

Continued Assessment of Flexible Sigmoidoscopy in a Family Practice Residency

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The UCLA Family Practice Residency continues to use 60-cm flexible sigmoidoscopy in the care of patients. Between July 1980 and June 1983, 450 patients received an examination with the 60-cm flexible sigmoidoscope. One or more adenomatous polyps were detected in 21 patients. Adenocarcinoma was found in five patients. Four patients were found to have a villous adenoma, and four patients were determined to have inflammatory bowel disease. Of the 34 discrete lesions, 32 percent, 41 percent, and 27 percent were located between 0 and 20 cm, 21 and 35 cm, and 36 and 60 cm, respectively, from the anus. No complications were encountered. Sixty-four percent of the examinations were done by a family practice resident supervised by a full-time faculty member. The remaining 36 percent of the examinations were performed by full-time faculty. The overall detection rate for significant pathology was 8.0 percent. Most pathology by far was found in symptomatic patients. These results validate the safety and viability of 60-cm flexible sigmoidoscopy when performed by properly trained family physicians and family practice residents-in-training.

Since its introduction in 1976, the 60-cm flexible sigmoidoscope has clearly established itself as an invaluable diagnostic tool for detecting colorectal pathology. Its superiority over the rigid sigmoidoscope is supported by numerous comparative studies showing that the flexible sigmoidoscope detected 2.5 to 6.0 times the number of colonic polyps and 2.0 to 3.0 times the number of malig-

nant lesions as did the rigid sigmoidoscope.¹⁻⁴ Further, examination with the flexible sigmoidoscope was well tolerated by most patients, with the majority judging it to be more comfortable than examination with the rigid sigmoidoscope.^{1,5}

The UCLA Family Practice Residency has been evaluating the use of the flexible sigmoidoscope since 1980. As previously reported,⁶ the initial experience was highly favorable and validated the use of the instrument by properly trained family physicians. The purpose of this paper is to report on the continued experience with the flexible sigmoidoscope in the UCLA Family Practice Residency, which now encompasses 450 patients examined over a three-year period.

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Methods

Between July 1980 and June 1983, 450 patients were evaluated for colorectal disease with the flexible sigmoidoscope in the UCLA Family Health Center. One hundred forty patients (31 percent) were asymptomatic and had the procedure performed as a screening examination. The remaining 310 patients (69 percent) were evaluated for the signs and symptoms shown in Table 1. The flexible sigmoidoscopes used were the ACMI TS 91 (ACMI Company, Stamford, Conn) and the Olympus CF ITS2 (Olympus Corporation of America, New Hyde Park, NY), both of which are 60 cm in length.

All procedures were performed by either a full-time faculty member (36 percent) or a resident physician supervised by a full-time faculty member (64 percent), following a previously described procedure protocol.^{6,7} An encounter form was completed by the sigmoidoscopist immediately following each procedure. Items on the encounter form included the age of the patient, the indication for the procedure, the depth of insertion, the reason for stopping the procedure, the findings, the total time of the examination, whether a biopsy was performed, complications, the resident's name, the faculty member's name, and whether the patient would consent to another examination in one year.

Patients found to have one or more adenomatous polyps via the flexible sigmoidoscope were scheduled for colonoscopy to have the remainder of their colon evaluated and to have the polyp (or polyps) removed at the same time. Occasionally the consultant gastroenterologist would request an air-contrast barium enema prior to colonoscopy. Patients found to have a villous adenoma or adenocarcinoma were referred to a general surgeon after an air-contrast barium enema was obtained.

Some patients with negative examinations with the flexible sigmoidoscope went on to have an air-contrast barium enema or colonoscopy and upper gastrointestinal endoscopy or radiography, depending on the nature and severity of their signs and symptoms.

Results

Results of the study are summarized in Tables 2 through 4.

An inadequate bowel preparation resulted in

Table 1. Signs and Symptoms in the Symptomatic Group (n = 310)

Sign or Symptom	Number*Percentage	
1. Abdominal pain	98	25.9
2. Rectal bleeding	61	16.1
3. Change in bowel habits	49	12.9
4. Constipation	42	11.1
5. Guaiac-positive stool	36	9.5
6. Weight loss	28	7.4
7. Diarrhea	22	5.8
8. Anemia	17	4.5
9. Other	26	6.9

*All signs and symptoms are reported in the case of more than one sign or symptom per patient

premature termination of the procedure in 10 percent of patients. In the majority of these patients, adequate visualization of at least 40 cm of colon was achieved, and thus further bowel preparation was not deemed necessary by the sigmoidoscopist. A few patients were prepped again when the indication for the procedure merited full visualization of the entire sigmoid colon. The depth of the instrument (60 cm) was reached in 44 percent of the examinations. Pain prematurely terminated the examination in 17 percent of the cases; 28 percent of the patients had the procedure stopped because the sigmoidoscope could no longer be safely passed in the lumen. There was instrument malfunction in three cases. There were no complications encountered with the 450 procedures.

Hyperplastic polyps were found in 15 patients and were considered a normal finding. Colorectal disease was detected in 36 of the 450 patients. Signs and symptoms and the ages of these 36 patients are shown in Table 2. Adenomatous polyps were found in 21 patients, 4 of whom were asymptomatic, whereas villous adenomas were found in 4 patients, all of whom were symptomatic. Adenocarcinoma of the colon was diagnosed in 5 patients; further evaluation of these patients revealed 1 to be at Duke's stage A, 1 at Duke's stage B1, 1 at Duke's stage C, and 1 at Duke's stage D, with 1 patient refusing staging and therapy. All of the patients with adenocarcinoma of the colon were symptomatic.

Four of the patients with adenomatous polyps

Table 2. Abnormal Findings of 450 Patients Evaluated for Colorectal Disease by 60-cm Flexible Sigmoidoscope

Finding	Presenting Signs and Symptoms	Number of Patients	Age (yr)	
Adenomatous polyps (n = 21, 4.7%)	Screening	4	52, 57, 65, 75	
	Other	4	60, 71, 74, 75	
	Guaiac-positive stool	3	36, 67, 67	
	Abdominal pain	2	33, 46	
	Abdominal pain, change in bowel habits	2	56, 56	
	Constipation	1	63	
	Rectal bleeding	1	92	
	Weight loss	1	59	
	Abdominal pain, rectal bleeding	1	79	
	Abdominal pain, change in bowel habits, constipation	1	65	
	Change in bowel habits, guaiac-positive stool, weight loss	1	69	
	Adenocarcinomas (n = 5, 1.1%)	Duke's A	1	61
Duke's B1		1	64	
Duke's C		1	69	
Duke's D		1	53	
Refused treatment		1	51	
Villous adenoma (n = 4, 0.9%)		Rectal bleeding	2	89, 89
		Abdominal pain	1	52
		Other	1	70
Crohn's disease (n = 2, 0.4%)		Change in bowel habits	2	55, 73
		Rectal bleeding	1	25
Ulcerative colitis (n = 2, 0.4%)	Change in bowel habits, rectal bleeding	1	55	
	Other lesions (n = 2, 0.4%)			
Radiation colitis with stricture	Diarrhea	1	43	
Suture granuloma	Other	1	63	

were found to have an additional synchronous adenomatous polyp(s) on further study. One patient having a diagnosis of adenomatous polyp in the midsigmoid colon on flexible sigmoidoscopy was found on colonoscopy to have a large cecal adenocarcinoma with liver metastases documented on liver-spleen scan. One patient with a villous adenoma was found on colonoscopy to have a synchronous adenomatous polyp.

In no case were abnormal findings detected by

air-contrast barium enema that were missed by the flexible sigmoidoscope in the rectum and sigmoid colon.

Discussion

Experience with this procedure further supports the premise that flexible sigmoidoscopy can be performed effectively and safely by the properly trained family physician. The absence of com-

plications in 450 procedures attests to the safety of teaching and performing flexible sigmoidoscopy in a family practice residency training program. The procedure was well tolerated by patients, with virtually all indicating that they would consent to a repeat examination in one year.

The depth on insertion achieved in this study (50.5 cm) is comparable to that reported previously by gastroenterologists and colorectal surgeons. The average time required to perform the procedure (18 minutes) is greater than the 9 to 12 minutes reported in the literature.^{1,2,4} The finding that more time was required is not surprising, since this group is composed largely of physicians in training, with ten new residents having to be taught the procedure each academic year.

It is difficult to compare diagnostic yields of flexible sigmoidoscopy studies because of the heterogeneity of the patient populations studied. Nevertheless, the colorectal cancer detection rate (1.1 percent) compares favorably with the 0.8 to 2.0 percent rates reported by the majority of investigators.²⁻⁵ The detection rate of significant polyps (adenomatous polyps and villous adenomas) was 5.6 percent and is comparable with previously reported polyp detection rates that range from 5.0 to 20.0 percent.^{1-5,8} The higher rates found by some investigators can be attributed, at least in part, to a referral population bias, the inclusion of hyperplastic polyps in the polyp category, and the recording of more than one polyp per patient in the case of synchronous lesions.

Only four adenomatous polyps were found in the asymptomatic or screening group of 140 patients, with all other abnormal findings being detected in the symptomatic group. This low detection rate (2.9 percent) for adenomatous polyps in asymptomatic patients is surprising. Goldsmith et al⁸ reported a detection rate of 5.3 percent for polyps in 1,000 asymptomatic patients screened with the 60-cm flexible sigmoidoscope, but included hyperplastic polyps. Marks et al³ and Meyer et al⁹ reported detection rates of 11 and 12 percent for polyps in their subgroups of 203 and 122 asymptomatic patients, respectively, with 60-cm flexible sigmoidoscopy, but, again, no clear distinction was made between hyperplastic and adenomatous polyps in either report. The low detection rate for adenomatous polyps in asymptomatic patients in this study may be attributable not only to the low numbers involved but also to

Table 3. Clinical Data of Patients Evaluated for Colorectal Disease by Flexible Sigmoidoscopy (n = 450)

Average age of patient (yr)	59.0 (range, 18-92)
Average depth of insertion	50.5 cm
Number of biopsies performed	30
Complications	0
Number of patients who stated they would refuse another examination in one year	2
Average time of examination	18 min

polyps missed in this training setting. A better comparison can be made when further studies that accurately distinguish the detection rates for adenomatous polyps apart from hyperplastic polyps in asymptomatic patients are reported. There must also be a control for age in any comparison analysis, as the prevalence of adenomatous polyps rises significantly with age.

Adenomatous polyps, unless they are very near the anus or very large, generally are asymptomatic, although they may cause guaiac-positive stool or rectal bleeding. In this study, six of the patients with adenomatous polyps had either guaiac-positive stool or rectal bleeding, and probably would have been diagnosed on further evaluation with colonoscopy or air-contrast barium enema. The remaining 11 symptomatic patients plus the four asymptomatic patients had their adenomatous polyps detected as an incidental finding. Given the nature of their signs and symptoms, these patients would not likely have gone on to further study leading to discovery of their polyps. This additional benefit of flexible sigmoidoscopy must be considered in the evaluation of the total merit or cost-benefit ratio of this procedure. Most authorities agree that there is benefit to the removal of all adenomatous polyps, but this has not been definitely proven in a controlled fashion.

The overall detection rate for significant pathology was 8.0 percent for the patients studied in the UCLA Family Health Center, providing adequate justification for continued use, teaching, and studying of 60 cm-flexible sigmoidoscopy in the

Table 4. Location of Abnormal Findings (n = 450)

Finding	Number	Location (cm from anus)		
		1-20	21-35	36-60
Adenomatous polyps	21	5	9	7
Adenocarcinoma	5	2	2	1
Villous adenomas	4	4	0	0
Crohn's disease	2	0	1	1
Ulcerative colitis*	2	0	0	0
Others	2	0	2	0
Radiation colitis with stricture	1	0	1	0
Suture granuloma	1	0	1	0

*Diffusely located throughout the entire rectosigmoid colon

UCLA Family Practice Residency. Reports from other residency training programs and family physicians in practice with their experience with flexible sigmoidoscopy, as well as controlled studies designed to answer basic questions of cost effectiveness, will help determine the need for more widespread use.

Of the 30 patients with adenomatous polyps, villous adenomas, and adenocarcinoma, six (20 percent) were found to have significant synchronous colonic lesions. This finding is similar to those in other reports regarding the prevalence of synchronous colonic neoplastic lesions and supports the view that full evaluation of the entire colon is necessary if one neoplastic lesion is found.

Excluding the two patients with ulcerative colitis, 34 patients in this study were found to have focal, discrete lesions on examination. Of these 34 entities, only 11 (32 percent) were found less than 20 cm from the anus, the average depth of penetration achieved with the rigid sigmoidoscope.¹⁰ Furthermore, only 25 (74 percent) of the lesions were within 35 cm of the anus; therefore, a shorter, 35-cm flexible sigmoidoscope would have missed over one fourth of the pathology detected.

Whether the family physician should use the 35-cm or the 60-cm flexible sigmoidoscope is controversial. Advocates of the shorter sigmoidoscope cite cost savings as well as the recommendations of some specialty societies that the family physician be restricted to the shorter sigmoidoscope.

The data indicate that such an approach would cause a significant amount of pathology to be missed. At present, there is no demonstrable benefit from the shorter flexible sigmoidoscope, and thus a strong argument can be made for family physicians to become competent with 60-cm flexible sigmoidoscopy.

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