Treatment of myxoedema in the last stages is ineffective; therefore it is essential to diagnose and treat it early.

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PELVIC EVISCERATION WITH PRIMARY BOWEL AND URETERIC ANASTOMOSES

BY

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The operation of pelvic evisceration, which was conceived and had its early years in the United States of America, has aroused general interest and has now been sporadically practised here. A modification of this operation, on a patient with a carcinoma of the rectosigmoid region invading the bladder, is presented. In one stage the affected portion of the bowel, with the bladder, prostate, and vesicles, was excised, the pelvic colon was anastomosed to the stump of the rectum, and the ureters were transplanted into the colon. This case represents a fusion of the present tendency towards widespread excision of pelvic organs for advanced carcinoma and that of preservation of the anal sphincter where indications are favourable. The satisfactory functional result has prompted an early report, but final assessment must await the years.

Case Report

A married man aged 55 eighteen months before admission to hospital had had an attack of "colitis" which lasted 10 days. Subsequently he had had two normal stools a day until the week preceding his visit, when his stools had increased to four a day. For three weeks he had had dysuria and frequency, and admitted to having passed wind and some solids in his urine.

Examination showed a large sausage-shaped tumour in the line of the descending colon and then curving above the inguinal ligament. An enema reduced this swelling to a small mass in the pelvis, easily palpable bimanually. A barium enema confirmed a blockage in the sigmoid colon. On sigmoidoscopy no rectal abnormality could be found, and no tumour could be reached with the sigmoidoscope at the maximum attainable distance of 8 in. (20 cm.). Microscopical examination of the urine showed a large number of pus cells with 520 mg. of protein per 100 ml., and cultures gave a profuse growth of *Bact. coli*. The blood urea was within normal limits. By intravenous pyelography the kidneys seemed normal, but the bladder shadow was distorted superiorly by an irregular filling defect. Cystoscopy confirmed a fistula in the postero-superior part of the bladder with marked granulation or tumour formation about the opening.

A carcinoma of the sigmoid colon with vesico-colic fistula was diagnosed, and the possibility of having to excise all the pelvic viscera was considered. The bowel was prepared for operation with phthalylsulphathiazole, 2 g. six-hourly for six days.

Operation

On March 13, 1952, a large mass was found in the pelvic colon extensively adherent to the bladder at two distinct points—one in the lower pelvic colon and the other in the sigmoid. The proximal point of adherence was the site of the fistula. The appearances were those of a carcinoma, but the diagnosis was not certain because of some thickening of the mesentery and the extensive length of bowel involved. It was decided to separate the bowel and bladder, partly to help in establishing the diagnosis and partly for access, as the pelvis was largely occupied by the loop of adherent bowel. This meant possible opening into tumour tissue. On cutting across the fistula the bladder was found to be invaded by what appeared to be a carcinoma, but this was still uncertain. It was necessary to leave a hole an inch (2.5 cm.) wide in the bladder. The bowel and bladder were next separated at the lower point of adhesion, leaving a further area at the back of the bladder, possibly the site of malignant infiltration. Most of the pelvic and sigmoid colon and the upper third of the rectum were excised with the usual block of glands. The colon was then slit up and the lesion was clearly seen to be a carcinoma.

The bladder had then to be dealt with. Experience of local excision of malignant vesico-colic fistulae had made me pessimistic of achieving a satisfactory clearance of growth, and in this instance there was so much inflammatory induration of the bladder that it seemed unsafe to try to close the defect in it. I decided on total cystectomy and proceeded to remove the bladder, prostate, vesicles, and gland fields. In addition, a further portion of rectum was removed, together with the whole of the pedicle of the superior haemorrhoidal vessels, thus giving a satisfactory clearance below the lower point of adherence of bowel to bladder. There remained a rectal stump above the levator ani about 1½ in. (3.8 cm.) in length. After mobilization of the remnant of pelvic colon and descending colon it was possible to make a loose approximation to the rectal stump, and, as there had been wide excision beyond the margin of growth and there was free bleeding at the bowel ends, I proceeded to make a junction.

Prior to anastomosis it was necessary to clear the colon above by milking of faeces still remaining in it. After the bowel ends were joined the ureters were transplanted into the pelvic colon by a submucosal tunnel technique. At the completion of the anastomosis the floor of the pelvis was dry, but gauze was packed on the levator ani. A drainage tube was placed to the bottom of the pelvis, the abdominal wound closed, the rectal sphincter dilated, and a tube stitched into the anus for about 1 in. (2.5 cm.) for possible urinary drainage. The patient was given 2 pints (1,140 ml.) of blood and a pint (570 ml.) of saline during the course of the operation, and was in good condition at the end. The anaesthetic was low spinal, thiopentone, nitrous oxide and oxygen, and enough gallamine triethiodide for the introduction of an endotracheal tube.

Histological Examination (Dr. R. A. Sladden).—"The tumour in the colon is a moderately well differentiated adenocarcinoma, Broder's grade II, invading the muscular coats and at one point penetrating to the serosa. There is no lymph-node involvement found. The bladder wall is thickened to 2 cm. posteriorly by an intense chronic inflammatory reaction. There is no microscopical evidence of spread of growth into the bladder wall in the sections examined. The paravesical lymph nodes show no evidence of metastases."

Further Progress

On March 15 a general anaesthetic was given for removal of the pack. As the patient had not yet passed any urine and was showing moderate distension, the rectal tube was removed. The opportunity was taken of inspecting the ureteric and bowel anastomoses, which were satisfactory, but the intestine, including the colon, was somewhat distended; as it seemed likely that this distension would be

relieved by caecostomy, I inserted a catheter by the inkwell technique. To my surprise nearly 2 pints (1,140 ml.) of urine immediately poured from the caecostomy. I had imagined the patient to be anuric, while all the time the urine had been passing into the bowel, but not past the anastomosis, owing to some local swelling or other mechanical or postural factor which had directed it into the proximal colon.

The blood urea on the fourth day after operation was 124 mg. per 100 ml., but on the seventh day it had fallen to 88 mg. At this stage everything appeared satisfactory, so I went on a belated leave, and had no sooner reached a remote mountainous region of Europe than the patient developed an acute intestinal obstruction. My colleague A. S. Till attended to the patient, operated, and relieved the obstruction, which was due to kinking of small bowel from an adhesion to the pelvic floor. This timely intervention was life-saving. There was one more hurdle in the form of a deep left femoral thrombophlebitis, which responded to treatment with ethyl biscoumacetate ("tromexan"). During the period of complications, when anal control had not become established, great relief from continual wetting, sore buttocks, and a messy bed was achieved by keeping in the anus a catheter which was connected to continuous suction.

Functional Result.—Two and a half weeks after the operation for obstruction the patient had acquired anal control. He now passes one, occasionally two, firm bowel motions a day, and can sleep through the whole night without the need to pass his urine. During the day he can hold the urine for three to four hours, but has been told to pass it every two hours. He has complete control, except occasionally, when it is necessary to pass a large volume of wind.

One year after operation the patient is happy, with no sign of recurrence.

Discussion

It is due to the efforts of Brunschwig (1948) and others that excision of all the organs of the pelvis has become a recognized procedure for carcinomatous disease of the rectum and uterus with marked local spread into adjacent organs. The operation usually demands, in addition, clearance of the pelvic diaphragm and the perineal portions of the bowel and other organs, and the establishment of a pelvic end-colostomy into which the ureters are transplanted, resulting in a "wet" colostomy. This means a constant flow of urine on to the abdominal wall, and the need for a special rubber bag stuck with adhesive plaster to the skin about the colostomy. The procedure has undoubtedly rescued or relieved many patients otherwise doomed to die or suffer, and is still all there is to offer to most of these patients. But, as Appleby (1950) has said, "bilateral ureteric transplant into the bowel in the presence of colostomy produces a chain of miseries all its own, as the vast array of gadgets, plugs, tampons, trick colostomies, and skin-grafted loop protrusions is surely testament." He endeavoured to reduce the urine coming from the colostomy by transplanting the ureters into the caecum, which allowed more water absorption, reducing the flow by 30%; but two-thirds of the urine coming from the colostomy is still a lot.

Others have endeavoured to fashion an artificial bladder from colon or ileum. The possibility of doing this present style of operation had been indicated to me in a personal communication by E. G. Muir, who had spoken of a three-stage procedure, employing a transverse colostomy to defunction the bowel before undertaking the major operation. My preference in non-obstructive colon surgery generally is, so far as possible, for anastomosis without a higher defunctioning colostomy, and in this new operation there seems to be no reason for departing from this principle, though the inclusion of a caecostomy or transverse colostomy of the catheter type at the operation may be advisable for drainage of urine and wind. The procedure described here is

applicable in some of the patients in whom, though the disease is widespread, there is no need for removal of levator ani muscles. In this patient the excisions and anastomoses were all done in one stage, even though at the time of the removal of the pack a tube caecostomy was performed, and a further operation was later necessary for small-gut obstruction. But the principle and practice of removal and anastomosis of bowel and ureters in one stage was established.

This case provides an encouraging answer to the question of the subsequent state of anal control when most of the rectum and sigmoid colon is removed, the remaining ends are joined, and both ureters are transplanted into the pelvic colon. In this instance there resulted complete anal control with total nightly continence and daily continence for four hours or more if desired. So it appears that the functional result for ureteric transplantation is likely to be the same whether or not the colon is resected. Most patients with ureteric transplants into the colon adapt themselves rapidly to the altered function and are fairly comfortable.

There are many patients in whom the extent of spread will rule out resection and anastomosis of bowel, whether or not an adjacent organ is invaded. But there is accumulating evidence for the satisfactory result of excision with anastomosis of rectosigmoid lesions when the growth is high enough above the levator ani muscle. There is no point in reviewing this work here. It is sufficient to say that, if the lesion in the bowel is at a high enough level and the manner of involvement of an adjacent organ does not preclude preservation of a stump of rectal tissue above the levator ani, then it may be possible to do an excision of bowel with anastomosis, followed by ureteric transplantation into the bowel above the anastomosis. Even should one or two distant secondaries have arisen from carcinoma of the rectum involving the bladder, this procedure could give great comfort at not undue strain or risk to a patient with severe cystitis, perhaps diarrhoea, and intolerable pain. Those who have practised the procedure of block excision of the pelvic organs have described how remarkably quickly the pelvis is cleared when both the internal iliac arteries or their anterior branches are tied.

Similarly, in carcinoma of the uterus confined to the pelvis but spreading forwards into the bladder and backwards to the rectum, it would seem justifiable to try this less dehumanizing operation if excision can still be adequately radical.

Cystectomy and transplantation of ureters in one stage, for which I pleaded (Moloney, 1947) with others, has now become the popular method of conducting this procedure, and the older multiple-staged techniques, wearying alike for patient and surgeon and probably no safer in the end, are mostly outmoded. Now that a one-stage procedure for cystectomy and rectosigmoidectomy with anastomosis has been shown to be possible, I make this plea that, where indicated, it be given a fair trial.

Summary

An operation is described for vesico-colic fistula due to a carcinoma of the rectosigmoid colon, in which the affected portion of bowel and the bladder were excised, with immediate anastomosis of bowel to bowel and ureters to pelvic colon, thus avoiding a "wet" colostomy. The functional result is excellent, the patient being dry all night and capable of holding his urine for four hours by day if necessary.

A plea is made for trying this procedure, where indications allow, to avoid the unpleasantness of life with a "wet" colostomy.

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