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Examination of polyp lesions detected in colonoscopy over a 10-year period

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ABSTRACT

Introduction: To contribute to the literatüre, the demographic features, frequency, histological features, size and location of polyps examined during 10 years were evaluated.

Materials and Methods: Reports of 5561 colonoscopy procedures performed between 2008 and 2018 were reviewed retrospectively. Statistical analysis was made.

Results: Polyps were found in 1835 (32.9%) of the 5561 whom colonoscopy performed. Of the patients with polyps, 16.1% were <40-years-old, 43.9% were between 40 and 60-years-old and 39.8% were over 60-years-old. The mean age of patients with polyps was 57 ± 78 years, and those without polyps were 51 ± 35 years. 37.6% of those with polyps were female and 62.4% were male. In histopathological examination, 37.38% of the polyps were found hyperplastic polyps, 55.9% adenomatous, and 6.7% adenocarcinoma. Of the adenomatous polyp (1026) cases, 48.8% were tubular, 44.5% were tubulovillous, and 6.6% were villous. The number of those with a polyps >1 cm was 1491 (81.3%), the average age was 54.47, while those larger than 1 cm were 344 (18.7%) and the average age was 58 ± 12. The percentage of polyp detection in men (62.4% vs. 37.6%) and the frequency of detecting >1 cm polyp (22.09% vs. 13.18%) were higher than in women. The most common location of polyps was the rectosigmoid region (1053 patients [57.38%]). Malignancy risk and size increased with age.

Conclusion: In our study, the frequency of polyps increased with age in both genders. The prevalence of polyps detected was higher than the literature. This shows the importance of widespread and timely colonoscopic examination.

Keywords: Colon polyp, Colonoscopik features, Demografic characteristics

Introduction

Colorectal cancer is the third most common cancer among all malignancies worldwide. Annually, an average of one million new cases of colorectal cancer is diagnosed in the world, of which approximately 500,000 result in death. [1] Colorectal cancers are frequently (90%) sporadic, but may also be of a genetic or familial origin.[2] Examinations have shown that colorectal cancers develop from the base of polyps over time.[3]

It is known that the most important criteria in the progression of the polyp to malignancy depend on the number, size, dysplasic structure, and histological type of the

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polyp.[4,5] Colon polyps are divided into two main categories: Neoplastic and non-neoplastic. Non-neoplastic polyps are mostly hyperplastic polyps, and most of the neoplastic polyps consist of adenomatous polyps. Adenomatous polyps are classified into the subtypes of tubular, tubulovillous, and villous. Of adenomatous polyps, 65–80% are tubular, 10–25% are tubulovillous, and 5–10% are villous adenomas.[6]

A polyp size over 10 mm is considered the limit for the development of malignancy. According to the risk classification for the development of malignancy, which includes the size, number, and histopathology of the polyps, patients were grouped as low risk (1–2 adenomas <10 mm), medium risk (3–4 small adenomas or single adenomas >10 mm), and high risk (>5 small adenomas or >3 adenomas and at least one >10 mm).[7]

In other words, the risk of colorectal carcinoma increases with the presence of polyps with villous/tubulovillous components, and the presence of adenomatous polyps over 1 cm.

In sporadic malignant cases, the incidence increases especially after the age of 40 years.[8] Therefore, the incidence and mortality rates of colon carcinoma can be reduced by optimal screening for colon adenomas, early detection, and excision of the polyp.[9-11]

Of colon polyps, 40% are located in the right colon (cecum, ascending colon, hepatic flexure, transverse colon), 31% in the left colon (splenic flexure, descending colon, and sigmoid colon), and 29% in the rectum.[12,13]

The aim of this study was to examine the data on the prevalence, size, histology, and location of the polyps detected in the colonoscopy procedures within a period of 10 years in our clinic, where a high number of colonoscopic procedures were performed.

Materials and Methods

The approval for the study was obtained from the Non-Invasive Ethics Committee of Kahramanmaras Sutcu Imam University (Decision No: 2021/06-05). The reports of 5561 colonoscopy procedures performed within a period of 10 years between January 2008 and January 2018 at the Gastroenterology Department of Kahramanmaras Sutcu Imam University Faculty of Medicine were retrospectively scanned. Polyps were detected in a total of 1835 colonoscopy procedures. Demographic findings such as age, gender, and histopathology, location, and dimensions of polyps were analyzed. The obtained data were recorded. Those with a history of inflammatory bowel disease, colon surgery, and infectious polyps were excluded from the study. Polyps were grouped by pathological classification (Non-adenomatous (Hyperplastic), adenomatous (tubular, tubulovillous, villous) adenocarcinoma), size (<1 cm or >1), and location (rectosigmoid, descending colon, transverse colon, cecum-ascending colon). The data on histology and dimensions of the polyps were obtained from the pathology records.

Statistics Analysis

In the evaluation of the data, the conformity of the variables to the normal distribution was examined with the Kolmogorov-Smirnov test. The Independent samples t-test method was used in the comparisons of two independent groups for normally distributed variables. In categorical variables, the distributional relationship of the frequencies of the groups was examined with the Chi-square test. Statistical parameters are expressed as Mean±SD and n (%). Statistical significance was accepted as $p<0.05$. IBM SPSS version 22 program was used to evaluate the data.

Results

During the study period of 10 years, 5561 colonoscopy procedures were performed. Of the 5561 patients, 3143 were male and 2418 were female. The mean age of male and female patients who underwent colonoscopy was 52±23 and 55±14 years, respectively. While polyps were detected in 1835 (32.9%) of the 5561 colonoscopy procedures, 3726 (67.1%) patients had no polyps. The histopathological evaluation of the polyps revealed 686 (37.38%) hyperplastic polyps, 1026 (55.9%) adenomatous polyps, and 123 (6.7%) adenocarcinoma. The classification of the polyps smaller or larger than 1 cm by size showed that the polyp size was smaller than 1 cm in 1491 (81.3%) patients (Table 1).

The analysis of the location of the polyps for all histological types showed that they were most frequently located in the recto-sigmoid region (368 [53.7%] hyperplastic polyps, 594 [57.9%] adenomatous polyps, and 91 [74%] adenocarcinoma) (Table 2).

All histopathological polyp subtypes were more common in males except tubular adenomatous polyp ($p<0.05$). In the tubular adenomatous subgroup, the incidence was higher in males (52.7% in males, 47.3% in females), but it was not statistically significant ($p>0.05$) (Table 2).

Table 1. Demographic and histopathological characteristics of patients with polyps

Features (n:1835)	
Age (Mean±SD)	57,78±11,42
<40, n (%)	297 (16,1)
40-60, n (%)	807 (43,9)
>60, n (%)	731 (39,8)
Gender, n (%)	
Female	690 (37,6)
Male	1145 (62,4)
Histopathology, n (%)	686 (37,38)
Hyperplastic	
Adenomatous	1026 (55,9)
Tubular	501 (48,8)
Tubulovillous	457 (44,5)
Villous	68 (6,6)
Adenocarcinoma	123 (6,7)
Polyp Size, n (%)	
<1 cm	1491 (81,3)
>1 cm	344 (18,7)

The comparison of the age, gender of the patients, and the size and presence of polyps showed that the age of the patients with polyps (57.78±11) was higher than that of those without polyps (51.35±23) ($p<0.001$) (Table 3). Polyps were detected in 297 (16.1%) patients under the age of 40 years, 807 (43.9%) patients between the ages of 40–60 years, and 731 (39.8%) patients over the age of 60 years (Table 1). The mean age of the patients with adenomatous polyps was higher than that of those with hyperplastic polyps, and the increased age was not significant ($p>0.05$) except for the villous adenoma subtype ($p<0.05$). The mean age of the patients with adenocarcinoma (62.35±14) was higher than that of the other polyp patients ($p<0.005$) (Table 2).

The analysis of the patients with polyp size larger and smaller than 1 cm by their demographic results revealed that the mean age of those with a polyp size larger than 1 cm was higher than the mean age of the group with a polyp size <1 cm ($p<0.05$). The analysis of all colonoscopy procedures (n=5561) showed that polyps were detected in 1145 (34.7%) of males and 690 (30.5%) of females. The rate was higher in males ($p<0.05$). The evaluation of the polyp sizes by gender showed polyps larger than 1 cm in 253 male patients (22.09%) and 91 (13.18%) female patients. The frequency of polyps larger than 1 cm was significantly higher in males ($p<0.05$) (Table 3).

Discussion

It is known that colon cancer develops on the background of lesions such as polyps (adenoma).[4,5] Therefore, the most important step in the prevention of malignancy is the early detection of these lesions. However, the literature review shows that the incidence of colon polyps and cancer in our country is not as high as in the USA or other European countries.[14] For instance, while some studies conducted in our country have reported an incidence of 20–25%, this rate has been reported as 30–35% in some European countries.[15,16] In our study, the incidence (1835/5561) in our region was found to be 32.9%. The high incidence rate found in our study may be due to regional differences (nutrition, habits (maras powder, etc.), ge-

Table 2. Age, gender and localization characteristics of histopathological subtypes

Demographic features	Hyperplastic (n=686)	Adenomatous			Adenocarcinoma (n=123)
		Tubular (n=501)	Tubulovillous (n=457)	Villous (n=68)	
Age (Mean±SD)	54,24±11,13	54,47±11,06	56,01±25,53	59,22±22,36	62,35±14,42
Gender (n, %)					
Female (n=690)	214 (31.2)	237 (47,3)	167 (36,5)	23 (33,8)	49 (39,8)
Male (n=1145)	472 (68,8)	264 (52,7)	290 (63,4)	45 (66,1)	74 (60,1)
Location, n (%)					
Rectosigmoid (%57,38)	368 (53,7)	248 (49,7)	309 (67,8)	37 (54,4)	91 (74)
Descending (%30,68)	238 (34,7)	183 (36,6)	117 (25,8)	18 (26,4)	7 (5,6)
Transverse (%2,9)	25 (3,7)	24 (4.8)	0	5 (7,3)	0
Cecum-ascending (%8,9)	55 (7,9)	46 (8,9)	31 (6.4)	8 (11,7)	25 (20,3)

Table 3. Comparison of demographic characteristics of patients with polyp sizes

	Polyp formation		p	Polyp size		p
	Yes	No		<1 cm	>1 cm	
Age[a]	57,78± 11	51,35±23	<0,001	54,47±21	58,12±36	<0,05
Gender[b]						
Male	1145	2155	<0,05	892	253	<0,05
Female	690	1571		599	91	

[a]Independent samples t test; [b]Chi-Squre test; a:0.05.

netic factors) or to factors such as the ease of accessibility to colonoscopy as a result of the recent increase in the number of centers carrying out colonoscopy.

Unfortunately, there are no large studies on the prevalence of colon polyps conducted in our country yet. The rate found in our study is similar to the results of studies conducted in Europe and America. As is understood, colonoscopy screening is of great importance for the timely detection of lesions. It has been shown that early diagnosis can reduce the incidence and mortality of colon cancer.[9-11]

The results of our study showed a higher frequency of polyps in males (34.7%) than in females (30.5%). This is similar to the rates reported in the literature.[17]

The histopathology (dysplasia, presence of villous component) and size (>1 cm) of the polyp are important markers to predict the development of malignancy.[18,19] In our study, adenomatous polyps were detected in 1026 (55.9%) patients, while hyperplastic polyps were detected in 686 (37.38%) patients. In the literature, it has been stated that adenomatous polyps are detected 4–5 times more frequently than hyperplastic polyps.[20] In our study, this rate was observed to be approximately 1.5 times. The reason for this may mean that we could not reach a sufficient number of the patient group over 50 years of age, in which adenomatous polyps are most frequently observed. The results of another study analyzing the colonoscopic examinations of approximately 320 individuals who were on a Mediterranean diet in accordance with our region showed that the number of adenomatous polyps was 1.5 times more common, similar to our results.[21] However, a sufficient number of similar data have not been found in the literature yet.

Some studies analyzing the subtypes of adenomatous polyps showed that tubular adenomas accounted for 80–85% of adenomatous polyps, 4–15% of villous adenomas, and 8–17% of tubulovillous adenomas.[13,18,19] Another study reported that 65% of 450 polyp cases were tubular adenoma, 22.8% were hyperplastic, and 3.7% were juvenile polyps.[15,21] Our study demonstrated a lower frequency of tubular adenoma, a higher frequency of tubulovillous adenoma, and a similar frequency of villous adenoma to those reported in the literature. Considering the mean age of our patients who underwent colonoscopy (male: 52±23, female: 55±14), it was thought that colonoscopy should be performed at an earlier age, so that these patients could be identified before the carcinoma stage.

The literature review shows that the frequency of adenocarcinoma increases between 54 and 60 years of age in males, 41 and 45 years in females, with a mean age of 42–60 years.[22] The mean age of our adenocarcinoma patients was 62.35±14 years. The analysis of all cases of polyps revealed that the development of polyps increased with age. The comparison of the total number of colonoscopies showed an adenocarcinoma incidence of 2.21% (123 out of 5561 procedures). Previous studies conducted in our country reported an incidence of 0.8–5.5%, which is similar to our results.[23,24]

The mean age of the patients with polyps in our study was consistent with the literature.[22] The mean age of our patients with polyps was 57.78±11 years. The risk of polyps was found to increase with increasing age in both genders. Moreover, the mean age of the patients with polyps larger than 1 cm (58.12±36) was higher than those with polyps smaller than 1 cm (54.47±21). Although the size of the polyps was often <1 cm, age and the location of the polyp were factors that affected the size of the polyps. Postmortem studies have shown that 10–15% of polyps are generally >1 cm and that the polyp size increases toward the proximal colon.[23]

In our study, the incidence of polyps larger than 1 cm was 18.7%, which was higher than the results reported in the literature. The frequency of polyps larger than 1 cm was found to be higher in males than in females (22.09% vs. 13.18%, p<0.05). This shows that the female gender is an advantage for the polyp growth process as well as for the frequency of polyps.

In terms of location, all polyps were observed more frequently in the distal colon in our study. However, a study reported that colon carcinoma location was more proximal, especially in menopausal women and that flexible sigmoidoscopy alone was insufficient for screening of women.[24] Moreover, colonoscopic examinations can be delayed due to menstruation while investigating the cause of anemia in fertile women. Therefore, we are of the opinion that colonoscopy should not be postponed for these patients, and total colonoscopy should be performed if possible.

In the literature, it has been reported that 40% of colon polyps are located in the right colon (cecum, ascending colon, hepatic flexure, transverse colon), 31% in the left colon (splenic flexure, descending colon, and sigmoid colon) and 29% in the rectum. Especially the location of colon cancers has been reported to change from the left colon to the right in the last 30–35 years.[13] Similarly, we observed 74% of adenocarcinoma lesions in the rectosigmoid region and 20.3% of them in the right (cecum-ascending) colon, which are higher than the results reported than the literature. A study reported that hyperplastic polyps were mostly observed in the left (recto-sigmoid region) colon.[16] The analysis of all types of polyps in our study revealed that the most frequent polyp location was the rectosigmiod region, followed by the descending colon, the cecum-ascending colon, and the transverse colon.

Conclusion

In conclusion, our study reviewed the histopathological, prevalence, size, and location information of polyps detected in colonoscopy procedures performed over a 10-year period. Compared with the previously reported data in our country, our study demonstrated a higher prevalence of polyps. Considering that there may be polyp lesions that can progress to carcinoma in all colon segments and that we should be more careful especially in certain age groups, we recommend that the colonoscopy be performed timely and, if possible, as a total colonoscopy.

Disclosures

Ethichs Committee Approval: Non-Invasive Ethics Committee of Kahramanmaras Sutcu Imam University (Decision No: 2021/06-05).

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Conflict of Interest: None declared.

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