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Colorectal surgery in octogenarian patients: is it safe?

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ABSTRACT

Objectives. The aim of this study was to evaluate the efficiency and safety of resection for colorectal malignancy in elderly patients, by comparing the data from octogenarian (80+ years) patients with other patients of different ages undergoing this procedure. ***Methods.*** Data from 80 patients who underwent elective surgery for colorectal malignancy,by a single surgeon in the same center between the dates of May 2013 and May 2015, were evaluated retrospectively. For comparison purposes, patients were classified into three age groups: 65 years and under; between the ages of 66 and 79; and 80+ years old. Demographic features; the presence of comorbidity; colon tumor location; permeation features during colonoscopy; resection type and method; morbidity and mortality; lymph node metastasis and stage of the disease; follow-up period; recurrence during follow-up; and survival data of the patients were recorded and evaluated. ***Results.*** Statistically, no significant difference was detected between the three age groups in terms of demographic features; presence of comorbidity; colon tumor location; permeation features in colonoscopy; resection type and method; morbidity and mortality; lymph node metastasis and stage of the disease; follow-up period; recurrence during follow-up;or survival data. ***Conclusion.*** Curative resections for colorectal cancer can be safely carried out in octogenarian patients.

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Keywords: Octogenarian, colorectal malignancy, surgery

Introduction

With the improvement in standards of living, the number of elderly patients in our communities is rising. The incidence of cancer increases with age [1], and the prevalence of colorectal malignancy,in particular, at advanced ages is becoming an important health problem.

The aim for elderly patients with colorectal malignancy should be a positive outcome for both the oncological condition and their quality of life. Surgical intervention emerges as the only serious treatment option, especially in elderly patients with colorectal malignancy in its early stages. Surgical interventions in cancer cases may be either curative or palliative resections, depending on the patient's cancer stage.

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There may be a decrease or loss of organ function due to aging, accompanied by comorbidities such as degeneration in nutritional, cognitive or general condition, dementia or limitation of movement, which render the elderly less able to cope with surgical stress and thus increase the risk of mortality [2-4]. Nowadays, with increased experience of minimally invasive laparoscopic surgery; an improvement in preoperative and postoperative patient management; and multidisciplinary approaches; surgical resections can be performed with a lower risk of morbidity and mortality [5]. Currently, however, there is no formal process for deciding on the optimal surgical treatment method for patients in the 80+ age group [6, 7].

In this retrospective study, we have examined whether surgical attempts are effective and safe for patients of an advanced age, by comparing the data of octogenarian patients with patients from other age groups operated on during the same period for colorectal malignancy.

Methods

Demographic characteristics, the presence of comorbidity, colonic cancer localization, permeation features in colonoscopy and preoperative metastasis presence in the three groups are shown in Table 1.

The accompanying comorbidity rate in the three groups was equal, with the most prevalent comorbidities being hypertension, diabetes mellitus and chronic obstructive pulmonary disease (COPD). In the preoperative period, liver metastases were detected in 2 (4.7%) patients in Group 1, 4 (15.4%) patients in Group 2 and 2 (18.2%) patients in Group 3, with no statistically significant difference found between the groups (p=0.221).

We considered normal lesions to be those that allowed easy passage during colonoscopy, and constricting lesions those that required an enforced passage. Although 81.8% of constricting lesions were detected in Group 3, which was composed of patients aged 80 and over, statistically there was no significant difference in ease of passage between the groups (p=0.177).

Evaluation of ASA (American Society of Anesthesiologists) scores, revealed an ASA 1 score in 7 (16.3%) patients in Group 1 and 2 (7.7%) patients in Group 2; an ASA 2 score in 36 (83.7%) patients in Group 1, 22 (84.6%) patients in Group 2 and 9 (81.8%) patients in Group 3; and an ASA 3 score in 2 (7.7%) patients in Group 2 and 2 (18.2%) patients in Group 3. The most common ASA score among the groups was ASA 2, but no statistically significant difference was found between the groups (p=0.065).

Resection types and methods used in the three groups, along with development of postoperative morbidity and mortality data are given in Table 2. The most frequent resection type used with both groups 1 and 2 was LAR (62.8% and 42.3%, respectively); whereas for group 3 it was right hemicolectomy (45.5%). Laparoscopy was the most frequent surgical approach in all three groups and statistically, there was no significant difference between the three groups regarding resection type or method (p=0.072 and p=0.327, respectively). Loop ostomies were formed in 9 (20.9%) patients in Group 1 and in 3 (11.5%) patients in Group 2. End colostomies were created in 3 (7%) patients in Group 1, 2 (7.6%) patients in Group 2 and 2 (18.2%) patients in Group 3.

Table 1. Demographic characteristics, comorbidity presence, colonic localization, permeation features in colonoscopy and preoperative metastases presence in the groups

	Group 1	Group 2	Group 3	*p*
Age	55.7 (35-65)	72.4 (67-79)	81.4 (80-84)	
Gender (F/M)	16/27	10/16	4/7	0.091
Comorbidity	22 (51.2%)	20 (76.9%)	7 (63.6%)	0.102
Colonic Localization				0.036
Right colon	4 (9.3%)	9 (34.6%)	5 (45.5%)	
Left colon	9 (20.9%)	3 (11.5%)	2 (18.2%)	
Rectum	30 (69.8%)	14 (53.8%)	4 (36.4%)	
Passage during colonoscopy				0.177
Normal				
Narrows	20 (46.5%)	13 (50%)	2 (18.2%)	
	23 (53.5%)	13 (50%)	9 (81.8%)	
Preoperative Metastasis	2 (4.7%)	4 (15.4%)	2 (18.2%)	0.221

F=female, M=male

Table 2. Resection type and method, postoperative morbidity and mortality development in the three groups.

	Group 1	Group 2	Group 3	*p*
Resection type				0.072
Right Hemicolectomy	4 (9.3%)	9 (34.6%)	5 (45.5%)	
LeftHemicolectomy	9 (20.9%)	3 (11.5%)	2 (18.2%)	
LAR	27 (62.8%)	11 (42.3%)	3 (27.3%)	
APR	3 (7%)	3 (11.5%)	1 (9.1%)	
Operation Method				0.327
Laparoscopy	20 (46.5%)	13 (50%)	4 (46.3%)	
Open	19 (44.2%)	7 (26.9%)	6 (54.5%)	
Conversion	4 (9.3%)	6 (23.1%)	1 (9.1%)	
Morbidity	13 (30.2%)	7 (26.9%)	4 (36.4%)	0.848
Mortality	1 (2.3%)	1 (3.8%)	1 (9.1%)	0.574

LAR=Low Anterior Resection, APR=Abdominoperineal Resection

A similar frequency of morbidity in the postoperative period was seen in all three groups. The most common cause of morbidity in all groups was wound infection. Anastomotic leak was observed in only 1 (2.3%) patient in Group 1. There was no anastomotic leak in Group 2 or in Group 3, which consisted of octogenarian patients. However, ischemia developed in the end part of the ostomy in two (18.2%) patients from Group 3 and revision was needed. Overall, no statistically significant difference was detected among the three groups regarding morbidity (p=0.848).

Mortality rates for the 30-day postoperative period were also evaluated. In total, we lost three patients. One (2.3%) patient from Group 1 with preoperative liver metastasis died due to postoperative liver failure; one (3.8%) patient from Group 2, due to development of necrotizing fasciitis, and one (9.1%) patient from Group 3, following anterior myocardial infarction. Statistically, no significant difference was detected between the groups in terms of mortality (p=0.574).

Lymph node metastases and their stages were evaluated by analyzing pathological samples from the three groups following resection (Table 3). Although lymph node metastases were seen in 72.7% of Group 3, there was no statistically significant difference between the groups (p=0.264). When disease stages were evaluated, it was seen that patients in all three groups were most commonly in Stage 3 (41.9%, 46.2%, and 54.5%, respectively). However, there was no statistically significant difference (p=0.187).

Average follow-up time, disease recurrence during the follow-up period and general survival rates are given in Table 4. Median follow-up time was 30 months in Group 1, 25 months in Group 2 and 20 months in Group 3; hence, there was no statistically

Table 3. Lymph node metastases and stages

	Group 1	Group 2	Group 3	*p*
Lymph node metastasis	20 (46.5%)	15 (57.7%)	8 (72.7%)	0.264
Stage				0.187
1	9 (20.9%)	7 (26.9%)	-	
2	14 (32.6%)	3 (11.5%)	3 (27.3%)	
3	18 (41.9%)	12 (46.2%)	6 (54.5%)	
4	2 (4.7%)	4 (15.4%)	2 (18.2%)	

Table 4. Recurrence during follow-up and average follow-up time

	Group 1	Group 2	Group 3	*p*
Recurrence rate	4 (9.3%)	1 (3.8%)	2 (18.2%)	0.363
Follow-up (month)	30	25	20	0.168
1-year survival (%)	97.1	100	87.5	0.237
2-year survival (%)	87.4	100	87.5	0.237

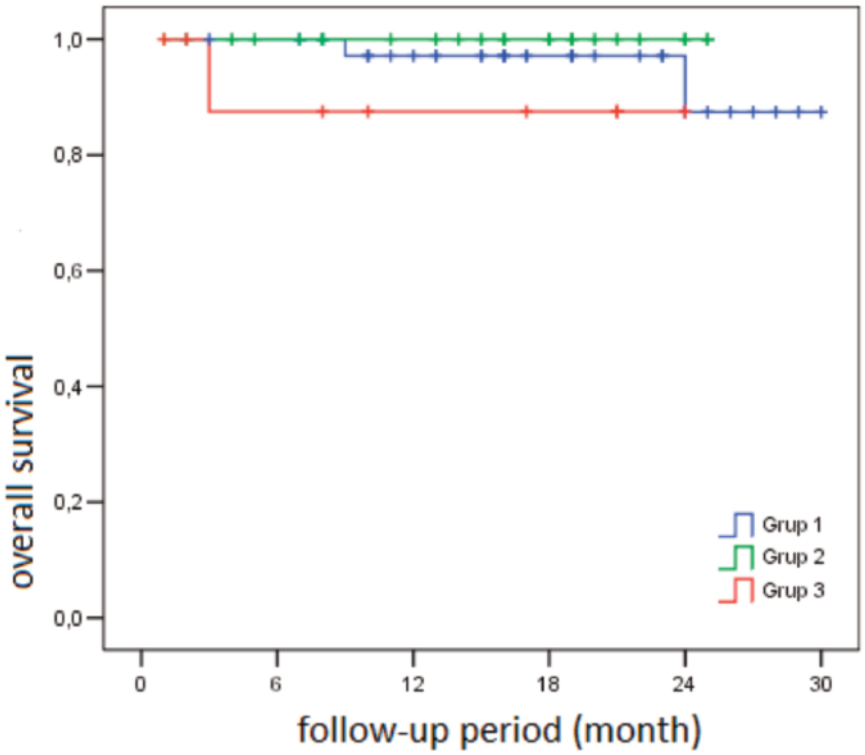

Figure 1. General survival rates in the groups

significant difference (p=0.168). Recurrence during the follow-up period was seen in 4 (9.3%) patients in Group 1, in 1 (3.8%) patient in Group 2 and in 2 (18.2) patients in Group 3. Although a proportionally higher level was detected in Group 3 (octogenarian patients), statistically there was no significant difference between the groups (p=0.363). During the follow-up, two patients in Group 1 died from myocardial infarction and cerebrovascular bleeding; and one patient in Group 3 died due to myocardial infarction. One and two-year general survival data were assessed among the groups: statistically, no significant difference was detected. Survival rates for the groups are shown in Figure 1.

Discussion

Despite publications asserting that colorectal cancers at an advanced age are seen more frequently in females and in the right colon (by up to 40%), in our study the incidence was higher in male patients and right colon involvement was more frequent [8, 9]. It should be emphasized that mechanical bowel obstruction occurs in older patients with colorectal malignancy at a rate of 16%, compared to a rate of only 4% in younger patients and efforts should be made to perform these operations under elective conditions rather than as an emergency [10, 11]. Although patients with obstructive pathology such as an ileus were excluded from our study, the rate of technical difficulty in using the colonoscope in patients aged 80+ undergoing elective resection was 81.8%.

The presence of comorbidities is accepted as a significant predictor of postoperative morbidity and mortality, affecting the prognosis negatively [12-14]. One study that included 34,194 patients, divided into age-related groups, showed that the presence of accompanying comorbidities at age 80+ lowered the general survival rate, but not cancer-specific survival. Moreover, the survival rate of elderly patients is reported to increase significantly following surgery [15]. The postoperative complication rate specific to surgery in 2,932 patients aged 80 and over was found to be similar to that of younger patients [16]. However, more cardiovascular and pulmonary complications are seen with advanced age. While the presence of accompanying comorbidity was 51.2% in the group aged 65 and below in our study, this rate climbed to 76.9% in 65-79 year olds but dropped to 63.6% in the group aged 80 and over. Therefore, in our study, there was no particular increase in comorbidity in octogenarian patients or a statistically significant

difference between the age groups.

The most efficient treatment alternative for local disease control, reduction of symptoms and long-term survival in the presence of colorectal malignancy in octogenarian patients is surgical resection. Laparoscopic approaches are recommended as the best alternative for protecting and improving functional status and allowing rapid recovery in elderly patients [17]. Laparoscopic colorectal surgery has been shown to reduce the length of hospital stay; increase recovery by reducing postoperative pain; causeless blood loss and result in lower morbidity and mortality in octogenarian patients [18, 19]. Laparoscopic approaches are also shown to cause much less systemic stress [20]. Bowel movements and functional results after rectal surgery are better in elderly patients than in young patients [21]. No significant difference in postoperative complications was found between laparoscopic surgery and open surgical interventions [22]. In our study, age was not taken into consideration when selecting resection type and method. Laparoscopic surgery was applied in 36.4% (n=4), open surgery in 54.5% (n=6) and conversion surgery in 9.1% (n=1) of the patients over 80 years old. In published studies, conversion rates vary from 0.7% to 25% [23-26]. In these studies, it was reported that the rate of anastomosis leak varied between 4.7% and 10% (3% in the elective resection group, 6.3% in the emergency operation group), and the rate of stoma creation was 24% [26, 27]. In our study, anastomosis leak was seen in only 1 (2.3%) patient from the group aged 65 and below. End colostomy was formed in two (18.2) patients over 80 years old, and no leak was detected after anastomosis in the other nine patients. Our relatively high rate of conversion was thought to be linked to the learning curve of the single surgeon concerned. The most common reasons for conversion were severe intra-abdominal adhesions and invasion of the tumor into neighboring tissues.

Discussion of any possible increase in morbidity and mortality in elderly patients caused by colorectal resections is ongoing. While in previous studies age was indicated as an independent parameter increasing postoperative morbidity and mortality [28, 29], current studies show that morbidity and mortality rates among young and old patients are, in fact, similar [30, 31]. In older patients who undergo resection for colorectal cancer, age is not thought to be an independent predictor of morbidity and mortality, but existing co-morbidities and ASA value are useful as independent predictors [32]. In various studies of elderly patients, morbidity rates vary between 25% and 81%, and mortality between 5% and 30% [33-35]; with a nine-fold greater risk after colorectal surgery in older patients [36]. In our study, we saw that the score most similar for patients 80+ and those inother age groups was the ASA 2 score (81.8%). Rates of postoperative morbidity were also similar (36.4%) in both 80+ patients and the other age groups. The incidence of mortality in the 80+ group was 9.1%; it seems likely that the small number of patients in this group caused the high morbidity and mortality rates as a percentage. While locally advanced tumor presence is more frequently detected in elderly patients through tumor diameter, pT stage, etc.; distant metastases are seen less than in younger patients [37]. Despite this tendency to locally advanced tumor, no difference in RO curative surgical resection has been reported between age groups [38]. In our study, the frequency of constricting lesions was high (81.8%), lymph node metastasis rate was higher than the other age groups (72.7%), and there was a presence of distant metastases (18.2%) in our 80+ group. However, there was no statistically significant difference between the ages.

One study has reported a median survival rate of 74 months in a young patient group and 73 months in an older group, witha 5-year survival rate of 66% in the young group and 53.1% in the patients of advanced age [39]. In the literature, the five-year survival rate in octogenarian patients varies between 24% and 51% [6, 32, 40]. In our study, the patients below age 65 were followed-up for a median of 30 months, patients between ages 66-79 were followed-up for a median of 25 months, and our octogenarian patients were followed-up for 20 months on average. Local recurrence was seen at low rates during the follow-up period for each of the three groups (9.3%, 3.8% and 18.2%, respectively). No statistical difference was found between one and two-year general survival values of the three groups.

The Limitations of the Study

In our study, there are some restrictive conditions to the interpretation of the data. The small number of patients aged 80 years and over; lack of randomization among the groups and the retrospective nature of the evaluation are examples of these constraints. Moreover, date regarding physical condition and quality of life were not recorded.

Conclusions

Certainly, locally advanced tumor presence can be seen more frequently in patients aged 80 and over, from difficulty in carrying out the colonoscopy and lymphatic metastasis positivity. However, it is thought that patients whose overall physical condition is good and who are at a suitable stage of the disease with good life expectancy can safely undergo colorectal resections in experienced centers without considering an upper age limit, even if they have accompanying co-morbidities. As morbidity and mortality rates are acceptable, laparoscopic surgical attempts should be preferred to open surgery.

Conflict of interest

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