Colonoscopy in the Diagnosis of Unexplained Rectal Bleeding

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Three hundred six patients with unexplained rectal bleeding were examined by colonoscopy. Significant lesions were found in 30% including polyps having a diameter of 0.5 cm or larger in 14%, carcinoma in 8%, and a small number of patients with inflammatory bowel disease, vascular formations, and radiation colitis. Colonoscopic findings in a large subgroup of patients with diverticulosis established by barium enema did not differ significantly from those of the group as a whole. Significant lesions were also identified in 22% of small subsets of patients with occult bleeding or unexplained melena.

COLONOSCOPY HAS ASSUMED an important role in the practice of gastroenterology, and rectal bleeding has become a prominent indication for its use.[4,5] Although the traditional approach to this problem consists of rigid proctosigmoidoscopy and barium enema examination, these studies frequently fail to demonstrate a lesion, and in many cases bleeding is attributed to anorectal disorders. In addition, diverticulosis is diagnosed in a large number of patients and this becomes the presumed source of blood loss; in some cases it is an erroneous assumption.

Up to 20% of intraluminal benign and malignant neoplasms will not be detected by barium enema.[1-3,9,10] Furthermore, it is usually not suitable for detection of vascular malformations and the early mucosal changes of entities such as inflammatory bowel disease and radiation enterocolitis. Recent evidence indicates that colonoscopy has a significant diagnostic yield in the setting of rectal bleeding with normal proctosigmoidoscopy and barium enema examination.[6-8]

We have summarized our experience in 306 such patients. A subset of patients with known diverticular disease is also analyzed, as are two small groups of patients with either melena or with Hemoccult® positive stools or unexplained iron deficiency anemia or both.

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Methods

Records of patients who underwent colonoscopy because of bleeding or anemia during a six year period ending in December 1978 were reviewed. Most patients had a history of hematochezia, frequently recurrent, over varying time intervals. No attempt was made to verify the patient's report of bleeding by use of stool Hemoccult testing. Fewer patients had melena, or Hemoccult positive stools or unexplained iron deficiency anemia or both. Only patients with barium enema examinations interpreted as normal or as demonstrating diverticulosis alone were included. Cases in which colonoscopy was performed to evaluate suspected but nondiagnostic abnormalities on barium enema were excluded, as were instances in which the endoscopist's review of the roentgenograms correctly suggested a lesion not reported by the radiologist.

Rigid proctosigmoidoscopic examination was normal in most patients prior to colonoscopy. However, a few patients underwent colonoscopy without prior rigid proctosigmoidoscopy; if rectal lesions were discovered, these patients were excluded from the study. Patients with previously diagnosed inflammatory bowel disease were also excluded.

An attempt was made to examine the colon to the cecum in all cases. In most cases when no lesion was identified, and the cecum was not reached, a second examination was performed. The findings of the more satisfactory examination were used. When the entire colon could not be examined but no abnormalities were discovered the studies were included as negative.

The diagnosis of carcinoma was proven by endoscopic biopsy or surgical resection in all cases. Polyps larger than 0.5 cm in diameter were removed whenever pos-

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TABLE 1. *Colonoscopic Diagnosis: Gastrointestinal Bleeding, Negative Barium Enema*

Diagnosis	Number	Per Cent
Normal examination	123	40.2
Diverticulosis alone	64	20.9
Polyp less than 0.5 cm	29	9.5
Polyp 0.5 cm or greater	43	14.1
Carcinoma	25	8.2
Inflammatory bowel disease	11	3.6
Vascular malformation	11	3.6
Radiation colitis	2	0.7
Total no. patients	306	
Total no. significant lesions*	92	30

* Excludes polyps less than 0.5 cm diameter and diverticulosis.

sible. Polyps smaller than 0.5 cm were generally removed or destroyed by biopsy and electrocoagulation, although in many instances small lesions that appeared to be unequivocally benign were left undisturbed.

Although all lesions found are reported, diverticula and polyps less than 0.5 cm in greatest diameter were not considered to be significant in terms of bleeding for the purpose of this analysis.

All examinations were performed by one of three individuals. A variety of instruments manufactured by the Olympus Corporation and American Cystoscope Makers, Inc. were used over a six-year period.

Results

Overall results for 306 patients are summarized in Table 1. Significant lesions were identified in 30% of patients.

Polyps were discovered in 23.5% of patients. Fifty-two per cent of these were 0.5 cm or larger in greatest diameter. Three polyps contained invasive carcinoma. The remainder of the polyps were benign tubular or tubulovillous adenomas. No polyp with carcinoma *in situ* was found. Forth-two per cent of the patients with polyps (10% of the total patient population) had more than one such lesion. The distribution of polyps did not differ from the expected pattern, except that rectal lesions are excluded by design. Fifty-one per cent were found in the sigmoid colon with 24%, 13%, 3%, and 8% in the descending colon, transverse colon, ascending colon, and cecum respectively.

TABLE 2. *Distribution of Malignant Neoplasms*

Site	Number	Per Cent
Sigmoid	10	40
Descending colon	1	4
Transverse colon	3	12
Ascending colon	2	8
Cecum	9	36
Total	25	

Malignant neoplasms, all adenocarcinomas, were found in 25 patients (8.2%). Endoscopic biopsies were positive in 91% of these. Only three of the lesions proved to be Dukes stage A, eight were Dukes stage B, and ten were Dukes stage C. Four of the tumors were not resected at our institution, and their extent is not known. The distribution of carcinomas is given in Table 2.

Vascular lesions were found in 11 patients (3.6%). Angiodysplasia of the cecum was encountered five times, and two additional patients had vascular malformations localized to other areas of the colon. Four patients had diffuse telangiectatic lesions involving large areas of the colon.

Eleven patients had mucosal changes compatible with inflammatory bowel disease (3.6%). Four of these had the typical appearance of Crohn's disease, and two had characteristics suggestive of ulcerative colitis, although the rectum was not involved in either instance. Five individuals did not have features distinctive enough to allow classification. Biopsies were not helpful in establishing a diagnosis of inflammatory bowel disease, and granulomas were not identified in any biopsy specimen. Two examples of radiation-induced colitis were encountered.

In 26 patients blood loss took the form of melena. Most of these patients had recurrent episodes of melena, and had undergone an unrewarding search for an upper gastrointestinal source. Significant lesions were found in 23% including three carcinomas of the right colon, and one case of a cecal vascular malformation (Table 3).

Fifty-nine patients had colonoscopy because of Hemoccult positive stools or iron deficiency anemia or both. Significant lesions were found in 23% including malignant neoplasms in 10% (Table 4). Sixty-four patients (21%) had diverticulosis as the only abnormal finding at colonoscopy. However, in two of these patients, fresh blood was oozing from a diverticulum, thus establishing the lesion as a source of blood loss. Table 5 includes colonoscopic diagnoses in 105 patients in whom a diagnosis of diverticular disease was established by barium enema. Significant lesions other than

TABLE 3. *Colonoscopic Diagnosis in Unexplained Melena*

Diagnosis	Number	Per Cent
Normal	13	50
Diverticulosis alone	2	8
Polyps less than 0.5 cm	5	19
Polyp 0.5 cm or more	1	4
Carcinoma	3	11
Vascular malformation	1	4
Radiation colitis	1	4
Total no. patients	26	
Total no. significant lesions*	6	23

* Excludes polyps less than 0.5 cm diameter and diverticulosis.

TABLE 4. *Colonoscopic Diagnosis, Occult Bleeding or Anemia*

Diagnosis	Number	Per Cent
Normal	21	36
Diverticulosis alone	16	27
Polyp less than 0.5 cm	9	15
Polyp 0.5 cm or greater	6	10
Carcinoma	6	10
Vascular malformation	1	2
Total no. patients	59	
Total no. significant lesions*	13	22

* Excludes polyps less than 0.5 cm diameter and diverticulosis.

TABLE 5. *Colonoscopic Diagnosis, Diverticulosis by Barium Enema*

Diagnosis	Number	Per Cent
Diverticulosis only	64	61
Polyp less than 0.5 cm	10	10
Polyp 0.5 cm or greater	20	19
Carcinoma	7	7
Vascular malformation	3	3
Inflammatory bowel disease	1	1
Total no. patients	105	
Total no. significant lesions*	31	30

* Excludes polyps less than 0.5 cm diameter and diverticulosis.

diverticula or small polyps found in 30% which is identical to the study group as a whole. Seven cancers and three vascular malformations were discovered in this group of patients.

Discussion

The present study confirms the high diagnostic yield of colonoscopy in patients with rectal bleeding and normal findings on rigid proctosigmoidoscopy and barium enema. It should be stressed that the most patients in this study underwent colonoscopy on the basis of a history of rectal bleeding. No attempt was made to confirm this by Hemoccult testing of stool specimens.

Our findings agree with those of Tedesco et al.[8] and Swarbrick et al.[6]; these investigators had groups similar to ours. Significant lesions in each study were found in 30–40% of patients. The incidence of malignant neoplasms is similar for the three reports, and ranges from 8 to 10%. The majority of cancers were found in the sigmoid colon and cecum in our patients, perhaps reflecting to some degree the difficulty in obtaining definitive roentgenograms of these areas. Unfortunately, we were not able to demonstrate a benefit of early diagnosis in our patients, since 48% of the carcinomas discovered were Dukes stage C, and only 14% were confined to the mucosa.

The small subgroup of patients with melena did not differ significantly from the group as a whole in frequency of positive diagnosis or type of lesion found. The subset of patients with occult bleeding or unexplained iron deficiency anemia was also similar to the overall series.

One hundred five of our patients had a diagnosis of diverticulosis established by barium enema. The incidence and type of other lesions found by colonoscopy was again similar to that of the entire patient population, thus underscoring the danger in attributing gastrointestinal bleeding to diverticular disease. Conversely, a definitive diagnosis of diverticular bleeding can be established at colonoscopy if an actual bleeding diverticulum is observed.

We have included as negative studies those examinations in which the cecum could not be reached, but no significant lesion was discovered. We believe that this is a practical limitation in the use of colonoscopy as a diagnostic tool. This group represented 10% of the total of patients, most failures occurring in our early experience.

Colonoscopy is indicated for all patients with hematochezia, melena, Hemoccult positive stools, or iron deficiency anemia when conventional studies such as barium enema and upper gastrointestinal roentgenograms and upper gastrointestinal endoscopy fail to locate a source of blood loss. The presence of diverticulosis on barium enema should not be accepted as an explanation for bleeding unless other colonic lesions have been excluded endoscopically. The merit of this aggressive approach to a common clinical problem will hopefully be reflected in improved management of vascular and other benign lesions of the colon and in earlier diagnosis and treatment of malignant and potentially premalignant neoplasms.

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