



Review

Acute resection versus bridge to surgery with diverting colostomy for patients with acute malignant left sided colonic obstruction: Systematic review and meta-analysis



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ABSTRACT

Background: Currently, no consensus exists on the best treatment strategy for acute malignant left-sided colonic obstruction. This systematic review and meta-analysis aims to compare the outcomes following the two surgical treatment options; primary resection versus colostomy creation as bridge to surgery.

Methods: This systematic review was performed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to minimize risk of bias. Pubmed, Embase and Cochrane Library were searched for all relevant literature. Methodological quality of included studies was assessed using the MINORS criteria. Pooled odds ratios with 95% confidence intervals (95%CI) were calculated using random effects models.

Results: Eight comparative studies were included, reporting on 2424 patients; 1973 patients were treated with primary resection and 451 patients with colostomy construction followed by elective resection. Meta-analysis showed no significant differences between both treatment groups regarding 30-day mortality and morbidity (OR = 0.77, 95%CI 0.3–1.96 and OR = 0.76, 95%CI 0.51–1.13, respectively). However, patients treated with a colostomy followed by elective resection had significantly more primary anastomoses constructed and were less likely to be left with a permanent colostomy (OR = 0.17, 95%CI 0.11–0.26 and OR = 0.22, 95%CI 0.11–0.46, respectively).

Conclusion: This systematic review provides an overview of all available literature on primary resection versus colostomy creation as bridge to surgery in patients with acute LSCO. Keeping the limitations of this study in mind, we conclude that a diverting colostomy as bridge to surgery is a safe and valid alternative for primary resection.

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Abbreviations: 95%CI, 95% confidence interval; LSCO, left-sided colonic obstruction; OR, odds ratio; PRISMA, preferred reporting items for systematic reviews and meta-analyses; MINORS, methodological index for non-randomized studies.

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1. Introduction

As much as 8–13% of all patients with colorectal cancer present with an acute left-sided colonic obstruction (LSCO) [1,2]. The majority of these patients are elderly and in a poor general condition due to several days of reduced intake, weight loss and severe bowel distension [3,4]. In addition, patients presenting with an acute bowel obstruction are known to generally have a more advanced tumor stage compared to electively treated patients [5,6]. All these factors contribute to an increased operative risk, resulting in high postoperative mortality and morbidity rates. However, when total obstruction is present, immediate intervention is required to prevent life-threatening complications due to extensive bowel dilation.

At present, three different treatment modalities for patients with LSCO exist; 1) primary resection, 2) stent placement as bridge to surgery or 3) diverting colostomy construction as a bridge to surgery. Both stent placement as well as colostomy construction address the immediate problem of a colonic obstruction and yet create time for optimization of the patients' condition prior to elective resection. Furthermore, accurate tumor staging can be achieved and neo-adjuvant treatment can be considered as a possible interference if indicated [7,8].

Stenting as bridge to surgery has been proposed as an attractive alternative to primary resection. Several meta-analyses have reported on favorable short-term outcomes of stent placement when compared with primary resection [9,10]. However, stent placement for LSCO has recently been debated since several randomized trials were closed prematurely due to the high rate of stent-related complications [11–13]. Furthermore, questions have been raised about the oncological long-term consequences of stent placement [14].

This has led to a search for a valid treatment alternative for patients with an acute LSCO that is associated with fewer procedure-related complications. Successful colonic decompression in patients with acute LSCO is almost guaranteed when a diverting colostomy is used; hereby addressing the immediate problem and additionally providing the aforementioned benefits of a bridge to surgery approach. Furthermore, since the tumor is not manipulated directly such as is the case with stent placement, no influence on long-term oncologic outcomes is expected. Even though literature on stent placement for LSCO is extensive, studies reporting on diverting colostomy as bridge to surgery are limited.

The current study aims to provide an overview of procedure

related mortality and morbidity rates of both primary resection and a diverting colostomy as bridge to surgery in patients with acute LSCO through a systematic review of the literature and subsequent meta-analysis.

2. Methods

This systematic review was performed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to minimize risk of bias [15].

2.1. Search strategy

A systematic literature search was conducted in EMBASE (Ovid), MEDLINE (Pubmed) and the Cochrane Database of Systematic Reviews. There were no restrictions to the search. The final search was conducted on August 24, 2015. The search terms were synonyms for acute left sided colon obstruction, primary resection and diverting colostomy as bridge to surgery. Search terms used in EMBASE were: ('acute obstruction':ab,ti OR ileus:ab,ti OR 'colon obstruction':ab,ti OR 'colonic obstruction':ab,ti OR 'intestinal obstruction':ab,ti OR 'malignant obstruction':ab,ti OR 'rectosigmoidal obstruction':ab,ti OR 'left-sided obstruction':ab,ti OR 'distal obstruction':ab,ti OR 'large bowel obstruction':ab,ti) AND (surgery:ab,ti OR colectomy:ab,ti OR resection:ab,ti OR 'three stage procedure':ab,ti OR 'bridge to surgery':ab,ti OR 'staged resection':ab,ti OR ostomy:ab,ti OR Hartman*:ab,ti OR stoma:ab,ti). MEDLINE and Cochrane Database were searched using similar search terms. Articles deemed potentially relevant were screened full text for inclusion. In addition, potentially important references of all included studies were also assessed.

2.2. Inclusion and exclusion criteria

All literature on primary resection and/or colostomy as bridge to surgery for acute malignant LSCO was considered for inclusion. Studies were included when they met the following criteria: 1) the obstruction was caused by primary colon carcinoma in at least 80% of patients, 2) patients included had a left-sided obstruction; defined as a tumor location distal of the splenic flexure and proximal of the rectum 3) at least 70% of the patients receiving a colostomy was treated with curative intent and underwent elective resection and 4) data on 30-day mortality and/or morbidity was provided. Exclusion criteria were studies in languages other than

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