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REVIEW

Colonic stenting for malignant disease: Review of literature

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Summary

Colonic stents potentially offer effective palliation for patients with bowel obstruction attributable to incurable malignancy, and a “bridge to surgery” for those in whom emergency surgery would necessitate a stoma. Literature search of the Medline, Scopus and Cochrane Library was performed to identify comparative studies reporting outcomes on colonic stenting and surgery for large bowel obstruction; and to identify the use of stents as a “bridge to the elective surgery”. Colorectal stenting can be considered a safe and effective procedure with a low mortality and morbidity for both preoperative and palliative decompression of colonic obstruction.

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Contents

Introduction	S153
Methods	S154
Study selection	S154
Inclusion criteria	S154
Results	S154
Conclusion	S155
Conflict of Interest Statement	S155
References	S155

Introduction

Colorectal cancer (CRC) is one of the most common malignancies in developed countries. According to the World Health Organization worldwide there are >800,000 newly diagnosed cases of CRC each year, with an overall annual mortality of >500,000 [1–3].

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In 10–20% of all cases, partial colonic obstruction will develop, and complete obstruction occurs in an additional 8–29%, and 70% of all malignant large bowel obstruction occurs in the left-sided colon [4].

Unfortunately, at the time of diagnosis, CRC causing obstruction tends to be at an advanced stage. Only 50% of patients are candidates for curative surgery with an associated mortality rate of 15–20% and morbidity rate of 40–50% in consideration of emergency.

Colonic stenting has been suggested as an alternative to surgery for malignant large bowel obstruction. It allows relief of obstruction while avoiding stoma formation in palliative cases, or it facilitates bowel decompression and preparation as a “bridge to surgery” for those with resectable disease.

A recent systematic review found colonic stenting, as an alternative to surgery, to be safe, with low mortality rates, and to have technical and clinical success in 92% and 88% of cases, respectively. Despite this, there is considerable potential for complications such as perforation, stent obstruction and stent migration.

As a bridge to surgery, self-expanding metallic stent can provide time for systematic support and bowel preparation and obviate the need for faecal diversion or on table lavage.

Methods

Study selection

A literature search was performed using Medline, Scopus and Cochrane databases to identify the studies, between 2000 and 2006, that compared colonic stents (as effective palliation) and open surgery for the treatment of malignant large bowel obstruction, and that considered colonic stents as a potentially bridge to surgery for bowel obstruction in whom, emergency surgery would necessitate a stoma.

Inclusion criteria

To enter the analysis, studies had to considered both, colonic stent as a definitive palliative treatment, and as a “bridge to the elective surgery” allowed the intestinal

preparation, general status restoration, and a one-stage operation.

Patient selection criteria included the absence of bowel necrosis and perforation, which is considered the absolute contraindication to stent placement (so that a plain radiography is necessary to exclude this complication before stenting). Patients with proximal obstructions were excluded on the basis of poor site accessibility and low emergency surgery risk. Age, general condition and tumour stage were not used as exclusion criteria (Table 1).

Results

A total of 27 studies were identified as satisfying the inclusion criteria, of these, 5 were excluded because they represented either case series or case reports, 2 studies were excluded because considered above all the cost-effectiveness analysis, and 15 studies were excluded because not considering colorectal stenting as a procedure for both preoperative and palliative decompression of colonic obstruction.

The included studies reported outcomes on a total of 366 patients with acute colorectal obstruction, 219 (59.8%) of whom had undergone palliative stent insertion and 123 (33.6%) undergone stenting as bridge to surgery. Obstruction was attributable to CRC in 341 (93.2%) patients, to cervical or ovarian malignancy in 12 (3.3%) patients and to benign cause in 13 (3.5%) patients. The most represented benign cause of obstruction was diverticular disease, and only one patient had an ischemic stricture. Stents were successfully inserted in 325 patients (88.8%), with success rates of individual units ranging from (85% to 100%).

Different types of metallic stents were used, Esophageal Endoprosthesis (Wallstent; Schneider, Bullach, Switzerland) and CHOO/Hanaro Colorectal Stent accounting for the majority. The most frequent complications occurred in patients with colorectal stent included perforation, observed, in 9 patients (2.5%) during the stenting procedure and in 3 patients after few days; distal migration of the stent was observed in 16 (4.4%) patients, pain and rectal tenesmus in 8 (2.2%). Stent occlusion, and rectovesical fistula was observed only in 3 (0.8%) patients each.

Table 1 Study characteristics.

Author	No.	Stent bridge/ palliation	Technical/clinical success (%)	Complica- tions (%)	Site of obstruction (%) ^a	Stent
Camunez et al. [5]	80	33/35	87.5/96	10	d10, e51.25, f38.75	Esophageal endoprosthesis
Meisner et al. [6]	96	38/51	92/82	4.2	a1, b2, c4, d13, e26, f54	Ultraflex, memotherm, esopha coil, wall stent, choo
Fan et al. [4]	26	19/7	85/95	11.5	c7.7, d26.9, e30.8, f34.6	Nanjing Microinvasive Corporation Wallstent
Soto et al. [7]	62	22/36	93.54/96.55	25.79		Wallstent
Athreya et al. [2]	102	11/90	86/86	14	b1, c2.9, d14.7, f73.5	Memotherms, Walls stents, Ultraflex
Total	366	123/219				

^a(a) ascending colon, (b) colon transverse, (c) splenic flexure, (d) descending colon, (e) sigmoid colon and (f) rectum.

All procedures were performed at the interventional radiology by endoscopy and fluoroscopy. In most cases, no analgesia or only slight sedation was administered during the procedure. There was no routine administration of antibiotics.

The results of the literature review illustrate how the use of colonic stents in obstructed patients is associated with significant reductions in length of hospital stay, mortality rate and medical complications. The technique leads to a marked reduction in the need for stoma formation, both in the palliative setting and among those in whom decompression is performed to "bridge" to surgery, enabling bowel preparation and subsequent elective bowel resection.

Conclusion

Management of colorectal obstruction by using metallic stent is a safe and effective procedure with good technical and clinical success; the use of stent can prevent the need for surgery in patients with disseminated disease; it can prevent both temporary and permanent stomas and may mitigate the need for emergency operations for colonic obstruction.

Conflict of Interest Statement

The Authors do not have any potential or actual personal, political, or financial interest in the material, information, or techniques described in the paper.

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