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Transanal Technique in Low Rectal Anastomosis

Operations are performed through the various natural ports of entry into the body in several surgical specialties. It is not generally realized that reasonable access to the rectum can also be obtained through the anal canal. Perhaps one reason for this is that the anal canal is closed by the sphincter mechanism and it is thought that the dilatation necessary to expose the rectal lumen may cause damage to the sphincters. This is not true in practice, and consideration of the fact that the most important sphincter, that is the puborectalis, is stretched to the diameter of a child's head during childbirth should be testimony enough of the plastic resilience of the anal sphincters. A practical difficulty is that of maintaining the anal canal open for a sufficient time to do a surgical procedure through it. It is necessary to use retractors which take advantage of the anatomy and power of the sphincters; the blades must have a large groove to accommodate the sphincters so that once opened up the retractor can neither slide further in nor fall out. In addition, the blades must be made in such a manner that the rectal wall is held apart so that the operation is performed in an open cavity.

The concept of performing a low anastomosis of the colon to the rectum transanally is not a new one, but in the past the lower rectal stump has usually been everted and the anastomosis performed externally to the perineum. It would then either be returned to the pelvis, as in the Maunsell-Weir method or left outside to be returned later as in the Cutait-Turnbull technique. The disadvantage of the eversion type anastomosis is that the rectal stump has to be mobilized so extensively that in the process some damage to its nerve supply may occur. It is interesting that most reported series of operations performed by the Cutait-Turnbull method mention fairly prolonged periods of incontinence in a proportion of cases.

It is not necessary to describe the abdominal aspect of a very low anterior resection except to emphasize the need to dissect the rectum free from surrounding structures down to the top of the anal canal itself. This involves stripping the pararectal fat off the levator ani muscles behind and laterally. The plane between the rectum and prostrate or vagina must be fully opened up in similar fashion. An anastomosis performed through the abdominal approach at a level of 1 or 2 cm above the upper end of the anal canal

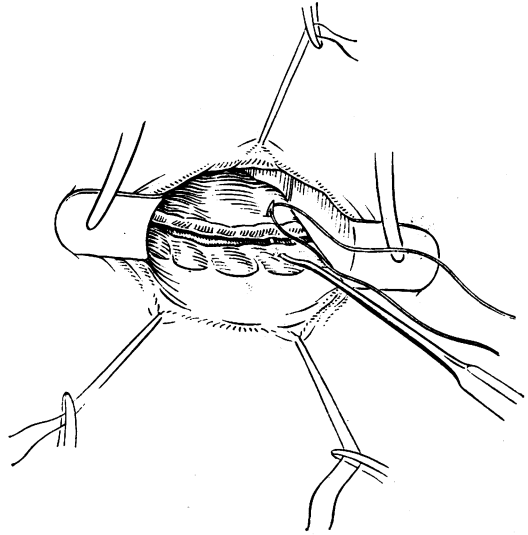


Fig 1 The anastomosis is performed through retractors placed in the anal canal. One layer of interrupted sutures is placed as shown

is difficult and tedious because the lower stump is partially concealed from view by the prostate or vaginal wall. This is due to the sharp angulation of the lower rectum at the lowermost point of the pelvic cavity where it turns forward, its path being determined by the coccyx and the levator muscles attached to it.

It is considerably simpler to perform the anastomosis working through the aperture of the anal canal itself. The patient is placed in the standard position for combined excision of the rectum. The abdominal dissection and excision follows the standard methods. Once the bowel has been resected and bleeding carefully stopped on the side walls of the pelvis, the perineal aspect of the operation is then begun. A self-retaining retractor is inserted into the anal canal and gently opened. The blades of the retractor are of a modified pattern so that they will reach into the lower end of the colon brought down for anastomosis. Once they are inserted, the operator then has a view of the pelvic cavity; he can pass up a light tissue forceps (such as Babcock's) and grasp the end of the colon from the abdominal operator. The two ends are easily approximated.

The anastomosis is performed using a modification of one of Turner-Warwick's urethroplasty needles (Fig 1); the modified version has a rounded tip rather than the cutting needle end of the standard model. Because the needle is in the same axis as the handle of the instrument there is no problem with angulation such as there is with an ordinary needle and needle holder. The needle is inserted through a fairly wide bite of the lower edge of the lower stump and then through a

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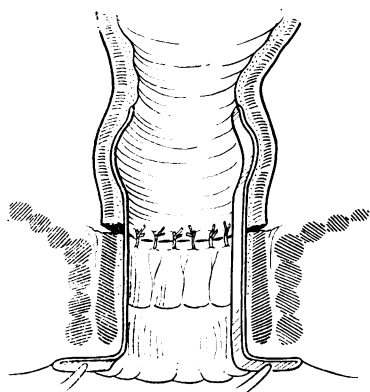


Fig 2 *The retractors are still in position but the suture line has been completed*

similar bite of the colon. A fine wire suture (40 SWG) is threaded through the eye of the needle, which is then withdrawn. After tying this suture a similar stitch is placed anteriorly. The bowel ends are now firmly anchored and the retractor can be passed into the open end of the colon itself. On opening up the blades the ends of both bowel segments are dilated, thus making the edges readily visible. Indeed, so widely dilated are the ends of the gut that a large number of sutures can be put in and it is usual to place between 20 and 24 to complete the anastomosis instead of the 10 to 14 which are used when doing the procedure through the abdomen. As one segment of sutures is completed the instrument is withdrawn and replaced at a different angle to show the adjacent edge. In this way the entire circumference of the anastomosis is completed (Fig 2). A single layer of sutures suffices as there are more of them and they are more carefully placed than when the operation is done through the abdomen. The functional results following this technique are excellent even when the anastomosis is performed at the level of the upper anal canal.

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Results of 'Pull-through' Operations for Carcinoma of the Rectum

The series consists of 61 operations performed at St Mark's Hospital in the period 1937-70, of which 8 were for palliation of symptoms due to the primary growth when there was evidence of

distant spread, usually to the liver; 53 were done with a possibility of cure.

The inferior mesenteric artery was ligated in all cases, either flush with the aorta or just below the origin of the first sigmoid branch. An immediate anastomosis was performed externally in 38 cases after dilation and eversion of the residual anorectal stump (Maunsell-Weir type); in 15 cases the proximal end of sigmoid colon was drawn through the dilated anus, with external fixation and subsequent trimming of the excess protuberant bowel at a second stage 7-14 days later (Babcock-Bacon type).

The overall results of these two types of pull-through procedures were bad. There was an operative mortality of 13%. Only 28% of cases proceeded to convalescence without serious problems directly attributable to the technique. Neither a preliminary colostomy nor a covering colostomy fashioned at the time of the pull-through operation made any difference to the development of complications locally within the pelvis at the site of the anastomosis. The major complications were: pelvic abscess, 41%; pelvic abscess with anastomotic breakdown, 31%; stricture, 26%; local recurrence of carcinoma, 24%; faecal incontinence, 10%; fistula (all types, 10%.

The five-year survival of those leaving hospital was as follows: Dukes' Grade A (16 cases), 81%; Grade B (9 cases), 66%; Grade C (19 cases), 47%; all grades, 63%.

Three cases were lost to follow up during the war. Of the Grade A cases, 3 who died within the five-year period had evidence of recurrent carcinoma within the pelvis before death. These cases would normally be cured by an excision of the rectum, and can be considered as deaths directly attributable to inadequate surgical technique.

The high immediate morbidity and disappointing survival figures have prevented the pull-through operation being adopted at St Mark's Hospital for the treatment of carcinoma of the rectum. At the present time the operation is performed occasionally - usually in cases where an anterior resection is impossible and the patient has refused a permanent colostomy.

The following paper was also read:

Abdomino-transsacral Resection and Anastomosis for Midrectal Cancer
Dr S Arthur Localio
(New York University Medical Center, NY 10016, USA)