Primary anastomosis without colonic lavage for the obstructed left colon

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ABSTRACT

INTRODUCTION Resection, on-table lavage (OTL) and primary anastomosis is the treatment of choice for the obstructed left colon. OTL is time-consuming, requires considerable mobilisation/bowel handling, an enterotomy and potentially exposes the patient to mesenteric vascular injury, faecal contamination and a prolonged ileus. We have assessed outcome following primary resection and anastomosis without prior lavage.

PATIENTS AND METHODS Twenty-four consecutive, obstructed patients underwent splenic flexure mobilisation and high anterior resection (concomitant small bowel resection in 2) with primary side-to-side colorectal anastomosis without either prior lavage or covering stoma. Outcome was audited.

RESULTS Twenty-four patients, 17 female aged 48–92 years (median, 76 years) presented with left-sided obstruction due to carcinoma (Dukes' B [3], C [6], D [1]) or chronic diverticulitis (14). Median operative time was 85 min (range, 40–105 min). Colonic ileus resolved on day 2 (29%) and day 3 (58%). Median hospital stay was 7 days (range, 6–72 days); 92% discharged by day 10. There were no deaths or re-admissions. A return to theatre followed a reactionary haemorrhage in one. This latter patient's anastomosis leaked on day 4 (no faecal contamination) and was converted to an end stoma. Urinary and wound infections were seen in two. Late complications comprised two anastomotic strictures; both responded to balloon dilatation at 5 months.

CONCLUSIONS Resection and primary anastomosis without on-table lavage is an easy, practical, predictable and safe treatment option for left-sided colonic obstruction with minimal complications.

KEYWORDS

Obstructed colon – Primary anastomosis – On-table lavage

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Obstructing left-sided colonic lesions are associated with a high mortality and morbidity.^{1–4} When emergency surgery is undertaken at night or performed by a registrar or non-colorectal specialist, two-staged Hartmann resections are frequently performed. Whilst this approach provides quick, safe surgery with relatively low complication rates, restoration of bowel continuity is only performed in a proportion and is frequently challenging. Emergency segmental resection with on-table lavage (OTL) and primary anastomosis has been championed since 1967.⁵ There are no good randomised trials comparing primary anastomosis versus Hartmann resections and a subsequent reversal with its additional morbidity. Elective, left-sided resection/anastomosis without mechanical bowel preparation has recently been shown not only to be a safe surgical option but also to be associated with reduced morbidity.⁶ OTL can be time-consuming, messy and requires a proximal enterotomy

and considerable bowel handling, all of which potentially increase morbidity. Sigmoid volvulus has been treated successfully by resection and primary anastomosis without colonic lavage.⁷ We have approached our left-sided obstructed patients in a similar manner arguing that, provided mobilisation and blood supply are good, a side-to-side stapled colorectal anastomosis will deal with any size disparity in the bowel and allow a rapid decompression of the system. Our experience is presented.

Patients and Methods

We have undertaken a prospective, observational study of 24 consecutive emergency admissions presenting between November 1996 and November 2004 with left-sided colonic obstruction. Obstruction was confirmed by pre-operative gastrograffin enema. All anaesthetised patients were placed

in the lithotomy-Trendelenburgh position to allow access to the anus. Each underwent preliminary needle suction decompression of small/large bowel gas followed by high anterior resection with full splenic flexure mobilisation. The appropriately mobilised rectum was transected with a linear stapler (*e.g.* TX-30G[®] Ethicon EndoSurgery, Bracknell, UK). The rectal stump was irrigated with Savlon. A crushing bowel clamp was applied distal to the chosen level of colonic transection. The proximal 25 cm of bowel was decompressed and two non-crushing clamps applied from the antimesenteric border. The anvil head of a 29-CDH circular stapler (Ethicon EndoSurgery) was inserted via a colotomy just proximal to the crushing clamp. The distal colon was then transected (TLC 75; Ethicon EndoSurgery) and the stapled end oversewn/invaginated. At the last moment, having already introducing the staple gun into the rectum, the anvil head is pushed through the posterior wall of the proximal decompressed colon and a primary colorectal anastomosis formed. In the majority, the anastomosis was constructed through the front of the rectum (*i.e.* 'side-to-side'). This manoeuvre reduces the effects of size disparity and potential leakage through the corners of a rectal cross staple line. No prior colonic lavage or covering ileostomy was undertaken. The colon was then decompressed via a proctoscope placed through the anus. All the surgery was performed by or supervised by (three cases) the senior author.

Postoperative analgesia was provided by intra-operative rectus sheath blockade and 24-h patient-controlled analgesia. Epidurals were avoided and parenteral crystalloids kept to a minimum. All patients were encouraged to mobilise and were offered a light diet the first postoperative morning.

Patient demographics, length of operation, time to bowel function (passage of liquid stool with flatus) and length of stay were recorded. Complications following surgery were charted with respect to infection, bleeding, cardiovascular, thrombotic and embolic events and anastomotic leakage.

Results

Twenty-four patients (17 females), median age 76 years (range, 48–92 years) were involved in this prospective audit. The operation time was relatively fast (range, 40–105 min; median, 85 min). The three longest cases required small bowel resections for concurrent colo-enteric fistulation (2) and chronic diverticular abscess. The histology was split between carcinoma in 10 (Dukes' B [3], C [6], D [1]) and diverticular stricture in 14. Bowel function (loose stool with flatus) returned on day 2 in 29%, and a further 58% by day 3. The median length of stay was 7 days (range, 6–72 days); 92% were discharged by day 10. There were no re-admissions. Three patients required a blood transfusion (2, 4 and 6 units, respectively); the latter patient had a

reactionary bleed from a T4 tumour bed, requiring a return to theatre. This patient's anastomosis leaked on day 4 (diagnosed by gastrograffin enema) and required a further laparotomy with end colostomy. Having had their bowel opened on day 3, the colon was empty and there was no intraperitoneal faecal contamination only dilute gastrograffin. Urinary tract and wound infections were seen in two. Late complications included two anastomotic strictures, both responded to balloon dilatation at 5 months.

Discussion

Although there is general agreement that the treatment of choice for right-sided colonic obstruction is right hemicolectomy with ileocolic anastomosis, there is no such consensus regarding left-sided lesions. Whilst a two-stage strategy avoids the attendant risks of anastomotic failure, it has an overall mortality of around 10%^{3,8} and a hospital stay of over 2 weeks.⁹ The biggest disadvantage is that only two-thirds of patients will have continuity restored at a later date and this operation may be technically difficult.⁹ Morbidity is reduced when reversals are performed after a period of 6 months.¹⁰ This approach remains the procedure of choice for many surgeons regardless of experience.

Over the last decade, surgical debate has focused on which single-stage operation is best – segmental colectomy with OTL or subtotal colectomy and ileorectal anastomosis. The former has an acceptable operative mortality of around 10%, anastomotic leak of 4% and a hospital stay of approximately 20 days.^{11,12} Randomised trials, however, have shown no significant differences in mortality, morbidity, leakage, wound infection and hospital stay between the two approaches.¹³ Surprisingly, the rate of permanent stomas was significantly higher in the subtotal colectomy patients. Segmental resection was associated with a better functional outcome. In general, it is circumstance that dictates choice of operation.

When performing segmental resection with OTL, it is useful to have both flexures fully mobilised to allow the colon to be presented onto the surface of the abdomen and so aid its emptying. This technique requires considerable mobilisation from the retroperitoneum, bowel handling with its increased risk of mesenteric vascular and bowel wall injury, increased intra- and postoperative fluid loss and increased potential for developing a colonic ileus. Irrigating fluids not at body temperature may compound the latter.

Others have raised the issue of whether it is necessary to irrigate the colon before performing an anastomosis. Naraynsingh *et al.*¹⁴ reported only one leak and one postoperative death in 58 consecutive patients with left-sided malignant colonic obstruction who underwent decompression without irrigation, followed by resection and primary colocolic anastomosis.

Conclusions

We have confirmed that decompression, resection and primary anastomosis without on-table lavage is a straightforward, practical, predictable and a safe treatment option for left-sided colonic obstruction with minimal complications. An alternative approach, which we are now evaluating, consists of relieving the obstruction with an expandable metal stent followed by elective laparoscopic resection when the acute illness has resolved.

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