

## Predictive value of morphologic characteristics in rectosigmoid adenomatous polyps for the probability of synchronous polyps or cancer in the proximal colon

Rektosigmoid adenomatöz poliplerin morfolojik özelliklerinin proksimal kolonda senkron polip ya da kanser olasılığı yönünden prediktif değeri

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**Background/aims:** Sigmoidoscopy is performed more frequently than colonoscopy, especially for screening purposes and searching for colorectal neoplasm. The necessity of colonoscopy in patients with an adenoma of  $\leq 5$  mm found on sigmoidoscopy is controversial. The aim of this study was to investigate whether the size of rectosigmoid adenomas is associated with the risk of neoplasm in the proximal colon and to determine whether there is indication for total colonoscopy. **Methods:** Patients found to have rectosigmoid adenomatous polyps on colonoscopy were included in the study. These adenomas were grouped as diminutive ( $\leq 5$  mm), small (6-10 mm) or large ( $\geq 11$  mm) polyps. These groups were compared regarding the presence of proximal adenoma and advanced proximal neoplasia ( $>10$  mm adenoma and/or villous histology and/or high grade dysplasia or cancer). Polyps found in the rectum and sigmoid colon were considered as distal polyps and polyps other than these were considered as proximal polyps. **Results:** In this study, of 1124 consecutive patients who underwent colonoscopy between April 1997 and January 2002, 184 (16%) had 258 adenomatous polyps in the rectosigmoid area. The polyps were diminutive ( $\leq 5$  mm) in 105, small (6-10 mm) in 46 and large ( $\geq 11$  mm) in 33 patients. Forty-one of the patients (39%) with diminutive polyps, 20 of the patients (43%) with small polyps and 19 of the patients (57%) with large polyps had neoplasm in the proximal bowel. In these patients, advanced proximal neoplasm was found in 8 (8%), in 6 (13%) and in 11 (33%), respectively. There was no difference regarding the presence of neoplasm in the proximal colon between these groups. The rate of advanced proximal neoplasm was found to be significantly higher in the group with large polyps in the rectosigmoid area than in the groups with small and diminutive polyps ( $p<0.05$ ). In 104 patients (57%) with polyp(s) in rectum and sigmoid colon, no associated polyp or cancer was encountered in the proximal colon. **Conclusion:** Colonoscopy is indicated when adenomatous polyp, regardless of size, is found on rectosigmoidoscopy performed because of symptoms.

**Key words:** Rectosigmoid, adenomatous polyps, proximal colon neoplasm, colonoscopy

**Amaç:** Rektosigmoidoskopi işlemi kolonoskopiye göre özellikle tarama ve kolorektal semptomların araştırılmasında daha sık kullanılmaktadır. Rektosigmoidoskopi işleminde 5 mm veya daha küçük adenom saptanan hastalarda kolonoskopi işleminin gerekliliği tartışmalıdır. Bu çalışmada rektum ve sigmoid kolonda saptanan adenomatöz poliplerin boyutunun, proksimal kolonda senkron polip veya gelişmiş neoplazm varlığı ve kolonoskopi endikasyonunda ne kadar belirleyici olabileceği sorusunun yanıtlanması amaçlanmıştır. **Yöntem:** Kolonoskopik işlem sırasında rektosigmoid kolonda adenomatöz polip saptanan hastalar çalışmaya alındı. Rektosigmoid adenomlar diminutiv ( $\leq 5$  mm), küçük (6-10 mm) veya büyük ( $\geq 11$  mm) olarak gruplandırıldı. Bu gruplar proksimal kolonda adenom, gelişmiş proksimal neoplazm (adenom  $>10$  mm ve/veya villöz histoloji ve/veya high grade displazi veya kanser) olması veya olmaması yönünden karşılaştırıldı. Rektum ve sigmoid kolonda saptanan polipler distal bunun dışında kolonun diğer bölgelerinde saptanan polipler proksimal olarak kabul edildi. **Bulgular:** Bu çalışmada Nisan 1997-Ocak 2002 arasında semptomları nedeniyle kolonoskopi yapılan birbirini izleyen 1124 hastanın 184'ünde (%16) rektosigmoid bölgede 258 adenomatöz polip saptandı. Bu 184 hastanın 105'inde diminutif ( $\leq 5$  mm), 46'sında küçük (6-10 mm), 33'ünde büyük ( $\geq 11$  mm) polip mevcuttu. Diminutif polipli hastaların 41'inde (%39), küçük polipli hastaların 20'sinde (%43), büyük polipli hastaların 19'unda (%57) proksimal kolonda neoplazm saptandı. Bu hastalarda gelişmiş proksimal neoplazm sırasıyla 8 (%8), 6 (%13), 11 hastada (%33) bulundu. Gruplar arasında proksimal kolonda neoplazm saptanma oranları arasında fark bulunmadı. Gelişmiş proksimal neoplazm oranı rektosigmoid büyük polip bulunan grupta küçük ve diminutif polipli gruba göre anlamlı olarak yüksek bulundu ( $p<0.05$ ). Rektosigmoid kolonda polip bulunan hastaların 104'ünde (% 57) proksimal kolonda polip veya yandaş tümör yoktu. **Sonuç:** Semptomları nedeniyle rektosigmoidoskopi yapılan hastalarda adenomatöz polip saptanırsa boyutu ne olursa olsun kolonoskopi endikasyonu vardır.

**Anahtar kelimeler:** Rektosigmoid, adenomatöz polip, proksimal kolon neoplazmı, kolonoskopi

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## INTRODUCTION

Some colorectal cancer screening studies have shown that screening rectosigmoidoscopy and fecal occult blood test have the potential to reduce colorectal cancer mortality (1, 2). Flexible rectosigmoidoscopy has several advantages over colonoscopy: easier utilization, greater patient toleration, and lower cost to perform. Autopsy, surgical, and colonoscopic studies have found synchronous proximal neoplasm in 20-60% of patients with distal colorectal neoplasms (3). There is controversy about the predictive value and relationship between the size of the adenoma detected in the rectosigmoid colon and proximally located polyps or neoplasms. Conflicting results have arisen from the data of heterogeneous patient groups.

The need for colonoscopy in patients with adenomas with diameters of 5 mm or less detected by sigmoidoscopy is controversial. Some authors have claimed that there is no need to do full colonoscopy for diminutive adenomas  $\leq 5$  mm in the rectosigmoid region, but according to some other studies, colonoscopy should be performed in all patients with adenoma in the rectosigmoid region to exclude synchronous proximal neoplasms (3-13).

The aim of this study was to evaluate whether the size of rectosigmoid adenomas is associated with the risk of neoplasm in the proximal colon and to determine whether there is indication for total colonoscopy.

## MATERIALS AND METHODS

The study included 1124 consecutive symptomatic patients who underwent total colonoscopy between April 1997 and January 2002 in two endoscopic centers (Şişli Etfal Training and Research Hospitals, and Endotıp Endoscopy Center) (Table 1). Patients with adenomatous polyps in the rectosigmo-

id colon were included in the study. Colonoscopy was performed with a video colonoscope (Fujinon EC 200). All polyps were extracted by polypectomy.

Rectosigmoid polyps were allocated to three groups according to size using biopsy forceps as a criterion: diminutive ( $\leq 5$  mm in diameter), small (6 to 10 mm in diameter), or large ( $\geq 11$  mm in diameter).

The size of the polyps was confirmed by pathological specimens. These groups were compared regarding the presence of adenoma and advanced neoplasm ( $>10$  mm adenoma and/or villous histology and/or high grade dysplasia, cancer) in the proximal colon (7, 8). The polyp with the largest size was taken into account in patients with multiple polyps. Polyps in the rectum and sigmoid colon were considered as distal and polyps other than these were considered as proximal.

Patients with inflammatory bowel disease, familial adenomatous polyposis or rectosigmoid cancer and non-neoplastic (hyperplastic) polyp found on colonoscopy and who had a history of colonic operation, radiotherapy and chemotherapy or incomplete cecal intubation were excluded from the study.

Student's t, chi-square and ANOVA tests were used for statistical analysis. The statistical p value was set at 0.05.

## RESULTS

Two hundred and fifty-eight rectosigmoid neoplastic polyps (adenomas) were found in 184 (16%) of the 1124 consecutive patients, with 169 being diminutive (0-5 mm), 56 small (6-10 mm) and 33 large ( $\geq 11$  mm). Of the 184 patients, diminutive polyps were found in 105 (0-5 mm), small polyps in 46 (6-10 mm) and large polyps in 33 ( $\geq 11$  mm) (Table 2). Neoplasm in the proximal colon was found in 39% of patients with rectosigmoidal diminutive polyps, in 43% of patients with small polyps

**Table 1.** Indications of colonoscopy

	Number patients (n:1124)	(%)
Rectal bleeding	429	38
Constipation, diarrhea, abdominal pain	292	26
Changing bowel habits, weight loss	114	10
Positive fecal occult blood test, anemia, melena	91	8
Abnormal barium enema	78	7
Family history of colon cancer	54	5
Others (distension, gas, bloating etc.)	66	6
	1124	100

**Table 2.** Characteristics of adenomatous polyps in the rectosigmoid area

	No. of patients	(%)
<b>No. of polyps</b>	184	100
1	149	81
2+	35	19
<b>Size of polyps</b>		
$\leq 5$ mm	105	57
6-10 mm	46	25
$\geq 11$ mm	33	18

and in 57% of patients with large polyps. The relationship between the size of rectosigmoid polyps and the presence of neoplasm in the proximal colon was not statistically significant ( $p>0.05$ ). The rates of advanced neoplasm (advanced adenoma + cancer) in these groups were 8%, 13% and 33%, respectively.

The rate of advanced neoplasm in the proximal colon in patients with large adenomas in the rectosigmoidal colon was significantly higher than in the patients with small and diminutive adenomas ( $p<0.05$ ).

Table 3 shows the incidence of proximally located adenoma and advanced neoplasm in patients with adenomas in the rectosigmoidal colon.

**Table 3.** Prevalence of proximal synchronous polyp, advanced polyp and carcinoma and characteristics of histopathology in 184 patients with rectosigmoid polyps

	Rectosigmoid adenoma size, (n)		
	≤ 5 mm (105)	6-10 mm (46)	≥ 11 mm (33)
<b>Number of patients with proximal neoplasms</b>	<b>41 (39%)</b>	<b>20 (43%)</b>	<b>19 (57%)</b>
Tubular adenoma	33	14	8
Advanced adenoma	5	3	8
Carcinoma	3	3	3
<b>Size of proximal adenoma</b>			
≤ 5 mm	23	7	5
6-10 mm	10	8	5
≥ 11 mm	5	2	6

Patients with and without neoplasm in the proximal colon were compared regarding age, gender, mean polyp size and indication of colonoscopy, and the difference was not found to be statistically significant (Table 4).

**Table 4.** Findings for patients with rectosigmoid adenomatous polyp with and without proximal colonic neoplasm

	Synchronous polyp and carcinoma (n=80)	No synchronous polyp and carcinoma (n=104)	P Value
Age	59± 11.4	57± 13.3	NS
Gender (M/F)	51/29	58/46	NS
Mean size of polyp	0.71±0.43 mm	0.67±0.46 mm	NS
<b>Indications of colonoscopy</b>			
(Rectal bleeding/other)	27/53	39/65	NS

NS:  $p> 0.05$

Of 105 patients with polyps of 0-5 mm detected in the rectosigmoid colon, 78 had a single polyp, while the remaining 27 patients had more than one.

Polyp or cancer was found in 31% (25/78) of the patients with a single polyp and in 59% (16/27) of the patients with multiple polyps; the difference was statistically significant ( $p<0.05$ ) (Table 5).

**Table 5.** Evaluation according to number of polyps in patients with diminutive polyp (0-5 mm in diameter) in the rectosigmoid colon with proximal synchronous advanced polyps and carcinoma

	single polyp (n:78)	2+polyp (n:27)
Proximal colon adenomatous polyp	23	10
Proximal colon advanced polyp	1	4
Proximal colon cancer	1	2
Total (%)*	25 (31%)	16 (59%)*

\* $p< 0.01$

## DISCUSSION

Adenomatous polyps may be precursors for colorectal carcinoma (1-15). It is believed that 60-90% of colorectal cancers develop from adenomas (7). Studies of the natural history of adenomas have suggested that polyps < 1cm and nonadvanced polyps have a lower risk for subsequent malignant transformation than larger polyps (15). Malignant transformation takes approximately 10-15 years (7, 8, 15). For this reason, all symptomatic and asymptomatic colorectal adenomas must be removed.

On the other hand, there is limited and conflicting data about the predictive value of the size of polyps in the distal colon for the risk of adenomas and advanced neoplasm in the proximal colon (6, 16, 17).

Some controlled studies have reported that the mortality of distal colorectal cancer is reduced by 70-90% only with rectosigmoidal screening and polypectomy (1-3, 18-20).

First, the definition of proximal and distal varies from study to study. For example, Imperiale et al. (21) used the splenic flexure as the dividing point, whereas Netzer et al. (22) chose the rectosigmoid. We also considered rectum and sigmoidal colon as distal, which can be examined with flexible fiberoptic sigmoidoscopy. Synchronous polyps in the proximal colon are likely in 30% of patients with adenomas in the distal colon (6, 10, 11, 13, 16, 17).

In our study, this rate was found to be 35%. Wallace et al. (18) performed screening rectosigmoidoscopy on asymptomatic patients with a negative fecal occult blood test who had a single tubular adenoma in the distal colon (1-5 mm in size), and found the risk of advanced adenoma in the proximal colon as 0%. In this study, it was found that the risk of proximal advanced polyp was 5.4% in distal multiple adenomas 1-5 mm in size and 7.9% in distal advanced polyp. Zarchy and Ershoff (6) found the prevalence of proximal advanced polyp as low as 0.8% in cases with distal single or multiple tubular adenomas 0-10 mm in size. Grossman et al. (23) found the risk of proximal advanced colonic polyps in patients with rectosigmoid adenomas smaller than 10 mm as 3%. These results are not concordant with our study. A multicenter study compared patients with and without diminutive adenomas (1-9 mm) on rectosigmoidoscopy regarding the risk of advanced adenomas in the proximal colon, and the difference was not found to be statistically significant (6% vs 5.5%) (24). According to this study, diminutive adenomas on sigmoidoscopy may not accurately predict advanced adenomas in the proximal colon. Read et al. (16) performed flexible rectosigmoidoscopy on patients for various reasons, and they found the risk of advanced proximal polyps as 6-10% in patients who had distal tubular or villous adenomas smaller than 5 mm; this rate was in concordance with the rate of our data, which was 8%. In two separate studies, the risk of advanced polyps in patients with diminutive polyp in the rectosigmoid colon was found to be 6-13% (25, 26). Various studies have shown that the risk of advanced polyps and neoplasm is higher in the presence of advanced polyps in the distal colon and, if the adenomas

in the distal colon are multiple (even if their size is small), polyps in the proximal colon are likely (6, 16-18). Our study has also shown that neoplasm in the proximal colon is found in 59% of patients with two or more diminutive adenomas (0-5 mm) and in 31% of patients with a single diminutive adenoma (0-5 mm) in the rectosigmoidal colon, and this result was statistically significant. Khan et al. (27) found adenomas in the proximal colon in 29% of patients with a single and small adenoma in the distal colon and advanced adenoma in 9.6%. This study concluded that colonoscopy is indicated in patients with adenomas in the distal colon regardless of their size. McGarrity et al. (3) emphasized the importance of colonoscopy in their study and suggested that the indication for colonoscopy was not related to the size or histology of the polyp found on sigmoidoscopy. A study performed in Spain reported distal colon findings in patients with an average risk of colon cancer have no predictive value in terms of indication for colonoscopy or probability of neoplasm in the proximal colon. A strategy in which colonoscopy is performed solely in patients with distal colonic findings is not an effective screening for the detection of advanced proximal neoplasms in an average-risk population (28).

In conclusion, we found polyps in the proximal colon in one-third of patients with adenomas  $\leq 5$  mm in size in the rectum and sigmoidal colon and advanced neoplasm in the proximal colon in 8%. If the polyps with a size of  $\leq 5$  mm in the rectosigmoidal region were multiple, the probability of neoplasm in the proximal colon increased significantly. Therefore, colonoscopy is indicated in all patients with adenomatous polyps on rectosigmoidoscopy, regardless of their size.

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