Original Article

Colonoscopic Finding in 18-50 Years Old Adult with Rectal Bleeding

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Background: Bleeding per rectum is a common problem in all ages. Colonoscopy is suggested in patients more than 50 years of age or high risk patients. The incidence of cancer in young adults is rising, as well as right-sided colon cancer. Proctoscopy to flexible sigmoidoscopy is suggested in young adults with rectal bleeding.

Objective: To determine the findings and locations of lesions from colonoscopy in young adult patients with rectal bleeding.

Materials and Methods: One year of consecutive out-patients age 18-50 years with rectal bleeding that underwent a colonoscopy after the history and physical exam were performed at Chiang Mai University Hospital. Bleeding per rectum is defined as bright red blood from the rectum, red blood in either feces, on toilet paper or in the toilet bowl. Lesions were recorded in centimeters from the anal verge. The suspected or abnormal lesions were biopsied and sent to a pathologist. Patients with inflammatory bowel disease, known history of cancer, diverticulitis, bowel ischemia or suspected bowel perforation were excluded.

Results: Forty-nine patients met the inclusion criteria and underwent colonoscopy without complications. A complete colonoscopy was performed in 45 patients (91%). A normal colonoscopy was found in 13 patients (28.8%) with hemorrhoids as the common lesion recorded for 17 patients (37.7%). The second most common finding was polyps, found in ten patients (22.2%) and all were biopsied. Four of ten patients with polyps (8.8 %) were precancerous lesions either tubulous or villous adenoma. One patient (2.3%) had a tissue mass that revealed adenocarcinoma.

The majority of adenomatous and cancerous lesions (80%) were found within 60 cm from the anal verge. Only one patient had a tubulous adenoma at 80 cm from the AV. On multivariate regression analysis, malignant and adenomatous lesions were statistically significant with age (p = 0.04, OR = 1.16, 95%CI = 1.01 to 1.34)

Conclusion: Hemorrhoids were the most common cause of rectal bleeding in adults age 18 to 50 years. Most of the lesions were found within 60 cm from AV. We concluded that a flexible sigmoidoscopy is sufficient to evaluate the cause of bleeding in a young adult with rectal bleeding. But a colonoscopy should be considered in patients with increasing age (> 40 years old). The present paper was limited by the number of patients due to time and a single institute.

Keywords *:* Bleeding per rectum, Young adult, Colonoscopic finding, Pre-cancerous lesions

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Bleeding per rectum is a common problem occurring at all ages. Causes of bleeding vary from benign to malignant[1]. There are multiple ways to investigate the cause of bleeding.

Many reports published in the last decade indicated that the most common causes of rectal bleeding were from hemorrhoids and anal fissures [2-4]. Rectal bleeding, however, can also be a symptom of colorectal cancer.

Nowadays, colonoscopy is recommended for patients over 50 years of age, high risk and unstable patients with lower gastrointestinal bleeding[5].

Therefore, young adult patients with rectal bleeding undergo proctoscopy to flexible sigmoidoscopy due to a lower incidence of serious lesions. There is, however a trend of a rising incidence of cancer in young adults as well as right-sided colon cancer [6-10]. Our concern became whether a proctoscopy to flexible sigmoidoscopy was an adequate evaluation of the cause of rectal bleeding in young adults. The aim of the present paper was to determine the colonoscopy findings of serious lesions and locations of lesions identified in young adult patients with rectal bleeding.

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Material and Methods

The present report was a cross-sectional study conducted over one year of consecutive out-patients 18-50 years of age with rectal bleeding from June, 2014 to June 2015, at Chiang Mai University Hospital. Bleeding per rectum is defined as bright red blood from the rectum, red blood in either feces, on toilet paper or in the toilet bowl. Patients met the inclusion criteria if they were between 18 to 50 years old with a history of bleeding per rectum in the past few months and ability to read and comprehend informed consent without contraindication for colonoscopy examination. We excluded patients with a history of colorectal cancer, inflammatory bowel disease and clinical symptoms suspected of peritonitis, diverticulitis or bowel ischemia.

Patients were enrolled to the study after the informed consents had been obtained. Their history of symptoms and prior treatment was taken along with physical exams performed. Laboratory investigations of concern were obtained in all patients as followed: hemoglobin, hematocrit, CEA level and stool occult blood. Then patients were scheduled for colonoscopy with standard bowel preparation on the day before the examination.

Most of the colonoscopy examinations were performed without sedation, using only Xylocaine jelly. Olympus colonoscopes were used in the present study. The procedure began in left lateral decubitus in a chin to knee position. While the exam was conducting, the patient could be asked to change positions for the areas of difficult visualization depending on the endoscopist. Details of endoscopic finding were recorded regarding lesions seen in the colonoscopy exam, with the location recorded in centimeters from the anal verge. Abnormal lesions were biopsied or removed and sent for histopathology examination except hemorrhoids, anal fissures, diverticulum, and arteriovenous malformation. After the colonoscopy was performed, patients were observed in the recovery room per standard hospital policy.

Afterward the patient received standard treatment post-colonoscopy regarding each finding. Then, they were scheduled for follow up after at least two weeks for bleeding symptoms and revealing the pathology results if a tissue biopsy had been taken.

Statistical Analysis

Data entry and analysis were performed using STATA version 11.0. Descriptive statistics were calculated for continuous variables. Categorical variables: type of lesion and sex, the frequencies and percentages were calculated with the Chi-squared test. The continuous variables utilized the Student T-test. For calculating the association between Significant lesion and variable, odds ratio (OR), and 95% confidential intervals were used.

Results

Forty-nine patients underwent colonoscopy without sedative drugs. There were no complications during the colonoscopies. However, a complete colonoscopy was done in 45 cases. For the incomplete colonoscopic patients, no polyp or other significant pathologic lesion was found.

For the 45 cases analyzed, there were 12 men and 33 women. The mean age was 33.63 years old. The patients were categorized by age group, there were 29 patients (64.4%) younger than 40, and 16 patients (35.6%) between 40 - 50 years old. The mean hemoglobin level was 12.46 and hematocrit was 37.37% with a mean CEA of 2.61 ug/ml. The CEA was elevated (more than 5 ug/ml) in only two cases. One was diagnosed as rectal cancer. Another patient had a juvenile polyp. The occult blood stool results were positive in 14 patients (31.1%). Six of the patients had a family history of colorectal cancer. One of these six patients had juvenile polyp in their rectum. One patient had an anal fissure. All of the other patients' pathology results were within normal limits.

The colonoscopy results as shown in Table 2, indicated normal colonoscopic examinations in 13 patients (28.8%). Hemorrhoids were the most common lesions recorded for 17 patients (37.7%). Polyps were found in ten patients (22.2%) and all polyps were biopsied or removed. The third most common lesion was an anal fissure in five patients (11.1%).

Five of ten patients with polyps (50%) were reported with either tubulous or villous adenoma precancerous lesions. One patient (2.3%) with a mass and tissue removed was diagnosed with a malignant adenocarcinoma lesion (Table 3).

The majority of adenomatous and cancerous lesions were found within 60 cm from the anal verge. Unfortunately, one patient had a tubulous adenoma at 80 cm from AV and he also had synchronous polyp at 60 cm which was a hyperplastic polyp (Table 4). Most of the patients with precancerous polyps were more than 35 years old, except for one patient who was age 23 without a family history of colorectal cancer. On univariate analysis (Table 1) and multivariate analysis (Table 5), malignant and adenomatous lesion were statistically significant with age ($p = 0.04$, OR = 1.16,

Table 1. Demographic Data of Patients

Variables	Malignant and Precancerous n = 5	Benign n = 40	p-value
Gender, n (%)			
- Male	1 (20.00)	11 (27.50)	0.721
- Female	4 (80.00)	29 (72.50)	
Age			
Mean(SD)	43.6 (6.98)	32.75 (9.42)	0.017*
Fam, n (%)			
- No CRC Family History	5 (100.00)	33 (82.50)	0.596
- 1st degree	0 (0.00)	2 (5.00)	
- 2nd degree	0 (0.00)	5 (12.50)	
Proctoscopy Finding, N (%)			
- Normal	1 (20.00)	17 (42.50)	0.333
- Lesion	4 (80.00)	23 (57.50)	
Level Hct, n (%)			
- Normal	5 (100.00)	34 (87.14)	0.395
- Anemia	0 (0.00)	5 (12.82)	
Hb, Mean (SD)	12.21 (2.59)	13.1 (1.17)	0.457
Hct, Mean (SD)	36.68 (7.52)	40.18 (3.53)	0.314
MCV, Mean (SD)	80.27 (9.51)	85.62 (3.34)	0.223
Level of MCV, n (%)			
- Normal 78 to 102	5 (100.00)	23 (57.50)	0.065
- Low MCV <78	0 (0.00)	17 (42.50)	
Stool Occult Blood, n (%)			
- Negative	3 (60.00)	29 (72.50)	0.561
- Positive	2 (40.00)	11 (27.50)	
Level CEA, n (%)			
- < 5	4 (80.00)	39 (97.50)	0.073
- > 5	1 (20.00)	1 (2.50)	

Table 2. Findings in 45 Colonoscopy Patient Examinations

Colonoscopic Findings	n = 45 (%)
Normal	13 (28.8%)
Hemorrhoid	17 (37.7%)
Polyp	10 (22.2%)
Anal Fissure	5 (11.1%)
Colitis	2 (4.4%)
Diverticulum	1 (2.2%)
Solitary Rectal Ulcer	1 (2.2%)
Mass	1 (2.2%)

95%CI = 1.01 to 1.34).

Colitis was found in two patients. Solitary rectal ulcer and diverticulum were each found in one patient. In subgroup analysis of patients with family histories of colorectal cancer, either first degree or second degree, which was classified as increased risk group, there was no statistically significant precancerous or malignant lesions (p = 0.59).

In three patients with lesions located more than 60 cm. from the anal verge, two of the three were benign; colitis and inflammatory polyps. Another one was a tubular polyp which was a precancerous lesion.

Table 3. Histopathologic Results of Ten Patients with Location, Gender and Age

Polyp	Location From Anal Verge (cm)	Gender	Age
Anal Polyp	2 to 3	Female	23
Retention Polyp	5	Male	19
Juvenile Polyp	10	Male	24
Retention Polyp	20	Female	23
Villous Adenoma	30	Female	49
Tubular Adenoma	30	Male	35
Tubular Adenoma	50	Female	37
Hyperplastic Polyp	60	Female	49
Tubular Adenoma	80	Female	49
Inflammatory Polyp	80	Male	37

Table 4. Malignant and Premalignant Lesions

Polyp	Location From Anal Verge (cm)	Gender	Age
Tubular Adenoma	30	Male	35
Tubular Adenoma	50	Female	37
Tubular Adenoma	80	Female	49
Villous Adenoma	30	Female	49
Adenocarcinoma	5	Female	48

Table 5. Multivariable Analysis of Adenomatous Polyp with CRC

Variable	Adjusted OR	95%CI	*p*-value
Age >45	10.63	1.01-1.34	0.040

Adjusted by gender, CEA, MCV

Discussion

Rectal bleeding a common, problem for about 15% of the general population and higher trend in young adults. Various etiologies are the causes of bleeding, usually caused by benign lesions. Rectal bleeding is also a symptom of significant pathologic causes as in colorectal cancer.

Many investigations are available from proctoscopy, sigmoidoscopy to colonoscopy, which is the best tool for evaluating the cause of rectal bleeding. B ut a full colonoscopic examination is recommended

in patients with significant bleeding. increased risk and high risk groups and patients over 50 years of age. And as the prevalence of serious pathologic lesion are rare in younger age groups, physicians and patients might ignore their symptoms.

Reports from the US indicate an increasing incidence of colorectal cancer in young adults which seems to be in those with advanced stages. Moreover, observational reports show a gradual shift toward right-sided or proximal colon cancers in both the United States and internationally.

According to the worldwide situation, in 2012, Chiang Mai University Hospital had treated patients with CRC age under 50 accounting for 19% of all patient with colorectal cancer, with half of these patient having a pathologic lesion on the right side of the colon. The authors were concerned about giving our patients a definite cause for the bleeding and right treatment without missing any serious condition under safe and necessary procedures.

As a result we found hemorrhoids to be the most common lesion which is in line with other reports from Khalid; Pakistan[11], Wong; USA[12] and Spinzi[4]; Italy, but less than those studies (57.8%, 60%, 84.2% respectively). Our conclusion is that the most common lesion found in young adults with rectal bleeding is hemorrhoids including internal hemorrhoid and external hemorrhoid.

The second most common lesion in the present study were polyps, accounting for 22%. This finding was more than other studies published but familiar as the second common finding. In the study from Khalid, polyps were found only 7.9% and Wang was 9.9%[11,12]. But in Wang's study, only adenomatous polyps were counted in the report. So, in the present study, 8.9% of patients had adenomatous polyps, precancerous lesions, either tubular on villous adenomas. From our findings and other papers, about 10% of young adult with rectal bleeding have adenomatous polyps in incidental findings that may not explain the cause of bleeding.

If we look at the patients with adenomatous polyps, most of these patients were older than 35 years old. Age is a statistically significant variable for these serious findings (P = 0.04; OR 1.16; 95% CI = 1.01 to 1.34). As Khalid reported, there were more significant adenomatous polyps and colorectal cancer in the group of patients aged 40 - 50 (p = 0.03; OR 2.84; 95% CI 1.05 - 7.65)[11]. From this finding, patients with older age with rectal bleeding could have significant lesions that we should offer them information of investigation more than proctoscopy. A prospective study in ten French endoscopy units involving 2,000 patients underwent colonoscopy reported 21% of patients 40 to 50 years old had adenomatous polyps or malignant lesions, located in the proximal colon in 47% of the cases[13].

The majority of serious pathologic lesions, either adenomatous polyp or cancer were located 60 cm from the anal verge. With 60 cm from the anal verge, some literature classified them as left side colon accessible by flexible sigmoidoscopy which can be used to examine and obtain tissue by polypectomy or biopsy in 60 cm of length. Flexible sigmoidoscopy, however, may not be available in all hospitals. Also, one patient age 49 without family history of CRC was found to have a tubular adenoma at 80 cm from the AV. This suggested that colonoscopy should be a good option for evaluation. Fine KD. suggested that evaluation of hematochezia patient should begin with a colonoscopy even when the blood is red, because it is more effective, safer, and less costly than one beginning with flexible sigmoidoscopy[14].

Patients were all treated with standard treatment for each disease diagnosed whether from colonoscopy findings or pathologic results. In a normal colonoscopy, they were advised to screen for CRC as an average risk population. Patient were prescribed medication and advised regarding life style and food modification with hemorrhoids and anal fissures. Then, they were scheduled for follow up of the symptoms in next two weeks and after that as normal. For all non-precancerous lesions, patients were advised for CRC screening as NCCN guidelines, or meet doctors if there were any symptoms of concern or they still had rectal bleeding. Every patient with adenomatous polyps in the present study classified as low risk adenoma according to NCCN guideline were advised for surveillance over the next five years. One cancer case was followed with standard treatment.

Conclusion

In adults 18 - 50 years of age with rectal bleeding, the most common cause is hemorrhoids. Some cases revealed a normal colonoscopy without any lesion seen or cause of bleeding. Polyps can be found 10 - 20% which may not be the cause of bleeding. About 10% of these patient might have premalignant and malignant lesions, especially in older age. As the present study and literature review, physicians should be concerned about patients 40 - 50 years of age. For most of the lesions within 60 cm. a flexible sigmoidoscopy might

be enough for evaluation. However, varied incidence of lesions was found in the right side of young adult patients, so a full colonoscopy may be beneficial for evaluation with some intervention performed at the same time.

Limitation

Because of the small number of patients in this study, it is difficult to conclude the finding results or proper investigation for this group of patients. Flexible sigmoidoscopy seems to be a reasonable tool to evaluate young adult with rectal bleeding due to limited positive pathology findings (10%). More prospective multicenter studies with additional patients should be conducted to determine the necessity of colonoscopy examination especially in patients older than 40 years of age.

What is already known on this topic?

Bleeding per rectum is a common problem in all ages. Unfortunately, colonoscopy is recommend only in patients over 50 years old. Therefore, in young adult patients proctoscopy to flexible sigmoidoscopy is the procedure of choice due to a low incidence of serious lesion. Even though the most common cause of rectal bleeding in young adult group is benign such as hemorrhoid, but about 10% of patients might have premalignant and malignant lesions. Other additional screening test such as serum CEA or stool occult blood is not correlate to precancerous lesion.

What is this study added?

This study showed the same results as other studies. We found that 11.1% (5/45) of young adult patients have premalignant and malignant lesion from colonoscopic exam and one patient found lesion at 80 cm from AV that might be missed from routine flexible sigmoidoscopy. We suggested that the appropriate cut off age to do the colonoscopy should be less than 50 years old, but we need more data to set the proper age.

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Potential conflicts of interest

The authors declare no conflict of interest.

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