

Comparison of emergency and elective colorectal cancer surgery – a single center experience

Porównanie pilnych i planowych operacji nowotworów jelita grubego – doświadczenie jednego ośrodka

Authors' Contribution:

A – Study Design

B – Data Collection

C – Statistical Analysis

D – Manuscript Preparation

E – Literature Search

F – Funds Collection

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ABSTRACT:

Introduction: About one-third of colorectal cancer surgery are performed as emergency surgery.

Aim: In this retrospective study we aimed to compare emergency surgery with patients those performed elective colorectal cancer surgery.

Material and methods: One hundred and sixty patients data those performed colorectal cancer surgery were analyzed retrospectively. Patients were divided into two group; emergency surgery group (n = 29) and elective surgery group (n = 131). Demographics and clinicopathological features of the groups were compared.

Results: There were no significant difference between groups in terms of age, blood transfusion requirement, additional surgical intervention. Emergency surgery was performed more frequently in male patients. Emergency surgery has higher complication rates but no significant difference were observed in length of hospital stay. Total harvested lymph node number were similar between groups but in emergency surgery group metastatic lymph node number was significantly higher.

Conclusions: Emergency colorectal resections for colorectal cancers can be performed with regarding the oncological principles.

KEYWORDS:

Colorectal cancers, emergency surgery, lymph node

STRESZCZENIE:

Wprowadzenie: Około jedna trzecia operacji nowotworów jelita grubego wykonywana jest w trybie pilnym.

Cel: Celem niniejszego retrospektywnego badania było porównanie operacji nowotworów jelita grubego wykonywanych w trybie pilnym z operacjami planowymi.

Materiał i metody: Dokonano retrospektywnej analizy danych dotyczących 160 pacjentów, u których wykonywano operację raka jelita grubego. Osoby te podzielono na dwie grupy: (1) operacji pilnych (n = 29) i (2) operacji planowych (n = 131). Porównano dane demograficzne i kliniczno-patologiczne dla obu grup.

Wyniki: Nie stwierdzono istotnych różnic między grupami pod względem: wieku, konieczności przetaczania krwi czy konieczności dodatkowej interwencji chirurgicznej. Operacje nagłe wykonywano częściej u pacjentów płci męskiej. Operacje pilne charakteryzowały się wyższym odsetkiem powikłań, jednak nie zaobserwowano istotnych różnic w długości hospitalizacji. Całkowita liczba wyciętych węzłów chłonnych w obu grupach była podobna, przy czym w grupie operacji pilnych stwierdzano większą liczbę węzłów chłonnych z przerzutami nowotworu.

Wnioski: Możliwe jest wykonywanie pilnych resekcji jelita grubego w związku z rakiem jelita z uwzględnieniem zasad dla zabiegów onkologicznych.

SŁOWA KLUCZOWE: nowotwory jelita grubego, operacja pilna, węzeł chłonny

INTRODUCTION

Colorectal cancers are one of the most common cancers worldwide with up to 30% patients being admitted to the emergency rooms with acute symptoms including obstruction, bleeding or perforation [1, 2]. Surgical intervention is necessary in those patients and previous reports revealed that emergency surgery is associated with higher complication rates and poor survival rates. It remains controversial whether shortened survival is due to inadequate surgery or the advanced stage of the tumor [3, 4]. In this retrospective study we aimed to compare emergency and elective colorectal resections in an oncological perspective.

PATIENT AND METHODS

One hundred and sixty patients operated on due to colorectal adenocarcinoma were included in the study. Patients who were subjected to colorectal resections were included and those who had palliative surgery without resection were excluded from the study. Patients' records were obtained from hospital computing system and data including age, sex, tumor site, Tumor-Node-Metastasis (TNM) status, surgery type, urgent or elective surgery, blood product transfusion, total and metastatic lymph node number, length of hospital stay, and postoperative complications were recorded. Elective surgeries were performed after detailed evaluation and

Tab. I. Characteristics of the patients.

	ELECTIVE SURGERY	URGENT SURGERY	TOTAL
Age (Mean–SD)	63.43 (12.6)	64.76 (11.4)	63.67 (12.3)
Sex (n)			
Female	62	8	70
Male	69	21	90
Tumor site (n)			
Right colon	28	4	32
Left colon	9	2	11
Transverse colon	-	1	1
Sigmoid colon	24	7	31
Rectum	67	15	82
Multiple	3	-	3
Procedure (n)			
Right hemicolectomy	26	5	31
Left hemicolectomy	10	2	12
Anterior resection	22	11	33
Low anterior resection	67	7	74
Abdominoperineal resection	2	-	2
Total/subtotal colectomy	4	4	8
Stage (n)			
I	25	1	26
II	52	9	61
III	39	10	49
IV	15	9	24

Tab. II. Detailed analysis of postoperative complications.

COMPLICATION	URGENT SURGERY	ELECTIVE SURGERY	TOTAL	P-VALUE
Wound infection	3	4	7	0.113
Anastomotic leakage	2	5	7	0.611
Pulmonary complication (Pneumonia, PTE, PTx)	3	1	4	<0.05
Hemorrhagia/Hematoma	1	2	3	0.453
Ileus	-	1	1	1.00
Gastric Atonia	-	1	1	0.181
Pelvic Abscess	-	2	2	1.00
Wound Dehiscence	-	1	1	1.00
Myocard Infarctus	-	1	1	1.00
Total	9	18	27	<0.05

PTE–pulmonary thromboembolism, PTx–pneumothorax

preoperative screening, and all those cases were discussed during our multidisciplinary tumor council meetings. Emergency surgery indications were as follows: bowel obstruction that did not resolve with medical or endoscopic intervention, uncontrolled bleeding and perforation. Tumor site was described as 1) right colon for tumors located in the cecum, ascending colon, hepatic flexure, transverse colon, as 2) left colon for tumors located in the splenic flexure, descending colon, sigmoid colon, and as 3) rectum for tumors located in the rectosigmoid junction and rectum. Detailed consent was obtained from all the patients.

STATISTICAL ANALYSIS

SPSS version 23.0 software was used for analysing the data. Continuous variables were analysed using means and standard

deviations; categorical variables were analysed using frequencies and percentages. Chi-square or Mann-Whitney U test were used as appropriate to compare the differences of the groups and P-value < 0.05 was considered as statistically significant.

RESULTS

One hundred and sixty patients were included in the present study. While elective surgery was performed in 131 patients, emergency surgery was performed in 29 patients. Demographic and clinical features of the patients were summarized in Tab. I.

There were no significant differences between elective surgery and emergency surgery groups in terms of age, blood transfusion requirement, length of hospital stay, additional surgical intervention.

Emergency surgery was performed more often in male patients than in female patients ($P < 0.05$). As expected, complication rates were higher in the emergency surgery group when compared to the elective surgery group ($P < 0.05$). Detailed analysis of complications was presented in Tab. II. Although the total harvested lymph node number was similar for both groups, in the urgent surgery group the metastatic lymph node number was significantly higher than in the elective surgery group ($P < 0.05$).

DISCUSSION

Surgeons, especially those who work in rural areas, may have to perform emergency colorectal operations at some point of their professional life. Emergency surgery aims to control the emergency situation and save the patient's life firstly. But is this approach a reason for compromising oncological principles?

In our cohort the overall rate of emergency surgery was 18% and it was lower than in the current literature [3–5]. The difference can be explained by two facts: first, we only included patients who had a resection and excluded patients with unresectable disease and those subjected to palliative surgery. Secondly, in our province colorectal cancer screening with stool blood test and rectosigmoidoscopy or colonoscopy examination is highly effective which results in early detection of colorectal cancers.

Rectum and rectosigmoid junction were the most cancer location in both groups, which was in agreement with the previous reports [4–7]. Approximately a half of our patients had rectosigmoid region tumor which explains why obstruction was the most common indication for emergency surgeries.

It is well known that emergency colorectal procedures performed by specialized colorectal surgeons have a lower complication rate than those performed by general surgeons [8]. Patients in our series were operated on by general surgeons and, as expected, the incidence of complications was significantly higher in the emergency surgery group when compared to the elective surgery group but our rates were compatible with literature data [3, 4, 8, 9].

Clinical guidelines recommend that at least 12 lymph nodes should be harvested for accurate staging of colorectal cancers [10–13]. The median harvested lymph node number was 15 and 16 in the

emergency and elective surgery group respectively and the difference was not significant. Acar et al. reported similar findings – i.e. only patients subjected to emergency low anterior resection had a significantly lower harvested lymph node number [14]. Another study, from Italy, by Chiarugi et al. suggested that emergency colorectal surgery should be carried out with observing oncological principles [15]. We agree with the authors and suggest that emergency surgery should not interfere with oncological surgery.

Our study has three major limitations that should be mentioned. First, this is a retrospective study with a small amount of patients.

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CONCLUSION

In line with the current literature, our data suggest that emergency colorectal resections can be performed considering the oncological principles.

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