Coll. Antropol. **38** (2014) 1: 111–114
Original scientific paper

Emergency Surgery for Large Bowel Obstruction caused by Cancer

Željko Bušić[1], Kristijan Ćupurdija[1], Marijan Kolovrat[1], Dražen Servis[1], Fedor Amić[1], Mislav Čavka[1], Leonardo Patrlj[1], Igor Nikolić[1] and Vlatka Čavka[2]

[1] University of Zagreb, School of Medicine, University Hospital Dubrava, Zagreb, Croatia
[2] University of Zagreb, University Hospital Centre »Sestre Milosrdnice«, Zagreb, Croatia

A B S T R A C T

There are several options for surgical treatment of large bowel obstruction caused by cancer, depending on location of obstruction, intraoperative local findings (perforation, peritonitis, bowel dilatation proximal to obstruction) and patients' condition. Resection and anastomosis as one stage surgery would be prefered procedure. Anastomotic leakage, on the other hand, highly elevates risk of mortality and mobidity. The most important question is whether to, in resectable cases, perform primary resection with anastomosis or not. This study was retrospective and included 40 patients that have undergone emergency surgery for large bowel obstruction caused by cancer. According to whether resection and anastomosis was made at initial surgery or not, patients were grouped in group A (N=18) and group B (N=21), respectively. We have analysed the type of surgical procedure, days of hospitalization, mortality, anastomotic leakeage, wound infection and other postoperative complications. Our results show that there is no major difference in mortality and morbidity in these two groups, suggesting that for selected patients primary resection and anastomosis is a safe option of tratment with acceptable risk. Since there are no strict guidelines or scorring system which would point the tratment option the decision about the choice of procedure still remains the burden of surgeon and depends on its experience and subspeciality. Our experience recomends primary resection and anastomosis except in cases of bowel perforation on tumor site, in cases of extreme dilatation and atony of bowel proximal to obstruction site and severe hypoproteinemia and anemia.

***Key words**: large bowel cancer, obstruction, surgery, emergency*

Introduction

The most common cause of large bowel obstruction in an emergency setting is cancer. On the other hand, large number of patients with colorectal cancer (up to 20%) present with acute obstruction[1–4].

There are several options for surgical treatment of this condition depending on location of obstruction, intraoperative local findings (perforation, peritonitis, bowel dilatation proximal to obstruction) and patients' condition[5,6]. All of them are associated with high risk of mortality and morbidity[1,2,7,8]. Resection and anastomosis as one stage surgery would be preffered procedure with benefits of obstruction and tumor treatment, as well as avoiding further surgeries and hospital stays. Anastomotic leakage, on the other hand, highly elevates risk of mortality and mobidity[6]. Obstruction of right colon is usually mannaged by resection and anastomosis, but the choice of surgery can depend on other abovementioned factors[1]. But, for tretment of obstructed left colon cancer different procedures has been established including: 1) loop colostomy as definite procedure or as a part of 2 or 3 staged procedure; 2)primary resection with end colostomy (Hartmann's resection); 3) primary resection and anastomosis, which can include a)segmental resection with intraoperative colonic irigation or manual decompression b) total or subtotal colectomy; 4) stenting as pallative or bridge to surgery procedure[5,6].

Although there is a huge amount of literature published about this issue, including randomised controll studies, reviews, gudilelines etc.,there are no strict rules or scoring systems for decision making in these situations. Of all dillemas, the most important question is whether to, in resectable cases, perform primary resection with anastomosis or not.

Received for publication November 6, 2013

TABLE 1
SYMPTOMS

Symptoms	No. of patients	%
Abdominal pain	25	62.5
Bloating	8	20.0
Weight loss	4	10.0
Blood in stool	3	7.5
Bowell perforation	3	7.5

TABLE 2
DUKES CLASSIFICATION

Dukes	No. of patients	%
A	1	2.5
B	10	25.0
C	19	47.5
D	10	25.0

TABLE 3
TUMOR LOCALIZATION

Localization	No. of patients	%
Coecum	2	5.0
Ascending colon	1	2.5
Hepatic flexure	5	12.5
Transversal colon	1	2.5
Splenic flexure	2	5.0
Descending colon	4	10.0
Sigmoid colon	12	30.0
Rectosigmoid colon	4	10.0
Rectum	9	22.5

Patients and Methods

This study was conducted on one of the departments of University Hospital. It was retrospective and included 40 patients that have undergone emergency surgery for large bowel obstruction due to colon and rectal cancer from Januar 1st 2008 till December 31st 2010. Surgery procedures were performed by three surgeons with working experience of 10 to 20 years as senior consultans. For diagnosis, except clinical features and laboratory testing, plain radiogram and MSCT (Multi Slice Computed Tomography) were used. Urgent diagnostic colonoscopy was performed in eight patients (20%).No intraoperative colonic irigation was performed, but manual decompresion. There were 24 (60%) male and 16 (40%) female patients. Average patients' age was 71 years (range 39–88 years).

Symptoms before the onset of obstruction included abdominal pain in 25 patients (62.5%), bloating in eight patients (20%), weight loss in four patients (10%), blood in stool in three patients (7.5%). Three patients suffered from bowel perforation on tumor site (7.5%) (Table 1). Patohystology diagnosis in all patients was adenocarcinoma. One patient (2.5%) had Dukes A stage, 10 (25%) patients had Dukes B, 19 (47.5%) had Dukes C stage and ten (25%) patients had Dukes D stage. (Table 2) Average number of examined lymph nodes was ten (range 2–28). Localisations of tumors are presented in Table 3.

Liver metastases were present in nine (22.5%) patients, while one patient (2.5%) had lung metastases. In eight (20%) patients tumors infiltrated neighbouring organs.

According to whether resection and anastomosis was made at initial surgery or not, for matter of analyses, patients were grouped in group A (N=18) and group B (N=21), respectively. One patient received only explorative laparotomy. Manual decompression was done in all cases where resection and anastomosis was the treatment option. We have analysed the type of surgical procedure, days of hospitalization, mortality, anastomotic leakeage, wound infection and other postoperative complications.

TABLE 4
SURGERY AND OUTCOMES FOR GROUP A (ANASTOMOSIS)

	No. of patients	%
Surgery	18	
Right hemicolectomies	6	33.3
Left hemicolectomies	3	16.7
Total colectomies	1	5.6
Subtotal colectomies	5	27.8
Anterior rectal resection	1	5.6
Sigmoid colon resection	2	11.1
Complications	7	38.9
Anastomotic leakeage	2	11.1
Wound infections	1	5.6
Peritoneal adheasions ileus	1	5.6
Lower leg phlebothrombosis	1	5.6
Death outcomes	2	11.1

Results

In group A, six right hemicolectomies were done (33.3%), of which one laparoscopic, three left hemicolectomies (16.7%), one total colectomy (5.6%) for obstruction with coecum perforation, five subtotal colectomies (27.8%), one anterior rectal resection (5.6%) and two resections of sigmoid colon (11.1%).

Average hospital stay in this group was 15 days (8–30). In this group, there were seven patients with complications (38.9%). There were two cases of anastomotic leakage (11.1%); one wound infection (5.6%); one postoperative ileus due to peritoneal adhesions (5.6%); one

TABLE 5
SURGERY AND OUTCOMES FOR GROUP B
(WITHOUT ANASTOMOSIS)

	No. of patients	%
Surgery	21	
Hartmans' resection	14	66.7
Abdominoperineal rectal amputation	1	4.8
Total colectomy with end ileostomy	1	4.8
Colostomies	3	14.3
Ileotransversal bypass	1	4.8
Ileosigmoid bypass together with gastric bypass	1	4.8
Complications	7	33.3
Wound infections	2	9.5
Small bowel perforation	1	4.8
Death outcomes	4	19.0

lower leg phlebothrombosis (5.6%) and two death outcomes (11.1%). One case of death outcome resulted from multiple organ failure and the other one from massive pulmonary embolism (Table 4).

In group B, where no resections and primary anastomosis were done, 14 Hartmans' resections were done (66.7%), of which one abdominoperineal rectal amputation (4.8%), three colostomies (14.3%), one ileotransversal bypass (4.8%), one ileosigmoid bypass together with gastric bypass (4.8%). In this group, there were two cases of perforated sigmoid colon. One case was solved with Hartmans' resection and the other one by total colectomy with end ileostomy. Average hospital stay in this group was 15 days (7–50). There were seven patients with complications (33.3%) of which two wound infections (9.5%), one postoperative small bowell perforation due to thermal injury (4.8%) and four death outcomes (19%) (Table 5).

Discussion

One of major questions for surgeon is whether to perform anastomosis after bowel resection or perform staged surgery.

Decision making in our study was made based on surgeons' experience and knowledge which was similar for all three surgeons included.

Our results, although without statisical anlyses due to insufficient number, show that there is no major difference in mortality and morbidity in these two groups, suggesting that for selected patients primary resection and anastomosis is a safe option of tratment with acceptable risk. Of course, in this study there is a bias, since there was no randomisation, but opposingly, in group B (without anastomosis) were patients that were marked as »high risk« and one could speculate that if patients from group A had been operated as those in group B, mortality and morbidity would have been even lower.

But, two staged procedures have also risk of anastomotic leakage. Also, data from other studies show that only 20% of patients who were at begining candidates for two staged procedure actually reverse their colostomy and in that way have impaired quality of life[9,10]. Furthermore, studies have shown that Hartmann's procedure has no benefit in mortality[7–10], but this also could be argued by selection bias avoiding anatomosis in high risk pateints[10–12].

Primary resection and anastomosis should be the goal of treatment of patients with large bowel obstruction but it should never be put before safety that offers procedures without anastomosis. So, several parametars should be considered during decision making including patients condition and experience of the surgeon[7,12,13]. Defining »high risk« patients is a major tool in making decision on treatment option. The Association of Coloproctology of Great Britain and Ireland(ACPGBI) has defined in their study four predictors of outcome: age, ASA(American Society of Anesthesiologists) grade, operative urgency and Dukes' stage[7]. Our experience suggest to take into consideration also anemia and hypoproteinemia as risk factors of anastomotic leakage.

Since there are no strict guidelines or scorring system which would stratify patients into »high« or »low« risk group, the decision about the choice of procedure still remains the burden of surgeon and depends on its experience and subspeciality. Primary anastomosis is more likely to be performed by colorectal consultants rather than general surgeons or trainees[13]. Morever, experienced surgeons would more likely recommed primary resection and anastomosis even for »high« risk patients with the exception of bowel lesion in high risk patients[14]. Safety of patients still remains major criteria since several questionnaire surveys have shown that majority of surgeons would choose a primary resection and anastomosis for patients with »low risk« and resection with end colostomy or simple colostomy for »high risk« patients[14,15].

Our experience recomends primary resection and anastomosis except in cases of bowel perforation on tumor site, extreme dilatation and atony of bowel proximal to obstruction site and severe hypoproteinemia and anemia.

REFERENCES

1. PHILLIPS RK, HITTINGER R, FRY JS, FIELDING LP, Br J Surg, 72 (1985) 296. — 2. MELLA J, BIFFIN A, RADCLIFFE AG, STAMATAKIS JD, STEELE RJ, Br J Surg, 84 (1997) 1731. — 3. SERPELL JW, MCDERMOTT FT, KATRIVESSIS H, HUGHES ES, Br J Surg, 76 (1989) 965. — 4. UMPLEBY HC, WILLIAMSON RC, Dis Colon Rectum, 27 (1984) 299. — 5. ANSALONI L, ANDERSSON RE, BAZZOLI F, CATENA F, CENNAMO V, DI SAVERIO S, FUCCIO L, JEEKEL H, LEPPANIEMI A, MOORE E,PINNA A D, PISANO M, REPICI A, SUGARBAKER PH,

TUECH JJ, World J Emerg Surg, 5 (2010) 29. — 6. TROMPETAS V, Ann R Coll Surg Engl, 90 (2008) 181. — 7. TEKKIS PP, KINSMAN R, THOMPSON MR, STAMATAKIS JD, Ann Surg, 240 (2004) 76. — 8. MEYER F, MARUSCH F, KOCH A, MEYER L, FUHRER S, KOCKERLING F, LIPPERT H, GASTINGER I, Tech Coloproctol, 8 (2004) 226. — 9. DESAI DC, BRENNAN EJ JR, REILLY JF, SMINK RD Jr, Am J Surg, 175 (1998) 152. — 10. ZORCOLO L, COVOTTA L, CARLOMAGNO N, BARTOLO DC, Colorectal Dis, 5 (2003) 262. — 11. VILLAR JM, MARTINEZ AP, VILLEGAS MT, MUFFAK K, MANSILLA A, GARROTE D, FERRON JA, Surg Today, 35 (2005) 275. — 12. BIONDO S, PARES D, FRAGO R, MARTI-RAGUE J, KREISLER E, DE OCA J, JAURRIETA E, Dis Colon Rectum, 11 (2004) 1889. — 13. ZORCOLO L, COVOTTA L, CARLOMAGNO N, BARTOLO DC, Dis Colon Rectum, 11 (2003) 1461. — 14. CARTY NJ, CORDER AP, ANN R, Coll Surg Engl, 6 (1992) 391. — 15. GOYAL A, SCHEIN M, Dig Surg 18 (2001) 399.

Ž. Bušić

University of Zagreb, University Hospital Dubrava, Department of Abdominal Surgery, Av. Gojka Šuška 6, 10000 Zagreb, Croatia
e-mail: zbusic@kbd.hr

HITNO KIRURŠKO LIJEČENJE ILEUSA UZROKOVNOG KARCINOMOM DEBELOG CRIJEVA

S A Ž E T A K

Postoji nekoliko načina kirurškog liječenja ileusa uzrokovanog karcinomom debelog crijeva, koji ovise o lokaciji karcinoma, intraoperacijskom nalazu (perforacija, peritonitis,dilatacija debelog crijeva proksimalno od mjesta opstrukcije) te stanju pacijenta. Idealni kirurški zahvat bila bi resekcija i anastomoza u jednom aktu. Popuštanje anastomoze, s druge strane, znatno povećava rizik mortaliteta i morbiditeta. Najvažnija odluka je da li, u resektabilnim slučajevima, izvesti resekciju s anastomozom ili bez nje. Ovo je retrospektivna studija koja je uključila 40 pacijenta koji su podvrgnuti hitnoj operaciji zbog ileusa uzrokovanog karcinomom debelog crijeva. Ovisno o tome da li je učinjena resekcija s anastomozom u jednom aktu, pacijenti su grupirani u grupu A (N=18) i grupu B (N=21). Analizirali smo vrstu kirurškog zahvata, trajanje hospitalizacije, mortalitet, popuštanje anastomoze, infekcija rane i druge postoperacijske komplikacije. Rezultati su pokazali da ne postoji značajna razlika u mortalitetu i morbiditetu između ove dvije skupine što govori u prilog tome da je kod odabranih pacijenata resekcija i anastomoza u jednom aktu siguran zahvat sa prihvatljivim rizikom. Obzirom da ne postoje smjernice ili sustavi bodovanja koji bi ukazali na vrstu zahvata, odluka ostaje na kirurgu i ovisi o iskustvu i educiranosti. Naše iskustvo govori u prilog resekciji i anastomozi u jednom aktu, osim u slučajevima perforacije debelog crijeva na mjestu tumora, u slučajevima ekstremne dilatacije i atonije crijeva proksimalno od mjesta opstrukcije te značajne hipoproteinemije i anemije.