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Primary restorative colectomy in malignant left-sided large bowel obstruction

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A series of 18 consecutive patients who underwent primary resection and immediate anastomosis as the treatment for malignant left-sided large bowel obstruction are presented. Intraoperative mechanical preparation of the colon was omitted. There was no clinical evidence of anastomotic dehiscence or wound infection. The mean duration of hospital stay was 11 days. It is suggested that colonic continuity can be restored immediately and safely without mechanical bowel preparation, providing attention is directed to constructing an anastomosis that has a good blood supply and is free from tension.

Between 8% and 23% of patients with colorectal cancer present with obstruction *(1–4)*. The majority of obstructing tumours are distal to the splenic flexure *(2,4)*. The surgical treatment of malignant left-sided colonic obstruction continues to be a controversial subject. An increasing number of surgeons have adopted the technique of restorative colectomy in preference to the traditional management of staged resection *(5–9)*. Primary resection confers the advantages of treating the pathology at one operation, the probable avoidance of a stoma, and also appears to have some long-term survival benefit *(3)*, although this has not been confirmed by later studies *(4,6)*. It is noteworthy also that a policy of primary resection significantly reduces the duration of hospital stay *(4)*.

The problems associated with an immediate anastomosis in unprepared, obstructed colon can be obviated by the use of an extended right hemicolectomy in combination with ileocolic or ileorectal anastomosis *(10–12)*. This approach has merit in that the unprepared proximal colon is resected, but the stool frequency may increase to an extent where the patient (particularly the elderly) becomes incontinent *(12)*.

The technique of intraoperative colonic lavage *(13)* has allowed surgeons to perform an immediate anastomosis safely *(14)*. However, the need for on-table colonic preparation has been questioned *(15,16)*. Indeed, the clinical evidence relating poor colonic preparation to anastomotic dehiscence is retrospective and equivocal *(17,18)*.

We have therefore studied the role of primary restorative colectomy without on-table bowel preparation in a group of patients presenting with malignant left-sided large bowel obstruction.

Patients and methods

A series of 18 consecutive patients (mean age 68 years, range 52–82 years) were studied prospectively over a 3-year period between 1987 and 1989. These patients presented with malignant left-sided large bowel obstruction confirmed at laparotomy. We have classed tumours distal to the splenic flexure as left-sided. All patients were admitted under the care of one consultant surgeon (RMH). The diagnostic features included the symptoms of pain, constipation and vomiting and the signs of abdominal distension, together with abnormally dilated bowel on the abdominal X-ray. All patients underwent limited barium enema examination, which confirmed complete mechanical obstruction in every case.

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Table I. Site of tumour resection

Site of resection	*n*
Descending colon	4
Sigmoid colon	8
Anterior resection	
High	2
Low	4

After adequate resuscitation, laparotomy was performed through a midline incision. The operating surgeon was of consultant (5 cases) or registrar (13 cases) grade. The obstructed colon was decompressed through an 18G Foley catheter inserted via an enterotomy in the terminal ileum *(7)*. The small bowel contents were gently stripped retrogradely towards the stomach and aspirated through a large-bore nasogastric tube *(7)*. Peroperative colonic lavage was omitted. The obstructing tumour was resected and the bowel ends cleaned with iodine-soaked swabs. Bowel continuity was then immediately restored with a single layer inverting anastomosis using interrupted 3/0 Vicryl® (polyglactin) that has been described previously *(19)*. A low anterior resection was regarded as an anastomosis below the peritoneal reflection. The integrity of the anastomosis was assessed by manually increasing the intraluminal pressure across the suture line and was considered satisfactory if there was no leakage of flatus or faeces. In no case was revision of the anastomosis necessary. Perioperative antibiotics (cefuroxime 750 mg and metronidazole 500 mg) were administered at the start of the operation and three further doses were given after surgery. The abdomen was closed with 0 PDS® (polydioxanone) using a mass suture technique after thorough saline lavage. No drains or colostomies were used.

Results

The numbers of patients undergoing each type of resection are shown in Table I. There was no clinical evidence of anastomotic breakdown in any of the patients. One patient, who underwent a sigmoid colectomy, died in the postoperative period (on the 10th day) from a pulmonary embolus; however, the anastomosis was found to be intact at post-mortem. The mean duration of hospital stay was 11 days. There were no in-hospital wound infections.

Discussion

Primary resection of an obstructing carcinoma in the left colon has now gained widespread acceptance *(5–9)*, although the practice of restoring colonic continuity at the same procedure is still eschewed by some surgeons *(2,20)*. In the only prospective study of different management policies for malignant large bowel obstruction, the overall mortality figures for primary resection and a staged procedure were similar *(4)*.

Previous studies have indicated that an immediate anastomosis in the absence of intraoperative mechanical bowel preparation is associated with a high anastomotic leak rate *(2,4)*. The adverse effect of faecal loading on colonic healing, though generally acknowledged, has not been proved in a randomised prospective clinical study. Indeed, the milestone papers on this topic have reported on retrospective series and have reached different conclusions as to the contribution of poor colonic preparation in anastomotic dehiscence *(17,18)*. Experimental studies using animal models have shown that good mechanical preparation of the bowel is associated with an improvement in bursting wall pressures of colonic anastomoses *(21,22)* but these results cannot easily be extrapolated to clinical surgery. The results of recent prospective clinical studies suggest that primary resection of an obstructing tumour in the left colon followed by immediate anastomosis is safe when on-table preparation of the large bowel is omitted *(15,16)*.

The reason for the occurrence of anastomotic dehiscence is multifactorial. Both clinical and experimental studies have highlighted different aspects of the problem, including the balance between collagen synthesis and lysis, local sepsis and the blood supply *(23,24)*. However, the prerequisites of a successful anastomosis are well established; a good blood supply, the absence of tension on the suture line *(24)* and the avoidance of an anastomosis in the presence of marked peritoneal soiling *(23)*. These parameters reflect the clinical competence of the surgeon and we suggest that this is the most important single factor in determining the integrity of the anastomosis. Indeed, the importance of good surgical technique has been borne out in a large prospective clinical study in which there was a sixfold difference (5–30%) in the frequency of anastomotic failure in the colon among the different participating surgeons *(25)*.

In our series of 18 consecutive patients there were no clinically apparent anastomotic leaks. We have assumed that an anastomotic dehiscence that manifests itself clinically is significant, but have not assessed the integrity of the suture line objectively with a contrast enema postoperatively. The value of a limited barium enema examination after restorative resection in the left colon and rectum is questionable, as there is a marked difference between the clinical and radiological leak rates *(26,27)*. Furthermore, the demonstration of a subclinical leak probably has little practical significance *(26)*. The grade of the operating surgeon did not affect the outcome; however, the number of patients in this study is too small to reveal any difference in the distribution of postoperative complications.

The long-held reluctance among surgeons to perform a large bowel anastomosis in unprepared bowel needs to be questioned in the light of the conflicting evidence available *(15–18)*. We have found that primary segmental resection of an obstructing tumour in the left colon and rectum followed by immediate anastomosis can be performed safely with the omission of intraoperative bowel

preparation. However, the colon should be adequately decompressed, peritoneal contamination should be minimal and strict attention given to detail to ensure a vascular and tension-free suture line.

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