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Treatment of obstructive colorectal carcinoma

Yusuf Yagmur

ABSTRACT

Aims: Treatment of obstructive colorectal carcinoma is confronting issue for surgeon. The paper aims to generate evidenced based recommendations on management of obstructive colorectal carcinoma. Methods: The PubMed was queried for publications focusing on obstructive colorectal carcinoma published prior to April 2015. Total 26 studies were investigated. Results: While in the right site colon carcinoma obstruction, resection and anastomosis is almost accepted by all surgeons, left colon carcinoma obstruction is a challenging issue. Several options are available. There was one guideline for obstructing left colorectal cancer prepared at consensus conference of the world society of emergency surgery (WSES) and peritoneum and surgery (PnS) society 2010 held in Bologna. In the treatments of obstructive left colon cancer Hartmann's procedure should be preferred to stage processing due to long period of hospitalization and multiple operations with a colostomy. The staged procedure could be preferred in clinical situations like damage control surgery of trauma, neoadjuvant treatment and unresectable disease. Hartmann's procedure is easy with no risk of anastomotic separation and should be preferred by less experienced surgeons in colon surgery. Segmental resection with intra colonic irrigation was accepted more appropriate than subtotal colectomy only in patients with carcinomas of the rectosigmoid junction. Total/subtotal colectomy (without cecal perforation or synchronous right colon cancer patients) should not be preferred to intra colonic irrigation and segmental colectomy. Results showed no significant difference in the anastomotic leak rates and mortality rates between the intra colonic irrigation and manual decompression in the randomized and comparative trials. Self-expanding endoscopic metallic (SEMS) was used for palliation and bridge to surgery. The SEMS could be used before elective surgery as bridge to surgery. The SEMS usage has lower mortality, shorter hospital stay and less need for colostomy. In obstructive colorectal cancer, SEMS could be preferred to emergency surgery for palliation with less mortality and morbidity and shorter hospital stay. Conclusion: One-stage resection and ileocolic anastomosis is treatment of choice in case of right colon tumor obstruction. In the treatment of left colon cancer obstruction, Hartmann's procedure seems to be better than staged resection. In case of cecal perforation or ischemia, subtotal and total colectomy is operation of choice. In selected cases, primary resection and anastomosis with manual decompression or intraoperative colonic irrigation could be preferred but diverting loop ileostomy should be added to operation due to risk of anastomotic dehiscence. Colonic stents seems to be good choice in bridge to surgery.

Keywords: Colorectal cancer obstruction, Left, Right, Systematic review

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INTRODUCTION

Obstructive colorectal carcinoma (OCC) treatment especially left colon carcinoma is a challenging issue. Emergency surgery for colorectal cancer is associated with a high postoperative morbidity and mortality rate. Incidence of emergency surgery for colorectal tumor have been reported a rate of 11–43% despite the growing diagnostic tools and screening programs [1, 2]. While primary anastomosis is performed on the right side colon tumor, on the left side of OCC treatment strategy is not well defined and challenging. OCC is associated with a high operative mortality and a worse prognosis. In selected patients with a low anesthetic risk, immediate resection with primary anastomosis represents the gold standard. For patients with an intermediate risk, a temporary defunctioning colostomy or ileostomy could be proposed; in high-risk patients with advanced obstruction, simultaneous colonic perforation, metastatic or locally advanced disease, Hartmann's operation should be proposed [3]. Colonic stenting is clinically successful in up to 90% in specialized groups for palliation or bridge to surgery. Loop colostomy is still indicated in patients at high surgical risk if stent insertion is not possible [4].

To find best treatment strategy for obstructive colorectal carcinomas, PubMed search was made up to date.

METHODS

The PubMed was searched for publications on obstructive colorectal carcinoma up to April 2015. Randomized controlled trials and journals with high impact factors were preferred. Total 26 studies were investigated. There was one guideline for obstructing left colorectal cancer prepared at consensus conference of the world society of emergency surgery (WSES) and peritoneum and surgery (PnS) society 2010 held in Bologna. In the right side obstructive colon carcinomas, almost all surgeons agree of resection right hemicolectomy with ileocolic anastomosis. However, left side colorectal obstruction treatment was challenging.

RESULTS

All patients with right-colon tumor obstruction are usually treated with one-stage resection and primary anastomosis. This is accepted almost as a guideline for right colon obstruction. The treatment of obstructive left colon cancer could be as follows: Loop colostomy or ileostomy and subsequent resection (2-or 3-stage procedure). Primary resection and end colostomy: Hartmann's procedure (HP). Primary resection and anastomosis (PRA) either with a total/subtotal colectomy or segmental colectomy with intraoperative colon irrigation (ICI) or with manual decompression (MD). Endoscopic stenting of colon by self-expanding metallic stents (SEMS) either for palliation or bridge to surgery [5].

The HP procedure should be preferred to stage processing in left OCC because staged processing requires a long period of hospitalization and multiple operations with a colostomy [5]. The staged procedure could be preferred in clinical situations like damage control surgery of trauma, neoadjuvant treatment and unresectable disease [5].

There are no randomized controlled trials (RCTs) comparing HP to PRA. In the non-randomized study of German Study Group of Meyer et al. [6]. The 213 HP were carried out in emergency situations. HP was useful for perforated and left OCC [6]. HP is easy with no risk of anastomotic separation and should be preferred by less experienced surgeons in colon surgery [5]. However, disappointingly anastomosis revision rate remains 20% of the cases [7, 8]. HP has no benefits to survival comparing to segmental colon resection and primary anastomosis and should be preferred in high surgical risk patients [5].

In SCOTIA study [9], 47 patients were randomized to subtotal colectomy and 44 to on-table irrigation and segmental colectomy (SC). Hospital mortality and complication rates did not differ significantly, but four months after operation increased bowel frequency (three or more bowel movements per day) was significantly more common in the subtotal colectomy group (14 of 35 versus four of 35, $p = 0.01$). The conclusion in this study was that segmental colectomy following intraoperative irrigation is accepted the preferred option except when there is cecal perforation or if synchronous neoplasms are present in the colon, when subtotal colectomy is more appropriate [9]. In another none randomized study, comparing subtotal colectomy with ICI and segmental resection and immediate anastomosis. The mortality rate was similar and surgical complication rate was significantly higher in the ICI group (41.9%) than in the subtotal colectomy group (14.2%, $p < 0.05$). Subtotal colectomy was accepted the treatment of choice for left OCC. Segmental resection with ICI was accepted more appropriate than subtotal colectomy only in patients with carcinomas of the rectosigmoid junction or with previous anal incontinence to avoid the appearance of postoperative diarrhea [10].

Total/subtotal colectomy (without cecal perforation or synchronous right colon cancer patients) should not be preferred to intra colonic irrigation and segmental colectomy due to similar mortality morbidity rates, survival rate and high rates of bowel function deterioration [5].

In a randomized controlled trial of SC with ICI versus SC with manual decompression (MD) for left OCC [11], times for recovery of bowel function, discharge from the hospital and wound infection were similar. Although two cases in the MD group had anastomotic leak requiring reoperation difference was not statistically significant. MD of proximal colon without irrigation was accepted as safe as ICI in one-stage surgical management of left OCC [11]. In a systematic review [12], results showed no significant difference in the anastomotic leak rates and mortality rates between the ICI and MD arms in the randomized and comparative trials [12].

Jiang et al. [13], investigated 143 patients with left-sided colorectal cancer underwent emergency curative resection. Primary resection group had a higher anastomotic leakage rate. Delayed resection seems to be a safer procedure and provided a better oncologic outcome compared with primary resection in obstructive left-sided colorectal cancer under emergency situations.

In the Stewart et al. study [14], sixty-three patients (86%) underwent single-stage restorative procedures. There were four clinical anastomotic leaks (6%). On-table lavage and primary anastomosis constitute the operation of choice for most patients with acute left OCC [14]. In OCC (without cecal perforation and non-synchronous right colon cancer cases), during segmental resection and primary anastomosis, MD or ICC could be done. Both morbidity and mortality rate is the same; the only difference is a shorter and easier process in MD [5].

Anastomosis leakage rates in the single staged resection of the left OCC were between 1% and 6% [14–18]. Mortality rates were between 4% and 15% [9, 18–20]. No differences in bowel function and complication rate was noticed between segmental left and extended right colectomies in left OCC [21].

During the 1990s, colonic endoscopic stent (SEMS; self-expanding endoscopic metallic) was used for palliation and bridge to surgery. There are three randomized trials comparing SEMS to colostomy for palliation. In Xinopulos et al. study [22], there was 93.3% success rate in 30 patients (14/15 pts.). No mortality was noticed. In 57% of patients (8/14), colon obstruction was eliminated permanently (until death). Median survival was 21.4 months in SEMS, 20.9months in colostomy. SEMS hospital stay was 28 days, colostomy group 60 days. Cheung et al. [23] study to compare self-expanding metal stents with emergency open surgery in the treatment of left OCC, twenty-four underwent endoluminal stenting followed by laparoscopic resection and 24 underwent emergency open surgery. Significantly, more patients in the endolaparoscopic group had a successful 1-stage operation performed (16 vs 9, p = 0.04). None of the patients in the endolaparoscopic group had a permanent stoma compared with 6 patients in the emergency open surgery group (p = 0.03). Self-expanding metal stents serve as a safe and effective bridge to subsequent laparoscopic surgery in patients with left OCC. In Lee HJ et al. [24] study, 130 patients with unresectable obstructive colorectal cancer received successful self-expandable metal stent placement. Among them, 14 patients received primary colectomy after successful stenting. The study pointed to reduce stent-related late complications; primary colectomy after successful endoscopic stenting could be a therapeutic option in patients who have unresectable colorectal cancer with obstruction, especially in those who expect long-term survival. Boyle et al. [25] in a recently published paper investigated 126 with acute large-bowel obstruction undergoing colonic stenting (SEMS). Technical deployment of the stent was accomplished in 108 of 126 (86%) patients; however, only 89 (70%) achieved clinical decompression. Successful deployment and clinical decompression was associated with colorectal cancer (p = 0.03), shorter strictures (p = 0.01), and wider angulation distal to the obstruction (p = 0.049). Perforation was associated with longer strictures (p = 0.03).Their conclusion was colonic stenting in acute large-bowel obstruction is more likely to be successful in shorter, malignant strictures with less angulation distal to the obstruction. Longer benign strictures are less likely to be successful and may be associated with an increased risk of perforation. In a recent study of Matsuda et al. [26], There were 11 studies that matched the criteria for inclusion, yielding a total of 1136 patients, of whom 432 (38.0%) underwent bridge to surgery and 704 (62.0%) underwent emergency surgery. Overall survival analyses of all patients and patients who underwent curative resection, bridge to surgery was similar to emergency surgery. Recurrence did not differ significantly between the bridge to surgery and emergency surgery groups. SEMS could be used before elective surgery as bridge to surgery. SEMS usage has lower mortality, shorter hospital stay and less need for colostomy. In obstructive colorectal cancer, SEMS could be preferred to emergency surgery for palliation with less mortality and morbidity and shorter hospital stay [5].

CONCLUSION

In case of right colon tumor obstruction, treatment of choice is usually one-stage resection and ileocolic anastomosis. In the treatment of left colon cancer obstruction, Hartmann's procedure seems to be better than staged resection. Simple colostomy could be preferred in cases needing less operative time, too much dilated colon with full of feces and when neoadjuvant treatment is planned. In case of cecal perforation of ischemia with left colonic cancer obstruction subtotal and total colectomy is operation of choice. In selected cases with left colon obstruction, primary resection and anastomosis with manual decompression or intraoperative colonic irrigation could be could be preferred but diverting loop ileostomy should be added to operation due to risk of anastomotic dehiscence. Colonic stents seems to be good choice in bridge to surgery.

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Author Contributions

Yusuf Yagmur – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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