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ORIGINAL ARTICLE

Young patients with benign anal diseases and rectal bleeding: should a colonoscopy be performed?

Belisa G. Muller[1,2] · Paulo C. Contu[1] · Cláudio Tarta[1] · Anderson R. Lazzaron[1,2] · Tiago L. Ghezzi[1] · Daniel C. Damin[1,2]

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Abstract

Background and aim There is no consensus whether a colonoscopy should be recommended for patients under 50 years of age who present with both anal bleeding and benign anal diseases. The aim of this study is to evaluate the effectiveness of colonoscopy to detect neoplastic lesions in this specific group of patients.

Methods A prospective study analyzing the results of colonoscopies performed in patients younger than 50 years of age who reported a rectal bleeding and also had a diagnosis of benign anal disease at first clinical visit.

Results One hundred and eighty-seven consecutive patients were prospectively included in this study. In 35 patients (18.7%), adenomatous polyps were diagnosed. Thirty-seven percent of those lesions (13 cases) were further classified as either advanced adenomas or serrated adenomas. The prevalence of adenomas was 14.6% among patients under the age of 40 and 20% among those between 40 and 50 years of age. Thirty-one percent of the adenomas (11 cases) were located in the right colon, without any other concomitant lesion in the distal colon. In addition, an unsuspected case of sigmoid carcinoma was diagnosed.

Conclusion The performance of colonoscopy in young patients with benign anal diseases and hematochezia resulted in a high rate of detection of neoplastic lesions. The method might be considered as a valid strategy of investigation in this frequent clinical situation.

Keywords Colorectal cancer · Colonoscopy · Young patients · Gastrointestinal bleeding · Colorectal neoplasms

Introduction

In everyday medical practice, there are a number of common problems to which the ideal management is not well and scientifically defined. In the routine practice of a regular coloproctology clinic, most patients initially present with symptoms related to anorectal disorders, such as hemorrhoids and fissures. These conditions are usually associated with rectal bleeding, which represents a clear indication for performing a colonoscopy if the patient is older than 50 years, the age from which some form of screening for colorectal cancer is recommended [1, 2]. In contrast, there is no consensus whether patients with anal disorders who are younger than 50 years of age should be submitted to a colonoscopy or not.

The incidence of colorectal cancer (CRC) has increased among young individuals in recent years [3, 4]. In the USA, the incidence of the disease in subjects younger than 50 years increased steadily at a rate of 2.1% per year from 1992 to 2012 [5]. A study accessing data of 64,854 patients with colorectal cancer (20–49 years old) from the United States Surveillance, Epidemiology, and End Results Program (SEER) database showed a gradual increase in the of CRC in the study population: from 3.59/100,000 males in 1988 to 5.21/100,000 males in 2013, and from 3.15/100,000 females in 1988 to 4.45/100,000 females in 2013 [6].

In Brazil, CRC is the third most common type of cancer. Although 36,360 new cases of CRC were estimated for 2018 in the country, the proportion of patients younger than 50 years old is unknown [7]. A recent study conducted in a large cancer center in Southeast Brazil analyzed 5806 patients with CRC, identifying 781 patients younger than 50 years between January 2011 and November 2016. There was an absolute

✉ Daniel C. Damin
damin@terra.com.br

[1] Division of Coloproctology, Hospital de Clinicas de Porto Alegre, and Department of Surgery, Federal University of Rio Grande do Sul, Rua Ramiro Barcelos 2350, sala (room) 600, Porto Alegre, RS 90 035-903, Brazil

[2] Postgraduate Program in Surgical Sciences, Federal University of Rio Grande do Sul, Porto Alegre, RS, Brazil

increasing in the incidence of early-onset CRC of 1.88–2.23% annually, corresponding to a relative increasing of 35.3% during the study period [8].

In this context, the aim of the present study was to evaluate the results of performing colonoscopy in young patients who initially present with both anal disorders and rectal bleeding.

Methods

Patients

This prospective study included patients younger than 50 years of age who attend to the Coloproctology Clinic within Hospital de Clínicas de Porto Alegre, Southern Brazil, between January 2014 and January 2018. In order to be included in the study, patients had to present with complaint of rectal bleeding and subsequently had a diagnosis of anal disorder, which clearly could be the cause of the bleeding, established at the physical examination.

Patients with symptoms suggesting the possibility of a colorectal carcinoma, such as melena, weight loss, anemia, and altered bowel habit, were not included in the study. Other exclusion criteria were inflammatory bowel disease, family history of inherited colorectal cancer syndrome, history of diverticular disease, anticoagulation, and history of a previous colonoscopy. Patients with a first-degree family history of CRC, which represents a formal indication to perform a colonoscopy before the age of 50, were not included in the study. In addition, patients who failed to achieve adequate bowel preparation for the exam (Boston scale for bowel preparation, scores 0 and 1) were also excluded from the analysis.

The study was conducted after approval by our Institutional Ethics and Scientific Committee. All patients signed a consent form before study entry.

Colonoscopies

All colonoscopies were performed by skilled endoscopists or by fellows under close supervision using Pentax TM EPK-i (Pentax®, Japan) colonoscopies. Informed consent was obtained from all patients before the procedure. The bowel preparation followed the hospital protocol and consisted of (1) diet without residues starting 2 days prior to the examination, (2) administration of 2 tablets of bisacodyl 5 mg twice a day on the day before the examination, and (3) ingestion of solution containing 500 ml of mannitol 20% about 6 h before the exam. All detected polyps were documented, photographed, and excised. The proximal colon was defined as the colonic segments located proximally to the splenic flexure, whereas the distal colon included the splenic flexure and the distal colorectal segments. The histological evaluation was performed by experienced gastrointestinal pathologists who were blinded about the colonoscopic findings.

Polyps were classified as advanced adenoma (high-risk lesions) when they had villous histology, measured more than 1 cm in size, or displayed high grade dysplasia. Serrated adenomas were also considered high-risk lesions.

Several clinical variables were analyzed, including the main symptom and the diagnosis established at the clinical visit. The main symptoms were divided into 4 categories: bleeding, anal pain, prolapse, and drainage of secretion. Hemorrhoids, anal fissures, and anal fistulas were the main diagnoses.

Statistics

For categorical variables, a descriptive analysis was performed, showing frequency and percentage. For quantitative variables, mean and standard deviation were used. Bivariate analyses were also performed to compare proportions, using the chi-square test for two independent samples, the chi-square test for more than two independent samples, and Fisher's exact test. For the application of the statistical tests, the variable age was divided in two categories: less than 40 years and 40 years or more. IBM SPSS Statistics 25.0 was used for the analysis. The significance level was set at 5%.

Results

After excluding 13 patients with first-degree family history of CRC and 8 patients who failed to achieve adequate bowel preparation for the colonoscopic examination, a total of 187 patients composed the study population. There were 94 women (50.3%) and the mean age was 40.2 ± 6.8 years. The main characteristics of patients are presented in Table 1.

Forty percent of the patients had some type of colonoscopic abnormality detected (Table 2). The presence of polyps was the most common abnormal finding, being observed in 60 patients (32.1%). In 35 patients (18.7%), the pathological analysis of the polyps confirmed the diagnosis of adenoma. Thirty-one percent of the adenomas (11 cases) were located in the right colon, without any other concomitant lesion in the distal colon. There were 10 advanced adenomas, most of them located in the right colon (8 cases). In addition, there were 3 serrated adenomas which were all located in the proximal colon.

Thirty-four percent of the patients with adenomas (12 cases) were younger than 40 years of age. Similarly, out of the 10 patients with advanced adenomas 3 were younger than

Table 1 Characteristics of patients

Variable	*n* (%)
Sex	
Male	93 (49.7)
Female	94 (50.3)
Main symptom	
Bleeding	125 (66.8)
Anal pain	20 (10.7)
Anal prolapse	15 (8.0)
Drainage of secretion	27 (14.4)
Main diagnosis	
Hemorrhoids	131 (70.0)
Anal fissure	25 (13.4)
Anal fistula	31 (16.6)
Family history of CRC[a]	
Positive	18 (9.6)
Negative	169 (90.4)

[a] Second-degree family history of CRC

40 years. All three patients with serrated adenomas were older than 40 years (41, 42, and 45 years, respectively).

History of CRC in second-degree relatives was not significantly associated with the presence of adenoma. A comparison of clinical characteristics between patients with and without adenomas is summarized in Table 3.

In two patients, a subsequent surgical approach was necessary to treat otherwise unsuspected advanced colorectal lesions. The first one was a 38-year-old woman who had an adenocarcinoma detected in the left colon. The second patient was a 45-year-old man with an endoscopically unresectable large adenoma located in the cecum. None of them had family history of colorectal neoplasia.

Twenty-five patients had non-adenomatous colorectal polyps (28 lesions) resected. The histopathological results of those lesions were as follows: 22 hyperplastic polyps, 2 lipomas, 1 lymphatic hyperplasia, 3 inflammatory alterations. There were no serious complications during the study. The only adverse event reported was a small bleeding after a polypectomy, controlled with local injection of adrenaline.

Table 2 Colonoscopic findings

Finding	*N* (%)
Polyp	60 (80.0)
Malignant tumor	1 (1.3)
Diverticula	10 (13.3)
Non-specific inflammation	3 (4.0)
Angiodysplasia	1 (1.3)
Total	75 (100)

Table 3 Comparison between patients with and patients without adenomas

Variable	Adenoma ($n = 35$)	No adenoma ($n = 152$)	*p*-value
Sex			
Males	19 (54.3%)	74(48.7%)	0.550
Females	16 (45.7%)	78 (51.3%)	
Age			
< 40 years	12 (34.3%)	60 (39.5%)	0.569
≥ 40 years	23 (65.7%)	92 (60.5%)	
Main symptom			
Bleeding	22 (62.9%)	103 (67.8%)	
Other	13 (37.1%)	49 (32.2%)	0.578
Main diagnosis			
Hemorrhoids	28 (80.0%)	102 (67.1%)	0.107
Anal fissure	1 (2.9%)	25 (16.4%)	
Anal Fistula	6 (17.1%)	25 (16.4%)	
Family history of CRC[a]			
Positive	4 (11.4%)	13 (8.5%)	0.593
Negative	31 (88.6%)	139 (91.5%)	

[a] Second-degree family history of CRC

Discussion

Benign anorectal disorders, such as hemorrhoids and anal fissures, are the most common reasons why people see a coloproctologist. If the patient is older than 50 years of age, a colonoscopy is usually recommended as a diagnostic exam [9, 10]. In contrast, there is no consensus about the need of complementary investigation for patients under 50 years of age presenting with a bleeding that could be explained by an anal problem. The present study is the first to directly address such a frequent clinical situation.

We found adenomatous polyps in 18.7% of the patients. Thirty-seven percent of those lesions (13 cases) were further classified as either advanced adenomas or serrated adenomas. So, in such a young population of patients, colonoscopy was successful in detecting and removing the subtypes of adenoma with the highest potential for malignant transformation. Although it is not clear how many of those lesions would eventually progress into an invasive carcinoma, their resection might in fact represent an effective way of preventing a future malignant tumor. In this context, we believe that it is clearly in the best interest of the patients to have their advanced adenomatous polyps removed.

It is important to notice that most advanced adenomas were found in the proximal colon. Although previous studies have suggested that performing flexible retosigmoidoscopy might be appropriate for the investigation of young patients with anorectal bleeding [11, 12], the ability to reach the splenic flexure during the examination is only about 80% [13–15]. In our study, 31% of the adenomas were located in the right colon. Thus, the use of flexible retosigmoidoscopy would fail

to detect a high proportion of proximal lesions. In fact, due to the low utilization rates and quality concerns, the 2018 Guideline Update from the American Cancer Society on Colorectal Cancer Screening considered removing flexible sigmoidoscopy as a recommended test [16].

The incidence of CRC in individuals older than 50 years has decreased in the last decades as a result of preventive screening programs. In contrast, the incidence has increased 1 to 3% annually for individuals younger than 50 years during the same period of time [17, 18]. The reasons for this phenomenon are not fully understood but the observation that CRC incidence is increasing in successively younger birth cohorts suggests that this is not just a transient epidemiological phenomenon [19, 20]. Although in a significant proportion of the young patients (up to 21%) tumors are related to hereditary syndromes, most cases are classified as sporadic, having no identifiable predisposing genetic conditions. Today the early-onset CRC comprises 10 to 18% of the newly diagnosed cases. These cancers are more likely to exhibit a later tumor stage at presentation, distal anatomic location, and the aggressive signet ring histology [19, 21].

Models based on the increasing incidence of colorectal cancer in young people demonstrated that the early onset of screening colonoscopy provides a greater reduction in the lifetime risk of CRC, more life-years gained, and more CRC death averted than other recommendable strategies [16, 22, 23]. Although most guidelines currently recommend starting colorectal screening at the age of 50 years, the 2018 guideline from de ACS makes a qualified recommendation to begin screening at age 45, for also believing that the younger birth cohorts are carrying the recognized elevated risk for CRC with them as they age [16].

To this date, a few studies have investigated the role of colonoscopy in young individuals with hematochezia. Khodadoostan et al. [24] performed colonoscopy in 120 patients younger than 50 years. They found adenomas in 13.8% of the cases. Wong et al. [10] investigate 223 patients under 50 years. Twenty-six patients (11.6%) had colon neoplasms, either adenomas or adenocarcinomas. Koh et al. [25] conducted a retrospective review of 361 patients with a median age of 44 (range, 18–50) years submitted to a colonoscopy due to hematochezia. In 72 patients (13.3%), neoplastic polyps were identified. Almost half (31 cases) of these polyps were located proximal to the splenic flexure. Two patients were diagnosed with colorectal carcinoma. The authors advised to perform full colonoscopy, not just a sigmoidoscopy, in all young patients with lower gastrointestinal bleeding.

Koning and Loffeld [26] conducted a large cross-sectional study to assess the prevalence of colorectal abnormalities in patients with hemorrhoids. They analyzed retrospectively 1910 consecutive patients with hemorrhoids and 7936 patients without hemorrhoids (reference group) who were submitted to an endoscopic examination in a regional hospital during a period of 17 years. All significant endoscopic findings (diverticuli, polyps, CRC, angiodysplasia and varices, or colitis) were recorded. The patients with hemorrhoids were divided in 2 groups. Group 1 ($n = 861$; 45.1%) consisted of patients with only hemorrhoids, group 2 ($n = 1049$; 54.9%) consisted of patients with hemorrhoids and another endoscopic diagnosis. Patients in group 1 were significantly younger (mean age 55.3 ± 14.1 versus 67.4 ± 12.1 years), and underwent significantly more often a sigmoidoscopy (11 versus 2%). Furthermore, endoscopic co-findings were significantly more found with increasing age. The majority of diverticuli, polyps, cancer, and vascular lesions were detected in the age group above 50 years, while only colitis was more often present in the younger group. Diverticuli and angiodysplasia and varices were more prevalent in group 2. The authors concluded that colorectal abnormalities are frequent in patients with hemorrhoids and advise that, especially in older patients, the clinician must be cautious to attribute symptoms solely to hemorrhoids.

Most previous studies investigating colonoscopy in young individuals included patients with warning symptoms for colorectal neoplasia, such as anemia, change in bowel habit, and bleeding without an evident cause [2, 9–12, 27]. Our study, in contrast, was designed to answer a very common question in the clinical setting: should a colonoscopy be performed in a young patient whose rectal bleeding can be explained by the presence of a benign anal disorder? Our results suggest that it is a valid strategy to recommend a colonoscopy in this particularly frequent situation. We found a prevalence of adenomas of 15.5% in patients under the age of 40 and 19.5% in those between 40 and 50 years of age. This rate of detection is higher than that reported in previous studies evaluating young patients with hematochezia (prevalence between 8.3 and 9.9%) [10, 12] and close to that estimated (up to 25%) for the population over 50 years [28]. In addition, we had a case of unsuspected sigmoid carcinoma that probably would only be diagnosed latter and in a more advanced tumor stage. A failure to detect a malignant tumor in a young patient who had sought healthcare for anal bleeding may be devastating, probably reducing the chance of cure and creating potentially serious medical-legal issues.

Conclusions

Despite the limitations of the present study, a single-center study with a somewhat limited number of patients, we addressed a new aspect in colorectal cancer prevention that had not been investigated to this date. We were able to document a high prevalence of adenomatous polyps in patients younger than 50 years of age who initially presented with symptoms related to benign anal problems. Our results seem to be in line with the recently reported increasing incidence of colorectal

cancer in young individuals [28] and the new tendency to start screening at an early age. Our data suggested that a colonoscopy might be considered as a valid strategy of investigation in such a frequent clinical situation. Further studies with a larger number of patients and assessment of long-term outcomes are needed to define the ultimate role of colonoscopy in these patients.

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