

An evaluation of a direct access flexible fiberoptic sigmoidoscopy service

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Summary

During a 3 year period 146 general practitioners referred 630 patients to a direct access flexible sigmoidoscopy clinic. The yield was 53.3% with significant colonic or rectal pathology in 30%. Twenty six cancers, 4 Dukes' A, and 38 patients with symptomatic adenomatous polyps were detected. Five further cancers were detected by subsequent barium enemas. The service reduced delay in diagnosing colorectal pathology but did not reduce the number of barium enemas requested by general practitioners. It is suggested that where facilities are already available, such a service to investigate rectal bleeding in patients over 40 years is of benefit both to patients and general practitioners.

Introduction

The symptoms of colorectal cancer are often non-specific in nature and as a result as many as 19-44% of patients require emergency treatment, of which 76% may have previously seen their own doctor with relevant symptoms (1,2).

Once symptoms have occurred, delay in diagnosis does not necessarily have a detrimental effect on survival (3) unless emergency surgery has to be undertaken. Patients who have emergency surgery for intestinal obstruction or perforation have a significantly worse prognosis than those operated on electively (4). The hospital mortality rates for emergency procedures have been as high as 34%, compared to 3.4% for elective surgery and hence the avoidance of emergency procedures may improve the morbidity and mortality rates associated with colon resections particularly in elderly patients (1,5).

General practitioners usually have the choice of referring patients for an outpatient appointment or arranging a barium enema, though only 50% of hospitals provide an unrestricted service for general practitioners (6). Few general practitioners perform sigmoidoscopy themselves (7) and for minor symptoms there is a reluctance to subject patients to unpleasant investigations. This study was performed to provide a speedy alternative examination for the patient's own doctor and to assess the advantages and disadvantages.

Patients and methods

General practitioners in the Bristol and Weston area were invited to refer patients for flexible sigmoidoscopy if they had symptoms suggestive of colonic or rectal pathology however minor. Appointments could be made by

Dear Dr.

FLEXIBLE FIBROPTIC SIGMOIDOSCOPY

Indication:

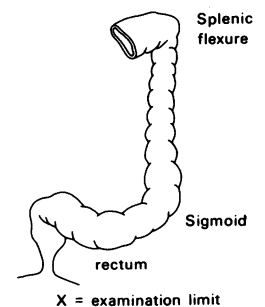
Quality of bowel preparation:

Distance passed:

Findings:

Diagnosis:

Recommendation:



N.B. THIS EXAMINATION DOES NOT PRECLUDE A LESION IN THE RIGHT COLON

FIG. 1. Standard results proforma sent to referring practitioners.

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telephone or letter and every attempt was made to carry out the examination within two weeks of referral.

Either a Fujinon or an Olympus (OSF) flexible sigmoidoscope was used for all examinations and one session was allocated each week to examine up to 8 patients in 2 hours. There were 630 referrals, 44 of which were from a selected group of general practitioners during an initial feasibility study using an identical protocol (8). The remaining 586 were performed over a 27 month period and all the endoscopies were done by the authors. The age of the patients was 15–85 years (mean 54 years) with 334 women and 296 men. Patients were given a single phosphate enema as bowel preparation on arrival. They were then seen with their doctor's referral letter, a brief history of relevant symptoms was recorded and abdominal and rectal examinations were performed. Flexible sigmoidoscopy was then undertaken without any sedation. A report of the findings and recommendations for treatment, further investigations or suitable hospital referral was sent to the patients own referring doctor on a standard form (Fig. 1). No treatment was instigated at the sigmoidoscopy clinic but barium enemas were arranged on all patients in whom polyps or cancers were identified and in those with symptoms highly suggestive of a more proximal lesion.

A control group of 50 patients referred by general practitioners to a general surgical outpatient clinic was also studied. This group was matched for age, symptoms and diagnostic yield. In addition, prior to the commencement of the sigmoidoscopy service, general practitioners' attitudes regarding the investigation of patients with rectal bleeding in the Avon area, were sought by means of a questionnaire. Also an audit of general practitioner use of barium enemas was conducted before and after the introduction of the service to assist in evaluating the cost-effectiveness of the service.

Results

GENERAL PRACTITIONERS

Out of 250 questionnaires, 148 (59%) were returned completed. In reply to what sort of rectal bleeding they would refer immediately to hospital outpatients, 60% said they would refer dark red rectal bleeding and 7% would not refer any rectal bleeding for immediate second opinion. Fifty two per cent said they performed proctoscopy but only 1% undertook rigid sigmoidoscopy. Not all the practitioners had access to barium enemas but of those that did, 40% made use of the facility. When asked about factors that might cause delay in referring patients, 40% said that reluctance to refer for unpleasant investigations was a factor, as was the age of the patient, particularly if over 75 or under 40 years. Over 30% felt that existing methods for referring patients with rectal bleeding needed to be improved and 91% said they

would welcome and use a direct access flexible sigmoidoscopy service.

In a 3 year period 146 general practitioners made use of the service, though 44 only referred one patient. The referral rate per annum has remained constant at 250, there being less referred during the initial pilot study with selected practices. The majority of general practitioners using the service have found it helpful in the management of their patients.

DIAGNOSTIC YIELD

The total yield is shown in Table I, divided into those under and over 40 years. Symptomatic colorectal pathology or perianal conditions were found in 336 (53.3%). Only when haemorrhoids were definitely thought to be the only source of bleeding were they recorded as such, and the same applied to those with diverticular disease where multiple diverticula with some narrowing of the lumen were usually present.

Those with symptoms and spasm suggestive of irritable bowel and those with polyps less than 0.5 cm diameter were not included as positive diagnoses.

Miscellaneous diagnoses included radiation colitis, pneumatosis coli, angiodysplasia and solitary rectal ulcer.

In those under 40 the yield of 45% was due to proctitis and haemorrhoids, there being only one polyp diagnosed.

Rectal bleeding was the reason for referral in 50% of cases and in this group the cause of bleeding was identified in 80%. The other commonest reason for referral were alteration of bowel habit and lower abdominal pain.

CANCERS

Twenty six cancers were diagnosed by flexible sigmoidoscopy and 4 (15%) were histologically Dukes' A, 8 (30%) Dukes' B and 13 (50%) Dukes' C. One was not staged as the patient was deemed unfit for surgery. One patient was admitted with an obstruction and required an emergency resection prior to her planned admission date.

Eleven (41%) of the cancers were less than 15 cms from the anal verge and within reach of the rigid sigmoidoscope, 6 (23%) were between 15–20 cm and might have been reached and 9 (34%) were definitely beyond the reach of the rigid sigmoidoscope. Rectal bleeding was the presenting symptoms in 65% and altered bowel habit in the remainder.

Five further cancers were detected by barium enema. In 4 the enemas were arranged immediately because of suggestive symptoms. Three were beyond the 60 cm reach of the sigmoidoscope in the proximal descending colon and transverse colon. In one the sigmoid could not be negotiated because it was narrowed by a sigmoid cancer. The final cancer was in the caecum and was identified by barium enema 18 months after a sigmoidoscopy for bright red rectal bleeding which was unlikely to have been from the tumour.

BARIUM ENEMAS

Table II shows the numbers of patients referred for barium enemas with the diagnostic yield during two similar 6 month periods both before and after the introduction of the direct access sigmoidoscopy service.

The numbers referred actually increased without any significant difference in percentage yield in 1981, 18% were referred for rectal bleeding compared to 12% in 1985. Only 3 of the referrals in the 6 months of 1985 were after flexible sigmoidoscopy.

Barium enemas were arranged on all patients with polyps, cancers, an incomplete or unsatisfactory sig-

TABLE I *Flexible sigmoidoscopy diagnostic yield related to age*

	>40 years N=509	<40 years N=121	Totals 630 (%)
Cancers	26	0	26 (4.1)
Diverticular disease	76	0	76 (12)
Adenomatous polyps >0.5 cm	37	1	38 (6)
Inflammatory bowel disease	26	17	43 (6.8)
Haemorrhoids and perianal conditions	108	36	144 (23)
Miscellaneous	8	1	9 (1.4)
Total	281	55	336 (53.3)

TABLE II Yield from barium enemas requested by general practitioners during same 6 month periods before and after introduction of flexible sigmoidoscopy service

	1981 N=176	1985 N=191
Cancers	10 (5.7%)	11 (5.8%)
Diverticular disease	35 (20%)	25 (13%)
Polyps >0.5 cm	2 (1%)	8 (4%)
Inflammatory bowel disease	3 (1.7%)	1 (0.5%)
Total	50 (28%)	45 (23.5%)

moidoscopy and in those with symptoms strongly suggestive of colonic pathology. On this basis immediate barium enemas were arranged in 16% of patients and general practitioners were advised to proceed to barium enema if symptoms persisted in a further 14%.

Barium enemas identified the 5 proximal colon cancers already mentioned plus a further 4 polyps which were missed by flexible sigmoidoscopy. Barium enemas, which were all double contrast examinations, failed to identify 4 polyps. All the cancers were visualised by barium enemas though one would have been missed but for the sigmoidoscopy report.

QUALITY OF SERVICE

Over 90% of patients were examined within 2 weeks of their referral date. In 446 (71%) the bowel was examined to the full length of the 60 cm sigmoidoscope. Inadequate bowel preparation was the cause of a limited examination in 20 (3.2%) and a pathological lesion in a further 48 (7.6%). Spasm or pain limited the extent of the examination in the remainder, 5 having anal pain from fissures. One patient had to be admitted overnight because of pain and two fainted after the procedure. Angina was the cause of an abandoned examination on one occasion but there were no other complications.

CONTROL GROUP

The rapidity with which patients were seen in outpatients was entirely dependent on the general practitioners referral letter. Those stated to have symptoms highly suggestive of colonic pathology were seen as quickly as those referred for flexible sigmoidoscopy. Where the symptoms were attributed to haemorrhoids an average delay of 8 weeks occurred. This occurred in 2 cases with rectal bleeding which was coming from a carcinoma in one and a polyp in the other. Rigid sigmoidoscopy was undertaken on all patients without bowel preparation and was deemed unsatisfactory due to faeces in 30%. One carcinoma was missed at 15 cm due to faeces but was detected by barium enema 6 weeks later.

In patients with diverticular disease causing pain or alteration of bowel habit, an average of 3 outpatient visits occurred plus one for a barium enema, the only treatment given being a high fibre diet.

Patients with bleeding haemorrhoids all received some form of treatment and had a minimum of 2 outpatient visits. If no cause could be found for bleeding after a barium enema, it was usually assumed to be from haemorrhoids.

There were no right sided colonic tumours in the control group associated with bright red rectal bleeding.

COST

One 2 hour session proved adequate to provide a prompt service. At least 2 nurses are required to prepare the sigmoidoscope and the patients. The authors did all the examinations but a clinical assistant would have pro-

vided a similar service. The cost in salaries per week is therefore about £54. Capital costs are for the flexible sigmoidoscope and cleaning equipment all of which can be used for other endoscopy services. The current cost of a flexible sigmoidoscope is £4,000-£6,500. We were able to provide the service with existing facilities and staff but the estimated annual cost of providing this service, taking into account salaries, instrument repairs and bowel preparation was £3,350.

Discussion

The diagnostic yield in this study, particularly in relation to colorectal pathology is similar to that found when flexible sigmoidoscopy was undertaken on selected patients attending a general surgical outpatients (9). The yield was higher however than that obtained in a similar study performed in Gloucester where rigid sigmoidoscopy was used with the addition of flexible sigmoidoscopy for rectal bleeding (10). The main difference was due to an increased detection rate of tumours and diverticular disease in our study.

In Gloucester a decrease in the number of barium enemas requested by general practitioners was achieved by insisting on a sigmoidoscopy prior to barium enema. No restriction was placed on general practitioners' requests for barium enemas at the Bristol Royal Infirmary, and no reduction occurred. Though we believe that, for rectal bleeding, sigmoidoscopy should be performed prior to a barium enema, for other symptoms the reasons appear to be based on dogma rather than on sound evidence.

Prospective randomisation to obtain a control group was not carried out as this would have altered the referral system for the general practitioners who did not necessarily wish for an outpatient consultation. Rigid sigmoidoscopy with or without bowel preparation is frequently unsatisfactory and important lesions may be missed (11) as occurred in our control group. Many patients are referred with minor rectal bleeding and all they or their doctor want is reassurance that the bleeding is from haemorrhoids and that no specific treatment is required. Though flexible sigmoidoscopy is not the best way of diagnosing haemorrhoids, it can exclude other lesions in the left colon and we found that this service was often able to give reassurance and avoid unnecessary outpatient visits. It is not necessary for every patient with rectal bleeding to have a barium enema, particularly as more than 6% of the population over 40 will admit to recent rectal bleeding (12). The nature of the bleeding however is important in determining those that will need further investigation.

Lesions will be missed by whatever method of examination is used (13,14) and there is always concern that proximal colonic lesions may be present. A normal flexible sigmoidoscopy may falsely reassure the general practitioner so that further investigation is delayed. It is important therefore to emphasise in any reporting that only the left colon has been examined and if symptoms persist further investigation or hospital referral should be considered.

The introduction of a specialist service such as this, runs the risk of altering general practitioners referral practices and diverting colorectal pathology to those providing such a service and away from other consultants. This has occurred in our experience but can be overcome by having the interested consultants in nominal charge of the service in rotation.

We have noted a high yield of proctitis (6.8%) and we have been concerned that a patient with AIDS and proctitis might present for examination. Though this risk is equally present in the outpatient departments, we do try to exclude homosexuals from flexible sigmoidoscopy.

We have not been able to prove whether the service is cost-effective. There are expenses in running such a service and we were not able to demonstrate any financial savings, though less outpatient visits would appear to be beneficial. There was no reduction in barium enemas but only one patient (4%) with colorectal cancer required emergency surgery. The percentage of patients with Dukes' A cancers was higher both in this series and in that from Gloucester, than most reported figures in the United Kingdom (15). It will take a much longer period to assess whether a significant reduction in colorectal cancer emergencies and improved survival can be achieved.

In conclusion our results do not at present support the proposition that direct access flexible sigmoidoscopy should be made nationally available. However where the facilities are already in use we feel that a restricted service, confined to patients over 40 and complaining of rectal bleeding will be of benefit both to patients and general practitioners.

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Book review

Operative Techniques in Arterial Surgery by A S Ward and J M Cormier. 412 pages, illustrated. MTP Press, Lancaster.

There is now a wide choice of texts dealing with arterial surgical technique, and it is difficult to compete in the field, however, Drs Cormier and Ward have between them succeeded in producing a completely original book, which has great merit. The scope is deliberately restricted purely to matters of technique. No attempt is made to cover causation, physical diagnosis or the indications for arterial reconstruction. The message starts from the point where a decision to operate has already been made, and all the standard procedures are covered in a practical and helpful manner. The writing is clear and direct, and the authors have wisely chosen to avoid operative photographs and colour plates, and illustrate the various techniques by means of bold and simple line drawings, which are immediately comprehensible. Not only the standard primary procedures are described, but also complications and

secondary operations for such conditions as false aneurysm, graft occlusion and aorto-enteric fistula, (which pose much more of a problem to the surgeon in training).

Because the work is by two authors the approach is bound to reflect personal preferences with which others may disagree. For instance not all surgeons in this country would carry out an *in-situ* vein bypass through two short incisions and rely on on-table arteriography to demonstrate fistulae, nor would most people agree to avoid shunts altogether in carotid artery reconstruction. However, the authors admit that their point of view is a personal one, and sustain it rationally.

This is an excellent text, full of sensible advice and is a pleasure to read. The authors are fully justified in their claim that it will be valuable to vascular surgeons in training, to those general surgeons who from time to time are called upon to undertake vascular procedures and also to those who are more experienced in the field.

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