Systematic review of the efficacy and safety of colorectal stents

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Authors' objectives
To review the efficacy and safety of stents for people with cancer obstructing the colorectal pathways (colorectal-obstructing cancer).

Searching
MEDLINE, EMBASE and the Cochrane Library were searched for studies published between 1990 and 2000, inclusive; the search terms were reported. The authors also handsearched reports from two gastroenterological congresses and reviewed the references of retrieved articles. Other authors were contacted for additional information. There were no language restrictions.

Study selection
Study designs of evaluations included in the review
The authors did not state any study designs as inclusion criteria. All primary research designs, apart from individual case reviews, appear to have been eligible for inclusion. The identified studies were all case series.

Specific interventions included in the review
The interventions eligible for inclusion were not explicitly stated. The included studies were of self-expanding metal stents used for palliation or as a 'bridge to surgery' in colorectal obstruction from cancer. In this context 'bridge to surgery' means a technique used to help make surgery a more feasible option. The exact brands of stent used were listed in the review.

Participants included in the review
The authors did not state any participant inclusion criteria for studies in the review. The included studies were of people with obstructive colorectal cancer. The mean age of the participants in the included studies was 70 years (range: 23 to 98), and 48% were women. Of those for whom information was available, 97% had malignant lesions. In most of the participants, stents were used for left-sided lesions.

Outcomes assessed in the review
Studies were eligible if they included the following outcomes: technical and clinical success, complications and reobstruction. Technical success was defined as successful stent placement and deployment. Clinical success was defined as colonic decompression within 96 hours without endoscopic or surgical re-intervention. Complications included death, perforation, migration, bleeding and pain.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Data were extracted on sample size, participants’ demographic characteristics, lesion type and location, reason for stenting, stent type and outcomes.

Methods of synthesis
How were the studies combined?
The studies were pooled and weighted averages (averages weighted by sample size) were calculated.

How were differences between studies investigated?
The authors broke down the findings according to whether people had undergone procedures with a palliative or with a 'bridge to surgery' aim. They commented on differences in those where balloon predilatation was or was not used, using a chi-squared test.

Results of the review
The authors included 29 case series with 598 participants.

In data pooled from 598 insert attempts, colorectal stents had a technical success rate of 92% (interquartile range, IQR: 88, 100) and a clinical success rate of 88% (IQR: 83, 93). Ninety per cent of 336 palliation cases and 85% of 262 insertions planned as a bridge to surgery were successful.

The rate of death was 1% (3 people); perforation 4%; stent migration in technically successful cases 10%; and stent reobstruction 10%, predominantly in palliative cases. Studies using elective balloon predilatation reported a higher incidence of perforation compared with non-balloon dilation (10% versus 2%, chi-squared P<0.05).

Cost information
The authors reported two studies examining the costs of stenting compared with surgical decompression. Both found cost-savings of between 12 and 50% when using stents.

Authors' conclusions
Colorectal stents provide palliative benefits and can be an effective bridge to surgery in people with obstructive colorectal cancer. There are low rates of mortality and morbidity.

CRD commentary
The review question was not clearly defined and only the inclusion criteria for the outcomes were explicitly stated. Three large electronic databases were searched and there were no language restrictions. However, since only published studies were eligible for inclusion, there may be some publication bias. The authors provided no details of the process they used to assess the relevance and quality of the identified studies. This lack of methodological detail makes it difficult to assess the overall quality of the review process and the individual studies on which it is based. However, all of the included studies were of relatively poor quality (case series).

The authors tabulated the key findings from each included study and concisely described overall trends. They did not describe the characteristics of the participants in the individual studies, but did summarise the age, gender and disease characteristics of the participants overall. The analysis appears appropriate.

The authors’ conclusions were supported by the data presented, although conclusions about balloon predilatation may need to be backed up by further research. As all of the studies in this review were case series, it is difficult to make generalisable comparisons between treatments.

Implications of the review for practice and research
Practice: The authors stated that stents appear safe and effective for decompressing colonic obstruction, to optimise patients proceeding to surgical resection. They recommended avoiding balloon predilatation as this may be associated with increased rates of perforation.

Research: The authors stated that a randomised controlled trial is needed, as well as studies evaluating cost-effectiveness and quality of life.
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