

Prospective study of primary anastomosis without colonic lavage for patients with an obstructed left colon

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Background: Traditionally, left-sided colon obstruction is managed by a multistaged defunctioning colostomy and resection. However, there is growing acceptance of one-stage primary resection and anastomosis with on-table antegrade irrigation. This paper presents a series of patients managed prospectively by primary anastomosis without intraoperative colonic lavage.

Methods: Emergency resection of acutely obstructed left-sided colonic carcinomas was performed. This was followed by primary anastomosis without on-table lavage after bowel decompression using a new technique.

Results: Fifty-eight consecutive, unselected patients underwent bowel decompression, resection and primary colocolic anastomosis. Only one patient developed a leak at the anastomotic site, requiring pelvic abscess drainage and transverse loop colostomy. One death occurred 12 h following surgery. Autopsy confirmed that this was due to myocardial infarction. Mean hospital stay was 9.8 days.

Conclusion: Emergency surgery on the obstructed left colon can be carried out safely after decompression alone, without intraoperative colonic lavage.

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Introduction

Although left-sided colonic obstruction is often managed by the traditional method of staged defunctioning colostomy and resection, there has been a trend towards one-stage primary resection and anastomosis^{1–5}. This is now widely regarded as a safe alternative to the other multistaged options, even in the elderly^{6,7}. However in all these reported series, on-table antegrade colonic irrigation was performed to decompress and clean the proximal obstructed colon. While decompression may be desirable (to decrease distension, facilitate abdominal closure and improve colonic blood supply), there is some evidence that complete cleaning of the colon of faecal matter is not necessary for ensuring anastomotic integrity^{8,9}. Both Hsu¹⁰ and Nyam *et al.*¹¹ have suggested that decompression without lavage is safe but in neither series was the decompression performed very early in the procedure and neither study was prospective.

In this centre, over the past 9 years antegrade irrigation has been abandoned in favour of a novel technique of proximal decompression alone before anastomosis. The bowel is decompressed long before the mesentery is divided and the tumour resected. The authors' experience with

58 consecutive patients treated in this fashion is now reported.

Patients and methods

From October 1989 to June 1998, 58 consecutive patients with acute intestinal obstruction due to left-sided colonic lesions were operated on by the authors (of registrar and consultant grade) using the procedure described below. No patient was excluded and Hartmann's procedure was not performed.

All patients were given perioperative antibiotics, ampicillin/clavulanic acid 1.2 g or ceftriaxone 2 g with metronidazole 500 mg intravenously, every 8 h, depending on availability. The antibiotic regimen was administered for 24 h only. Wounds were inspected at 5 and 10 days after operation and again at 4 weeks. Wound infection was defined as serous or purulent discharge occurring at any time during observation. Anastomotic dehiscence was diagnosed on clinical grounds alone.

At laparotomy, the obstructing lesion and adjacent colon were mobilized for resection. Before division of the mesentery, its vessels or the gut, a 10-cm segment of distended colon immediately proximal to the obstructing

lesion was emptied of its contents by manually milking it proximally and placing a crushing (e.g. Kocher's) clamp across the colon. A purse-string suture was placed in this 10-cm collapsed segment of bowel (between the crushing clamp and the obstructing lesion) and a 36-Fr chest tube was inserted via a colotomy secured by the purse-string suture.

Gentle suction was applied to the chest tube as the crushing clamp was removed and the chest tube slid proximally into the obstructed distended colon. The colon decompressed rapidly and easily since it was distended mostly with gas and liquid faecal matter. Although some attempt was made to milk air and fluid from the distended proximal colon as the chest tube was advanced, no effort was spent in ensuring near complete colonic emptying, even if bits of solid faecal matter were present. It was very unusual for this multiperforated 36-Fr chest tube to become blocked but if this did occur the tube was flushed with a bladder syringe of saline. After rapid decompression of the colon (mean duration 12 (range 7–18) min), the chest tube was withdrawn and the purse-string suture tied. Division of the mesentery, colon resection and primary anastomosis were then performed, the purse-string being included in the specimen. In the short period between decompression and anastomosis the bowel wall at the resection margin appeared well vascularized, healthy and relatively normal (not thin walled or friable). The entire two-layered anastomosis was completed using an inverting suture technique so that no mucosa pouted after the initial full-thickness layer was completed. The abdomen was closed without lavage or drainage.

Results

Fifty-eight consecutive patients were studied prospectively. Age ranged from 54 to 89 (mean 63) years; there were 36 men and 22 women. The sigmoid colon was the commonest site (55 per cent), followed by the descending colon (28 per cent), distal transverse colon (10 per cent) and splenic flexure (7 per cent). All obstructing lesions were proven histologically to be adenocarcinomas.

Hospital stay ranged from 4 to 21 (mean 9.8) days. Two patients required postoperative ventilation in the intensive care unit. Neither developed anastomotic complications. One 80-year-old patient died 12 h after surgery from a myocardial infarction which was confirmed at autopsy.

The only anastomotic leak occurred in a 61-year-old woman with a sigmoid carcinoma (Dukes C). At laparotomy on day 6, a pelvic abscess adjacent to the anastomosis was drained and a proximal defunctioning transverse loop colostomy was performed. The patient recovered well and was discharged after a total of 15 days in hospital. Superficial

wound infections occurred in seven patients (12 per cent); none of these required further surgery.

Discussion

While the major advantage for primary anastomosis after peroperative colonic lavage for left-sided colonic obstruction is that it is single stage, does not result in colostomy, may have lower associated morbidity and mortality rates and shorter hospitalization than the multistaged procedure, there are several drawbacks. Colonic lavage takes more time (44 min according to Forloni *et al.*¹²) than decompression (12 min). It also uses several litres of solution for irrigation and may be associated with more risk of spillage and contamination than decompression without lavage¹¹. In a third world setting, disposable drainage bags or sterile anaesthetic elephant tubes may not be readily available in an emergency. Moreover, recent evidence shows no clear association between failure to clean the colon thoroughly and anastomotic dehiscence^{8,9,13}.

The present series supports the view that complete clearing of the proximal colon of all faecal residue is probably unnecessary. However, decompression of the colon is recommended as this facilitates closure of the abdomen and may actually improve the blood supply and tone of the decompressed gut wall. The 36-Fr chest tube is multiperforated and has a wide bore so, while freely draining the bowel gas, it is less likely to become blocked by the thick liquid contents of the obstructed colon. Although Nyam *et al.*¹¹ used decompression before anastomosis, the present authors believe that it may be more valuable to decompress the bowel early, before the mesentery is divided and the gut resected. This additional time allows improved vascularity to the collapsed bowel wall and probably permits some improvement in 'tone' and anastomotic security since the cut edges no longer appear thin walled and friable but would hold sutures almost as well as normal colon.

There is as yet no prospective randomized trial comparing decompression alone with decompression plus colonic irrigation. The only retrospective study available shows no advantage to irrigation¹¹. Because lavage is cumbersome, costly, time consuming and possibly increases the risk of spillage, colonic decompression without lavage and primary anastomosis for left-sided colonic obstruction is recommended.

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