

A retrospective analysis of early stoma complications

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Abstract

Introduction

Colorectal cancer is among the most commonly occurring malignancies and it is often associated with a high morbidity and mortality rate. Although significant advances have been made in ostomy surgery since the late 1800s, early postoperative complications may still occur. This study aimed to determine the prevalence of early stoma complication in our surgery clinic.

Methods

In this paper, we studied 314 consecutive patients who were admitted to the hospital for stoma creation, as emergency or elective procedures.

Results

The most common indication for stoma creation was colorectal carcinoma. The more frequently used surgical interventions were low anterior resection with diverting (loop) ileostomy (161 patients, 51.2%) followed by proximal defunctioning colostomy (54 patients, 17.2%) and abdominal perineal resection with end colostomy (52 patients, 16.6%). Ostomy-related complications developed in 121 patients (38.5%).

Conclusion

Our findings indicated that early stoma complication rates were higher in patients with malignancies and permanent stomas.

Introduction

A stoma is a Greek word meaning “mouth or opening” [1]. The stoma is a surgically-created opening of the intestine (colostomy and ileostomy) or urinary tract (urostomy) on the front wall of the abdomen that allows the expulsion of faeces or urine from the body into a pouch or another collection

device [2]. Colorectal cancer is among the most commonly occurring malignancies and it is often associated with a high morbidity and mortality rate. Unfortunately, colostomy continues to be the necessary treatment option in a large number of patients.

Although surgical techniques have evolved a lot, there is still a considerable occurrence of stoma complications. It's estimated that 25-60% of patients still suffer from complications. Such complications affect patient quality of life and increase the health care cost, as shown in prospective research and audits [3-7]. Stoma performance is a health-saving or life-saving surgery most frequently performed between the 5th and the 7th decades of life.

The postoperative period can manifest many problems for stoma patients, including not only health problems but also psycho-emotional changes due to stress, financial costs, lifestyle changes, stoma bag adaptation etc.

Usually, these complications include superficial or deep stoma necrosis, dermatitis, mucocutaneous separation, retraction, bleeding, and parastomal abscess [8-11].

One of the immediate actions of the early postoperative period is the evaluation of the stoma. This assessment should focus on two aspects; first the possible complications of the stoma such as stomal necrosis, superficial and deep mucocutaneous separation, retraction and dermatitis and second the psycho-emotional evaluations of the patient and his adaptation to the new health situation.

Expected outcomes in the preoperative period included well-informed patient, marked stoma site and a manageable level of anxiety.

The goal of our study was to analyze the prevalence of early stoma complications and classify the risk factors because only in this way we will be able to prevent them.

Materials and Methods

We collected and retrospectively analyzed the medical data of 314 consecutive patients who were admitted to the General Surgery Clinic at the University Hospital Center “Mother Teresa”, in the period from January 2014 to December 2018.

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For all the patients included in the study are analyzed both, the data collections (gender, age, BMI, lifestyle, profession, heredity) and the history of comorbidities, history of the treatment of patients with chemotherapeutic preparations or use of radiotherapy sessions. Also considered type of stoma and if the stoma was temporary or permanent.

Before leaving the hospital, patients and their families are given a necessary instruction for home care, including diet, personal hygiene, the way of changing stoma bag, reducing strenuous physical activity by encouraging more walks in the fresh air to minimize the stress.

Despite the advice given, patients were usually seen at least two times during the first month following surgery, assessing and recording any expected changes or not of their health condition.

The follow-up of patients in this period was carried out also by a nurse stoma therapist.

Data were collected on a spreadsheet and entered into a software program (SPSS Inc., Chicago, IL). Data analysis was performed using SPSS 18 for Windows (SPSS Inc., Chicago, IL). All statistical tests were considered significant at $P < 0.05$.

Results

Our study included 314 patients, of whom 178 were female (56.7%) and the remaining 136 patients were male (43.3%). The mean age of patients taken in the study varies 53.5 ± 15.4 years. Of all the patients only 45 (14.3%) had BMI < 18.5 while 113 patients (36%) had BMI 18.5 to ≤ 29.9 and 156 patients (49.7%) had a BMI \geq of 30. Table 1 presents the diagnoses of all the patients taken in our study. As can be seen from the table, the dominant diagnosis in patients who had a stoma, were colorectal carcinoma (249 patients, 79.3%).

Table 1. Diagnosis of patients

Diagnosis	n (%)
Elective operation for colorectal carcinoma	249 (79.3%)
Inflammatory bowel disease	15 (4.8%)
Familial adenomatous polyposis coli	4 (1.3%)
Ileus due to colon carcinoma	45 (14.3%)
Bowel perforation due to colon carcinoma	1 (0.3%)

Table 2. Types of surgical intervention

Surgical Intervention	n (%)
Anterior/low anterior resection + loop ileostomy	161 (51.2%)
Low anterior resection + end colostomy	54 (17.2%)
Abdominal perineal resection + end colostomy	52 (16.6%)
Total colectomy + end ileostomy	32 (10.2%)
Left hemicolectomy + end ileostomy	9 (2.9%)
Right hemicolectomy + end ileostomy	6 (1.9%)
Total	314 (100%)

Table 2 presents the types of surgical interventions for all patients included in our study. As seen from the table, the more surgical procedure used were Anterior / low anterior resection + loop ileostomy in 161 patients (51.2%). Meanwhile, the least surgical procedure used were Right hemicolectomy + end ileostomy in only 6 patients (1.9%).

Table 3. Distribution of early stoma complications

Complications	n (%)
Superficial mucocutaneous separation	64 (20.4%)
Dermatitis	29 (9.3%)
Retraction	16 (5%)
Superficial necrosis	7 (2.2%)
Deep mucocutaneous separation*	5 (1.6%)
Total	121 (38.5%)

**Separation of the stoma from skin up to fascia*

Table 3 gives a more detailed overview of stoma complications assessed in the first 30 days after surgery. Based on the evaluation of the data, it is noted that stoma complications were found in 121 patients (38.5%). The most common complication was Superficial mucocutaneous separation in 64 patients (20.4%) and the least common was Deep mucocutaneous separation in only 5 patients (1.6%).

Table 4 shows the distribution of complications in the patients with respect to age, gender, BMI, comorbidity, and undergoing neoadjuvant chemo/radiotherapy. As shown in table 4, stoma complications were observed more in malignant diseases (33.8%) than in benign diseases (4.7%). Meanwhile, it was noticed that cardiac pathologies (38.2%) and diabetes mellitus (34%) had a significant impact on the occurrence of stoma complications. Patients who underwent radiotherapy (32.7%) were more at risk for stoma complications than those who underwent chemotherapy (8.3%).

Also, stoma located in the right lower abdominal quadrant (24.8%) were more significantly higher to that of those with stoma in the left lower abdominal quadrant (13.7%).

Table 4. Patient, surgery and stoma characteristics

Variable	Category	Complications	
		No	Yes
Gender	Male	95(30.3%)	41(13%)
	Female	119(37.9%)	59(18.8%)
Malignancy	Malignant	189(60.2%)	106(33.8%)
	Benign	4(1.3%)	15(4.7%)
Comorbidity	Diabetes mellitus	207(66%)	107(34%)
	Cardiac disease	194(61.8%)	120(38.2%)
	Respiratory disease	249(79.3%)	65(20.7%)
Stoma location	Right lower quadrant	121(38.5%)	78(24.8%)
	Left lower quadrant	72(23%)	43(13.7%)
Neoadjuvant therapy	Radiotherapy	68(40.5%)	55(32.7%)
	Chemotherapy	31(18.5%)	14(8.3%)
Type of stoma	Loop Ileostomy	83(26.4%)	78(24.8%)
	End Ileostomy	33(10.5%)	14(4.5%)
	End Colostomy	32(10.9%)	74(23.6%)

Discussion

Patients with colorectal cancer who undergo surgery and are subsequently left with a permanent ostomy deserve special attention. Besides the psychological impact of the malignancy, the stoma itself affects the patient in several ways.

The patients care in the preoperative period, according to the International Ostomy Association, should focus not only on physical preparation by clearly defining the side and location of the stoma but also on psychological preparation for what awaits the patients in the postoperative period [12,13].

Another aspect impacting the quality of life in stoma patients involves skin issues, such as skin irritation (due to the close contact with stoma effluent) and the use of skin care products under the adhesive. However, if skin irritation is experienced, regular visits to the stoma care clinic could ensure optimal stoma skin management [14,15]. Studies focusing on the complications after ostomy surgery have shown complication rates between 21-70% and peristomal dermatitis was observed in several cases by Shabbir et al. [8]. Dermatitis is one of the stoma complications from frequent appliance changes were encountered in 29 patients (9.3%). Park et al. reported that peristomal skin irritation ranges from 3 to 42% [16].

In our study, a significant number of early stoma complications were observed in 121 patients (38.5%). In the study of Duchesne et al. [17] were reported 25% of 164 stoma patients while in another study, Robertson et al. [18] stoma

complications were encountered in 23.5% of 408 stoma patients.

In terms of gender, women were more predisposed (18.8%) to stoma complications than men (13%). Ponczek et al. in their prospective study involving 3970 stoma patients, noticed a greater tendency of females for stoma complication than males [13].

Our study revealed that stoma complications were observed more in malignant diseases (33.8%) than in benign diseases (4.7%). Also, Nastro et al. had reported similar findings in their study [19].

In our study, it was found that the largest number of complications were in ileostomy than in colostomy, in 92 patients (29.3%) vs 74 patients (23.6%). These results can be attributed to a higher number of patients treated with an ileostomy than colostomy. While some retrospective and prospective studies have revealed reverse results, noticing a greater number of complications in colostomy than in ileostomy [20-22]. Among the types of ileostomy, it was noticed that complications in loop ileostomy were more frequent than end ileostomy, respectively 78 patients (24.8%) vs 14 patients (4.5%). The same findings have been observed in the study of Williams et al. [23].

Previous studies have shown that the stoma site is another factor that affects stoma complications. In these studies, it is emphasized that the appropriate marking of the stoma site in the preoperative period is a necessary action that affects the minimization of stoma complications [16,24].

Conclusion

Our findings indicated that early stoma complication rates were higher in patients with malignancies, permanent stomas, and loop ileostomies. Radiotherapy conferred a higher risk for stoma complications than chemotherapy. Meanwhile, the history of comorbidities like cardiac pathologies and diabetes mellitus had a significant impact on the occurrence of stoma complications. Prospective, randomized controlled studies are warranted to further elucidate the factors that influence stoma complication rates.

All authors disclose no conflict of interest. The study was conducted in accordance with the ethical standards of the relevant institutional or national ethics committee and the Helsinki Declaration of 1975, as revised in 2000.

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