strangulation of a loop of small intestine through the lateral space or gutter on the outer side of the ileostomy (see Fig. 7). This particular form of obstruction is specially noteworthy because it can be completely obviated by closure of this space at the time of the ileostomy and colectomy, by the technique which we now use and which is shown in Fig. 8.

(5) The Avoidance of Ileostomy Prolapse

Another bugbear of ileostomy is prolapse. One would like to be able to prevent this also by attention to operative technique at the time of the operation, but I know of no certain means of so doing. Direct suture of the ileum itself to the parietes we have always strenuously avoided because of the risk of necrosis and subcutaneous fistula formation. Instead, for fixation we have relied on the stitch passed between the ileal mesentery and the anterior peritoneum closing the lateral space ; I personally have usually placed an additional row of sutures between the mesentery of the last three or four inches of ileum close to and parallel to the bowel, and

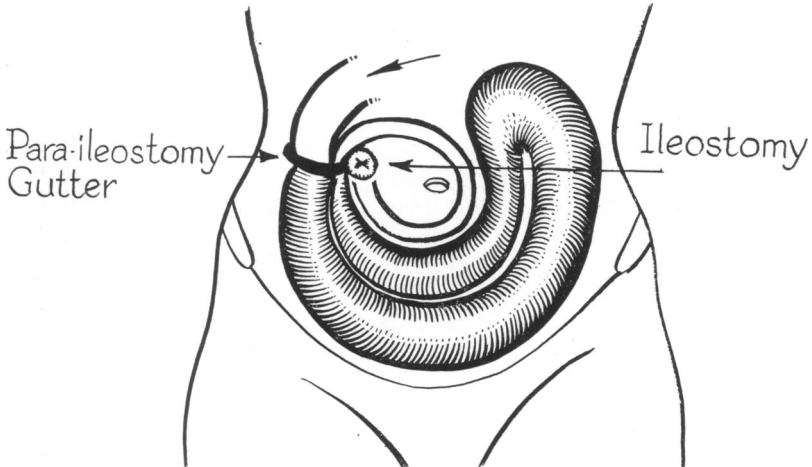


Fig. 7. Diagram showing strangulation of a loop of small bowel in para-ileostomy gutter.

the anterior parietal peritoneum, as is shown in Fig. 9, but it is too early to say whether this does any good or not.

(6) Ileostomy After-Care

The best sort of appliance is undoubtedly an adherent bag of Rutzen type, of which several modifications are now manufactured in England (see Counsell and Goligher, 1952; Counsell and Lockhart-Mummery, 1954). These represent a great advance in ileostomy management, but in my view are still not quite perfect, for they tend to smell somewhat after they have been in use for some time; and there is undoubtedly scope for improvement, as regards both the choice of material used in their construction and the actual design, to eliminate this smell factor.

The patient must, of course, be made thoroughly familiar with the use of his appliance and the care of the ileostomy opening. To supplement the instruction which is given before discharge from the Wards we have recently brought out at St. Mark's Hospital a special "Booklet of Advice for Ileostomy Patients," based on the findings of a survey of a large number of our ileostomy cases (see Counsell and Lockhart-Mummery, 1954). This little book has been found most helpful by our patients for it describes in clear and simple language readily understandable by lay

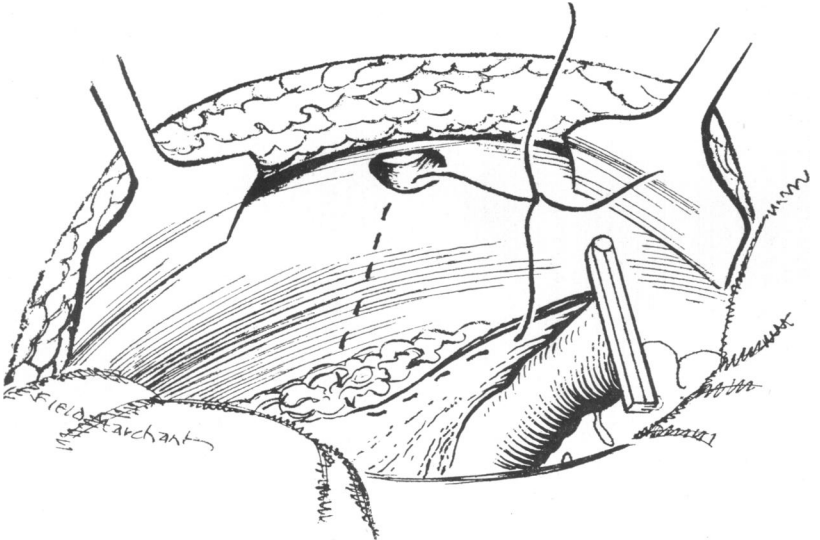


Fig. 8. ILEOSTOMY TECHNIQUE.

Closure of para-ileostomy gutter. View obtained by the surgeon of the right half of inside of abdomen as he stands on left side of patient, the assistant strongly retracting the right edge of the left paramedian wound. The stab-wound through which the ileum will be drawn to form the ileostomy is shown, and also the loosely placed purse string suture which has been inserted along the anterior parietal peritoneum, the fat of the posterior abdominal wall where the caecum was, and the cut edge of the ileal mesentery. When tied this stitch effectively closes the lateral space. *Only then is the ileum brought through the abdominal wall.*

PRIMARY EXCISIONAL SURGERY BY THE TREATMENT OF ULCERATIVE COLITIS

people the various details of ileostomy care, on the successful management of which the well-being of these patients so much depends.

In conclusion I should like to express my sincere thanks to my colleagues at St. Mark's Hospital for so generously affording me the opportunity to make this report on our collective efforts at that hospital.

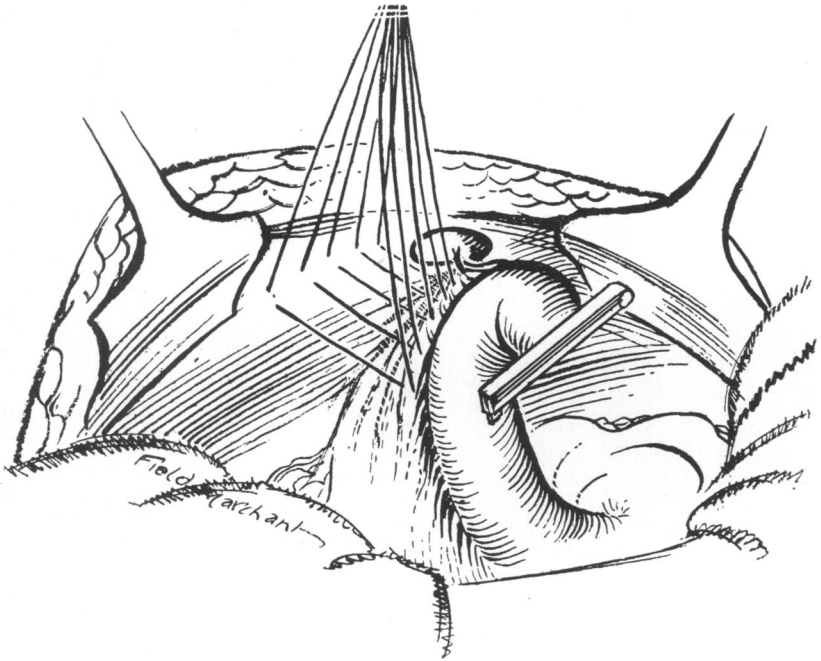


Fig. 9. ILEOSTOMY TECHNIQUE.

Suture of ileal mesentery to Anterior Parietal Peritoneum. In an endeavour to prevent prolapse at the ileostomy, sutures are placed between the anterior parietal peritoneum and the mesentery of the lowermost three or four inches of ileum close to and parallel with the bowel. Suture of the ileal wall itself to the parietes is avoided for fear of producing subcutaneous fistulae.

REFERENCES

- AYLETT, S. O. (1953a) *Proc. Roy. Soc. Med.* **46**, 1032.
— (1953b) *Brit. med. J.* **2**, 1348.
BARGEN, J. A. (1928) *Arch. Surg.* **30**, 854.
BROOKE, B. N. (1952) *Lancet* **2**, 102.
BUTLER, E. C. (1952) *Proc. Roy. Soc. Med.* **45**, 41-50.
CATELL, R. B. (1953) *Proc. Roy. Soc. Med.* **46**, 1021.
CORBETT, R. S. (1953) *Proc. Roy. Soc. Med.* **46**, 1028.
COUNSELL, P. B., and DUKES, C. E. (1952) *Brit. J. Surg.* **39**, 485.
— and GOLIGHER, J. C. (1952) *Lancet* **2**, 1045.
— and LOCKHART-MUMMERY, H. E. (1954) *Lancet* **1**, 113.
DRAGSTRADT, L. R., DACK, G. M., and KIRSNER, J. B. (1941) *Ann. Surg.* **114**, 653.
GABRIEL, W. B. (1952) *Brit. med. J.* **1**, 881-885.
— (1953) *Proc. Roy. Soc. Med.* **46**, 1035.
MILLER, C. G., GARDNER, C. M., and RIPSTEIN, C. B. (1949) *Canad. med. Ass. J.* **60**, 584.
MONROE, C. W., and OLWIN, J. H. (1949) *Arch. Surg.* **59**, 565.
PATEY, D. H. (1951) *Proc. Roy. Soc. Med.* **44**, 423.
RANKIN, F. W. (1939) *Surg. Gynec. Obstet.* **68**, 306.
WARREN, R., and MCKITTRICK, L. S. (1951) *Surg. Gynec. Obstet.* **93**, 555.