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COLONOSCOPIC FINDINGS IN A PRIVATE CLINIC IN GOIÂNIA

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ABSTRACT

Introduction: Colorectal cancer (CRC) is one of the most prevalent neoplasms worldwide and the second leading cause of cancer-related deaths. Colonoscopy (COL) is an essential examination for diagnosing intestinal diseases and is capable of identifying precancerous lesions, such as adenomatous polyps (AP), at an early stage, allowing their removal before progression to an invasive tumor. Objective: To evaluate the prevalence of AP, CRC, and colonic diverticula (CD) in patients undergoing colonoscopy. **Methodology:** This was a descriptive cross-sectional study in which the findings of COL exams performed between March 2019 and October 2020 in a private clinic were evaluated. Demographic data, colonoscopic findings, whether biopsy and/or polypectomy was performed, and the corresponding histopathological results were collected. A total of 10,951 COL exams were performed during the study period; of these, 719 (6.6%) were excluded for not meeting the inclusion criteria, and the remaining 10,232 (93.4%) composed our sample. **Results:** Among these, 2,354 (23.0%) presented AP, 100 (1.2%) CRC, and 2,984 (29.2%) CD. Age showed a non-normal distribution (Kolmogorov–Smirnov, $p<0.0001$) and was significantly associated with all diagnoses. ROC curve analysis demonstrated good accuracy for age in detecting polyps and tumors. **Conclusion:** This study is justified by the relevance of COL as a CRC screening strategy and by its potential to support improvements in health policies, in addition to providing an understanding of colonoscopic findings that may assist in identifying epidemiological and clinical patterns.

Keywords: Colonoscopy; Adenomatous polyps; Colorectal cancer; Colonic diverticula; Cancer prevention.

INTRODUCTION

Colorectal cancer (CRC) is one of the most prevalent neoplasms worldwide and is responsible for high morbidity and mortality rates. According to the World Health Organization (WHO), it is the third most common cancer in men and the second in women,

and the second leading cause of cancer-related deaths.[1] The growing incidence of CRC—associated with population aging and changes in dietary and lifestyle habits—reinforces the importance of effective prevention strategies.[2]

The disease is characterized by the uncontrolled growth of cells in the colon or rectum, with potential to spread to other organs. Because CRC often develops silently in its early stages, screening plays a crucial role in its early identification.[3]

In this context, colonoscopy (CS) stands out as the main screening and diagnostic method for CRC. This exam uses a flexible endoscope to evaluate the entire colon and rectum after bowel preparation and patient sedation. Although many patients show resistance to undergoing this exam, colonoscopy is considered the gold standard for CRC detection.[4]

Screening is recommended for asymptomatic adults aged 45 or 50 years, depending on local guidelines. In Brazil, the Ministry of Health recommends colonoscopy for CRC screening starting at 50 years of age, at 3- to 5-year intervals, and at earlier ages for individuals with a family history of CRC. Screening should be discontinued in adults over 75 years of age or in those with a limited life expectancy of less than ten years.[5] Current guidelines from the U.S. Preventive Services Task Force argue that beginning screening at age 45 could prevent an additional 2 to 3 CRC cases and 1 CRC death per 1,000 individuals screened when compared to starting at age 50. Diagnostic indications also include symptoms such as hematochezia, unexplained iron-deficiency anemia, changes in bowel habits, and persistent abdominal pain[4].

CS enables the early detection of precancerous lesions, such as adenomatous polyps (AP), allowing for their removal before progression to an invasive tumor.[6] Thus, it serves as an indispensable tool for the immediate treatment of suspicious lesions, significantly reducing CRC-related mortality.[7]

Moreover, colonoscopy is essential for the follow-up of patients with a family history of cancer or with predisposing clinical conditions, such as inflammatory bowel diseases.[4] This context highlights the importance of studies that evaluate colonoscopic findings and their impact on clinical practice.[7] The present study aims to analyze the colonoscopic findings of a population undergoing colonoscopy in a private clinic in Goiânia, with emphasis on the presence of adenomatous polyps (AP), colorectal cancer (CRC), and diverticula.

METHODOLOGY

This was a descriptive cross-sectional study in which the findings of colonoscopy exams performed between March 2019 and October 2020 in a private clinic in Goiânia were evaluated. From the medical records, data were collected regarding patient identification (name, sex, and age), colonoscopic findings, whether biopsy and/or polypectomy was performed, and the corresponding histopathological results.

All patients aged 18 years or older who underwent colonoscopy during the specified period were included. Exams (either colonoscopy or histopathology) that did not present adequate technical quality, as well as patients with medical records that did not allow collection of the necessary data, were excluded.

During the study period, 10,951 colonoscopies were performed; of these, 719 (6.6%) were excluded for not meeting the inclusion criteria. The remaining 10,232 (93.4%)

constituted the study sample.

The study was approved by the Research Ethics Committee of the Pontifical Catholic University of Goiás.

STATISTICAL ANALYSIS

For descriptive statistics, absolute (n) and relative (%) frequencies were calculated for categorical variables, while for the continuous variable (age), the mean, standard deviation, and minimum and maximum values were obtained.

For inferential statistics, chi-square (χ^2) or G-tests were applied according to the stratified distribution, and when necessary, the nonparametric Mann–Whitney test was used for comparing means.

ROC curve analyses were performed to assess the sensitivity and specificity of age in diagnosing adenomatous polyps (AP) and colorectal cancer (CRC).

Statistical calculations were performed using the IBM® SPSS® (Statistical Package for the Social Sciences) software, adopting a significance level of 5% (p-value < 0.05).

RESULTS

The studied population consisted of 10,232 patients, with a mean age of 52.7 ± 14.0 years, and 6,485 (63.4%) were female. The most frequent indications for colonoscopy were cancer prevention (45.6%) and abdominal pain (12.7%). Table 1 presents the distribution of demographic variables and indications in the study population.

Polyps were detected in 3,267 individuals (31.9%), of which 2,354 (72.1%) were adenomatous polyps (AP), while the remaining 913 polyps (27.9%) were hyperplastic or inflammatory. Regarding the degree of dysplasia among AP, 2,087 (88.7%) presented low-grade dysplasia, 124 (5.2%) high-grade dysplasia, and 143 (6.1%) showed no dysplasia. Colorectal cancer (CRC) was diagnosed in 121 patients (1.2%) (Table 2). If high-grade dysplasia is considered carcinoma in situ, then 245 patients (2.4%) presented a tumor.

Figure 2. (A) Patient positioning for pre-oxygenation. (B) Video laryngoscopy.

Table 1. Distribution of demographic variables and indications for colonoscopy

Variable (n = 10,232)	*n*	*f(%)*
Sex		
Female	6485	63.4
Male	3747	36.6
Age (years)		
Up to 39 years old	1932	18.9
40 to 49 years old	2000	19.5
50 years old or older	6300	61.6
Mean (SD)	52.7 (14.0)	
Indication		
Prevention or screening	4663	45.6
Abdominal pain	1297	12.7
Past history of polyps	943	9.2
Enterorrhagia, melena, or hematochezia	787	7.7
Chronic diarrhea	466	4.6
Change in bowel habits	433	4.2
Presence/history of neoplasm	255	2.5
Family history of neoplasm	251	2.5
Constipation	162	1.6
Anemia	141	1.4
Inflammatory bowel disease	137	1.3
Inflammatory bowel disease	131	1.3
Anal disorders	117	1.1
Hemorrhoids/thrombosed hemorrhoids	103	1.0
Hemorrhoids/thrombosed hemorrhoids	81	0.8
History of diverticula	78	0.8
Weight loss	61	0.6
Endometriosis	50	0.5
Preoperative evaluation	32	0.3
Other	25	0.2
Two or more indications	19	0.2

ˣf(%) calculated considering positive cases.

Tabela 2. Distribuição das variáveis incluindo a presença de pólipos, tipos histológico, grau de displasia e o CCR.

Variable (*n*=10.232)	*n*	*f(%)*
Polyp		
Yes	3267	31.9
No	6965	68.1
Histological type of polypsˣ		
Adenomatous	2354	72.1
Hyperplastic or inflammatory	913	27.9
Degree of dysplasia in adenomatous polyps (AP)ˣ		
Low grade	2087	88.7
High grade	124	5.2
No dysplasia	143	6.1
CRC		
Yes	108	1.1
No	10124	98.9

ˣ *f(%) calculated considering positive cases.*

AP = adenomatous polyps; CRC = colorectal cancer..

We performed a ROC curve analysis to evaluate the sensitivity and specificity of diagnosing lesions (adenomatous polyps and colorectal cancer) based on patient age. The results showed a statistically significant curve (Area = 0.658; SE = 0.006; p < 0.0001; 95% CI = 0.646–0.669). Additionally, the sensitivity (S) and specificity (E) of diagnosing lesions (adenomatous polyps and colorectal cancer) at the age threshold of 50 years were assessed (S = 77.1% and E = 47.1%) (Figure 1).

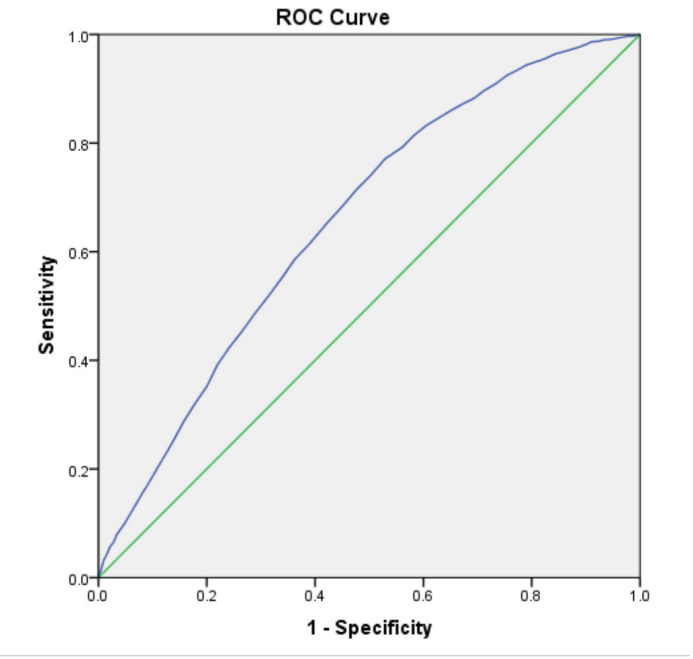

Figure 1. ROC curve for age and the diagnosis of intestinal lesions (adenomatous polyps and colorectal cancer).

Diverticula (CD) were observed in 2,984 patients (29.16%). When we evaluated patient sex, we found the presence of CD in 33.28% (n = 1,247) of men and in 26.78% (n = 1,737) of women (p < 0.00001), with a relative risk (RR) of 1.09 (95% CI: 1.06–1.12), meaning that men have a 1.09-fold higher risk of having CD. The risk difference (RD) was 6.46 (4.64–8.34).

Regarding age, the mean age was significantly higher among patients with CD (62.4 ± 10.5 years) compared with those without CD (48.8 ± 13.3 years) (p < 0.0001). Table 3 compares patients with and without diverticula within the sample, including sex distribution and mean ages.

Table 3. Comparison between patients with and without diverticula regarding age and sex.

DIVERTICULA		TOTAL	WITH	WITHOUT	P-value
N	*η*	10,232	2,984	7,248	
Sex					
Female	*η*	6,485	1,737	4,748	0.0001
	f (%)	63.38%	58.21%	65.51%	
Male	*η*	3,747	1,247	2,500	0.0001
	f (%)	36.62%	41.79%	34.49%	
Age	years	53.5 +/- 14.0	62.4 +/- 10.5	48.8 +/- 13.3	0.0001

To compare the colonic segments affected by diverticula, we initially divided patients into three groups: those with diverticula in the left colon (descending colon, sigmoid, and rectum), those in the right colon (cecum, ascending colon, and transverse colon), and those with diffuse diverticula (involvement of both sides). A much higher prevalence was observed in the left colon, followed by the diffuse pattern and, lastly, the right colon [2,067 (69.27%), 789 (26.44%), and 128 (4.29%), respectively].

When we evaluated the indications for colonoscopy, we found that the vast majority of patients with diverticula underwent the exam for colorectal cancer (CRC) prevention or screening (49.8%), characterizing the diagnosis of diverticula as an incidental finding. Other more frequent indications were abdominal pain (11.63%) and a history of bleeding (5.25%), both of which may be symptoms of diverticular disease or its complications.

DISCUSSION

This study was designed as a cross-sectional observational investigation assessing colonoscopic findings in a total of 10,232 individuals. We observed that most patients were women (63.4%), a fact that may be explained by women's greater interest in their own health, leading them to seek medical services more frequently.[8] Notably, malignant or premalignant lesions were diagnosed in 2,406 (23.5%) cases, with colorectal cancer (CRC) identified in 121 patients (1.2%) and adenomatous polyps (AP) in 2,354 (23.0%). Regarding the degree of dysplasia among AP, 2,087 (88.7%) exhibited low-grade dysplasia, 124 (5.2%) high-grade dysplasia, and 143 (6.1%) showed no dysplasia (Table 2). The presence of diverticula was identified in 2,984 (29.2%) participants, with the majority located in the sigmoid colon (52.1%).

Similar findings were reported in a cross-sectional study conducted in China by Chen and colleagues[9], who performed colonoscopy in 25,593 individuals assessed as high risk for CRC within the Urban China Cancer Screening Program. They diagnosed CRC in 65 patients (0.25%) and polyps

in 3,983 (15.6%), of which 785 (19.7%) were advanced adenomas (including adenomas ≥10 mm or those with villous components or high-grade dysplasia), 2,091 (52.5%) were non-advanced adenomas, and 1,107 (27.8%) were hyperplastic polyps.

Adenomatous polyps and CRC display variable distributions across anatomical segments of the colon. Studies indicate that most AP are located in the distal colon, including the sigmoid and rectum, with percentages ranging from 60% to 75%.[1] The present study aligns with these findings, as 63.6% of polyps were located in this same intestinal segment.

The ROC curve, with an area of 0.658 and $p < 0.0001$, indicated that age is a relevant factor for the accuracy of diagnosing colorectal lesions (CRC and AP), with sensitivity and specificity increasing as patient age advanced. Gupta et al.[4] observed an increased detection of AP with advancing age, from 17.3% before age 40 to 53.8% before age 50. In the present study, we were also able to demonstrate this association through ROC curve analyses evaluating age and the presence of lesions. These results corroborate the literature, which highlights the effectiveness of screening programs in older age groups, when the risk of developing malignant lesions is higher.[10]

In a study conducted at a referral hospital in Tanzania, colonoscopy was performed in 448 patients; among all individuals enrolled, 205 (45.80%) were women and the remaining 243 (54.20%) were men. The mean age in this cross-sectional study was 47 years (ranging from 8 to 90 years). The main indications for the exam included diarrhea (22.54%), abdominal pain (21.21%), hematochezia (18.53%), difficult defecation (16.96%), mucoid stools (10.49%), and anemia (8.70%)[7]. In our study, the most common indications were prevention or screening (45.6%), abdominal pain (12.7%), past history of polyps (9.2%), and enterorrhagia, melena, or hematochezia (7.7%). These findings show that CRC prevention strategies through lesion screening are more firmly established in our setting.

Another study, which also aligns with our findings, evaluated 723 patients with a mean age of 46.03 ± 16.8 years. In this study, 113 patients (15.6%) presented colonic polyps and 11 cases (1.52%) of CRC were detected. Most polyps were located in the left colon (67.5%). There was no statistical difference in the prevalence of AP between the age groups 40–49 years and 50–59 years ($P = 0.77$). Detailed data analysis using ROC curves not only showed that age is a risk factor for the presence of colonic polyps but also suggested cutoff ages of 42.5 years for the presence of all polyp types and 44.5 years for AP.[11]

Diverticula are predominantly distributed in the left colon, especially the sigmoid, which accounts for more than 70% of cases. This distribution is attributed to higher intraluminal pressure in this region during fecal propulsion.[1] In our study, we also observed a higher prevalence of diverticula in the left colon, followed by involvement of both sides and, lastly, the right colon [2,067 (69.27%), 789 (26.44%), and 128 (4.29%), respectively].

CONCLUSION

The results of this study demonstrate the relevance of colonoscopy in screening for conditions such as adenomatous polyps (AP) and colorectal cancer (CRC). AP were diagnosed in 23.0% of patients, and CRC in 1.2%. These findings reinforce the importance of systematic colonoscopic examinations, especially in populations at higher risk for CRC. Therefore, colonoscopy plays a crucial role in the prevention and management of CRC.

However, given its high cost, it is necessary to optimize screening strategies and establish more effective clinical guidelines. In doing so, we can better prioritize healthcare resources and

improve the planning of preventive actions.

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