

Does Previous Perianal Surgery for Benign Diseases Have an Impact on Timing of Hospital Admission in Patients with Colorectal Cancer?

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Abstract. *Objective.* Colorectal cancer (CRC) is one of the most common and fatal malignancies worldwide. Although the clinical presentation varies according to the location of the tumor, hematochezia, tenesmus, changes in the defecation habit, chronic constipation, abdominal pain, and distension are the most common findings of CRCs. We aimed to investigate whether patients with CRC who had a surgical history for benign anal disease have more negative tumoral features or not. *Material and Methods.* Two-hundred fifty two patients who underwent surgery for CRC between 2010 and 2016 at general surgery clinic in Ankara Numune Training and Research Hospital included in this study. Patients were classified into two groups; patients who had undergone surgery for benign perianal disease such as hemorrhoid, anal fissure, perianal abscess and fistulae (Group 1) and patients without past history for perianal surgery (Group 2). *Results.* A total of 252 CRC patients with a mean age of 64.2 years were included in the study. There were 95 (37.7%) females and 157 (62.3%) males. There were 25 (9.9%) patients who had surgical history for benign perianal disease. There were no statistically differences in tumor size, lymph node positivity, presence of distant metastasis, and tumor stage between the groups ($p > 0.05$). *Conclusion.* Although not statistically significant, CRC patients with a history of surgery for benign perianal disease had less lymphatic metastases and tumor size than those without prior perianal surgery. We think that this finding is important in that it indicates the importance of detailed and appropriate evaluation of patients with CRC.

Key words: perianal surgery, colorectal cancer.

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Introduction

Colorectal cancer (CRC) is one of the most common and fatal malignancies worldwide [1]. The risk factors of CRC have been well demonstrated to date, including older age, personal history of CRC or inflammatory bowel disease, positive familial history of CRC, sedentary lifestyle, obesity, unhealthy nutritional habits, smoking, and alcohol consumption [2–4]. Although the clinical presentation varies according to the location of the tumor, hematochezia, tenesmus, changes in the defecation habit, chronic constipation, abdominal pain, and distension are the most common findings of CRCs [5].

On the other hand, benign anal disease encompasses common problems including hemorrhoids, anal fissures, pruritus ani, perianal abscesses, and fistulae, and has clinical presentations similar to CRC [6]. These benign conditions are treated surgically in a significant number of the patients. In general, patients who underwent surgery for benign anal diseases are expected to be more alert to anal and intestinal symptoms, and to admit to the hospital earlier than other people when such symptoms and signs occur. However, an opposite situation is also possible. Namely, these patients may mistakenly interpret CRC related symptoms in favor of benign anal disease, which may lead to delay in diagnosis and treatment.

To the best of our knowledge, there is no clinical study evaluated the impact of previous surgery for benign anal disease on the timing of hospital admission in patients with CRC. In this context, we aimed to investigate whether patients with CRC who had a surgical history for benign anal disease have more negative tumoral features or not.

Material and Methods

Patients and study design

Two-hundred fifty two patients who underwent surgery for CRC between 2010 and 2016 at general surgery clinic in Ankara Numune Training and Research Hospital included in this study. Informed consents of the patients were waived due to the retrospective nature of the study. Patients' age and gender, histopathological features of tumor including tumor size (T), lymph node status (N), distant metastasis (M), and stage were collected from the hospital records. Patients who had irregular medical records and diagnosed with other histopathology instead of adenocarcinoma were excluded from the study. Patients were classified into two groups as follows; patients who had undergone surgery for benign perianal disease such as hemorrhoid, anal fissure, perianal abscess and fistulae (Group 1) and patients without past history for perianal surgery (Group 2).

Statistical Analysis

The Statistical package for social science (SPSS 21.0 IL-Chicago-USA) standard version was used for data analysis. Descriptive analysis was done for demographic and histopathological features. The results are presented as mean \pm SD/percentages for continuous variables and number/percentage for categorical variables. Chi-square (χ^2) test, Fisher's Exact test and Mann Whitney U test were used to test for the comparison of variables between the two patient groups. Significance level was accepted as $p < 0.05$.

Results

A total of 252 CRC patients with a mean age of 64.2 years were included in the study. There were 95 (37.7%) females and 157 (62.3%) males. The majority of patients had stage 2 (51.2%) and stage 3 (32.9%) cancers. All demographic and pathological data of the patients were presented in Table 1.

There were 25 (9.9%) patients who had surgical history for benign perianal disease. The patients who had undergone surgery for benign perianal disease (Group 1) were compared with patients without past history

for perianal surgery (Group 2), in terms of demographic data and pathological characteristics (Table 2). There were no statistically differences in tumor size, lymph node positivity, presence of distant metastasis, and tumor stage between the groups ($p > 0.05$).

Table 1. Demographic and pathological characteristics of the study population (n = 252)

Characteristics	n (%)
Age (y)	64.2±13.4 (32–102)
Gender	
Female	95 (37.7%)
Male	157 (62.3%)
T (mm)	
T1	13 (5.2%)
T2	24 (9.5%)
T3	47 (18.7%)
T4	168 (66.7%)
N	
N0	160 (63.5%)
N1	64 (25.4%)
N2	28 (11.1%)
M	
M0	244 (90.1%)
M1	8 (3.2%)
Stage of tumor	
stage 1	32 (12.7%)
stage 2	129 (51.2%)
stage 3	83 (32.9%)
stage 4	8 (3.2%)

Data are presented as mean ±SD for age; n (%) for other variables; y – year; mm – milimeter; T – tumor size; N – lymph node status; M – metastasis.

Table 2. Comparison of patients who had undergone surgery for benign perianal disease (Group 1) and patients without past history for perianal surgery (Group 2)

Data	Group 1 (n = 25)	Group 2 (n = 227)	p
Age (y)	63.9±11.7 (47–85)	64.3±13.6 (32–102)	0.668
Gender			0.386
Female	7 (28%)	88 (38.8%)	
Male	18 (72%)	139 (61.2%)	
T (mm)			0.699
T1	1 (4%)	12 (5.3%)	
T2	4 (16%)	20 (8.8%)	
T3	4 (16%)	43 (18.9%)	
T4	16 (64%)	152 (67%)	
N			0.979
N0	16 (64%)	144 (63.4%)	
N1	6 (24%)	58 (25.6%)	
N2	3 (12%)	25 (11%)	

Data	Group 1 (n = 25)	Group 2 (n = 227)	p
M			0.572
M0	24 (96%)	220 (96.9%)	
M1	1 (4%)	7 (3.1%)	
Stage of tumor			0.679
stage 1	5 (20%)	27 (11.9%)	
stage 2	11 (44%)	118 (52%)	
stage 3	8 (32%)	75 (33%)	
stage 4	1 (4%)	7 (3.1%)	

Data are presented as mean \pm SD for age; n (%) for other variables; y – year; mm – milimeter; T – tumor size; N – lymph node status; M – metastasis.

Discussion

A significant number of CRC patients are diagnosed with advanced or metastatic stage [7]. Therefore, early detection of these tumors is of great importance for providing curative treatment and better prognosis. Although screening programs involving fecal occult blood measurement and colonoscopy are important parts of the early diagnosis strategy, similar symptomatology of CRC with other benign perianal diseases, together with dissatisfaction with colonoscopic examination and traditional concerns, may cause late diagnosis. In this line, the present study was based on the hypothesis that CRC patients who had a history of surgical intervention for benign perianal diseases may tend to have advanced tumor due to late hospital admission, in comparison to those without previous surgery. According to the results obtained from the study, there were no statistically differences in tumor size, lymph node positivity, presence of distant metastasis, and tumor stage between patients who had previous perianal operation and those without surgery. However, patients with a history of surgery for benign perianal lesion had less lymphatic metastasis, tumor size and stage than others, suggesting a little more awareness of CRC. As known, larger tumor size and lymphatic metastasis are directly associated with the stage and prognosis of CRC [8]. In our opinion, a statistical significance could be obtained if the number of patients with positive anal surgery was higher. However, we suggest that this result is important both for being the first in the current literature and making clinicians to have more attention to patient questioning during the preoperative period, although it does not have statistical significance.

Actually, the possible association between CRC and benign anal diseases such as hemorrhoid, anal fissure, fistula, and perianal abscess has been extensively investigated to date, with conflicting results. There are few studies that showed an increased risk of CRC in benign anal diseases, especially hemorrhoid, in the literature [9, 10]. This kind of association has been tried to explain by chronic inflammation with cytokine expression due to chronic constipation. As is well known, prolonged straining during defecation is one of the important factors in the pathogenesis of hemorrhoidal disease [11]. However, this symptom may also arise from the underlying CRC. That kind of relationship between benign perianal diseases and CRC was beyond of the present study. However, the fact that chronic inflammation is a possible factor in the carcinogenesis, similar clinical presentations between CRC and benign anal diseases, and the main finding of the study that lymphatic metastasis is more common in patients undergoing benign perianal surgery clearly indicated the importance of preoperative patient questioning.

There are several limitations of this study. First, the fact that it was carried out in a single center may limit the generalizability of the results. Second, a relatively small number of patient with CRC who underwent surgery for benign perianal disease may be another limitation, which makes it difficult to interpret subgroup findings. However, we believe that this study may provide scientific contribution to the literature because it is the first demonstrating that lymphatic metastasis is more common in patients with CRC who underwent surgery for benign perianal disease.

Conclusion

Although not statistically significant, CRC patients with a history of surgery for benign perianal disease had less lymphatic metastasis and tumor size than those without previous perianal surgery. Considering that lymphatic metastasis and tumor size are among the main indicators of prognosis in CRC, this finding is crucial for pointing out the importance of detailed and appropriate evaluation of patients with CRC. The results obtained from the present study are needed to be validated by larger-scale studies.

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