RESEARCH

Factors associated with the efficacy of polyp detection during routine flexible sigmoidoscopy

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ABSTRACT

Objective Flexible sigmoidoscopy reduces the incidence of colonic cancer through the detection and removal of premalignant adenomas. However, the efficacy of the procedure is variable. The aim of the present study was to examine factors associated with the efficacy of detecting polyps during flexible sigmoidoscopy.

Design and patients Retrospective observational cohort study of all individuals undergoing routine flexible sigmoidoscopy in NHS Greater Glasgow and Clyde from January 2013 to January 2016.

Results A total of 7713 patients were included. Median age was 52 years and 50% were male. Polyps were detected in 1172 (13%) patients. On multivariate analysis, increasing age (OR 1.020 (1.016–1.023) $p<0.001$), male sex (OR 1.23 (1.10–1.38) $p<0.001$) and the use of any bowel preparation (OR 3.55 (1.47–8.57) $p<0.001$) were associated with increasing numbers of polyps being detected. There was no significant difference in the number of polyps found in patients who had received an oral laxative preparation compared with an enema (OR 3.81 (1.57–9.22) vs 3.45 (1.43–8.34)), or in those who received sedation versus those who had not (OR 1.00 vs 1.04 (0.91–1.17) $p=0.591$). Furthermore, the highest number of polyps was found when the sigmoidoscope was inserted to the descending colon (OR 1.30 (1.04–1.63)).

Conclusions Increasing age, male sex and the utilisation of any bowel preparation were associated with an increased polyp detection rate. However, the use of sedation or oral laxative preparation appears to confer no additional benefit. In addition, the results indicate that insertion to the descending colon optimises the efficacy of flexible sigmoidoscopy polyp detection.

around 16 000 deaths occurring annually in the UK alone.¹ Earlier TNM (tumour, node, metastases) stage at diagnosis is associated with improved survival rates² and so in this modern age of preventative medicine, screening for CRC has become increasingly important. Screening is useful both in detecting early stage disease and in preventing CRC through the removal of premalignant adenomata.³

Currently, the major screening programme within the UK is biennial guaiac-based faecal occult blood testing (gFOBt), which has been shown to reduce cancer-specific mortality by around 25%.⁴ However, gFOBt has limited impact on incidence and hence alternative screening methods are now suggested. Flexible sigmoidoscopy has been introduced within England as an adjunct to the current screening programme⁵ as there is high-level evidence that this form of screening is both safe and effective at reducing the incidence of left-sided disease.⁶

However, standardisation of the procedure of flexible sigmoidoscopy is lacking. For example, four large randomised trials examining flexible sigmoidoscopy screening^{7–10} all differ in their use of sedation, maximum distance the scope is inserted by the endoscopist, definition of positive test and hence positivity rates. An examination of these factors associated with the efficacy of flexible sigmoidoscopy to detect polyps is required to guide optimal clinical practice.

The aim of the present study was to examine current routine flexible sigmoidoscopy practice within NHS Greater Glasgow and Clyde (NHS GG&C) and to determine those factors associated with the detection of polyps.

INTRODUCTION

Colorectal cancer (CRC) is the third most common cancer in the Western world with around 40 000 people diagnosed and

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PATIENTS AND METHODS

An observational cohort study in which participants were identified retrospectively utilising a prospectively maintained Unisoft endoscopy database was performed. Data were extracted for all patients undergoing a flexible sigmoidoscopy in NHS GG&C over a 3-year period (January 2013 to January 2016, date of extraction January 2016). Details regarding patient demographics, indications, sedation, bowel preparation, distance of maximum insertion, pathology encountered, number of polyps, area of most proximal polyp and reason for withdrawal were obtained, along with the priority of the investigation and specialty of the endoscopist. For the purposes of maximum distance scope inserted to, the rectosigmoid junction was considered as the rectum. Endoscopists were classified according to their specialty background as being either a consultant surgeon, consultant gastroenterologist, nurse endoscopist or trainee (any specialty of doctor not at consultant grade).

Information regarding pathology encountered was obtained based on macroscopic evaluation by the endoscopist. The presence of diverticulitis, colitis, haemorrhoids or pseudopolyps was classified as non-neoplastic colorectal pathology. The finding of pseudopolyps was not considered to be relevant to the study, as they are an entity of inflammatory bowel disease with limited malignant potential.¹¹ Indications for the procedure and the number of polyps found were subclassified as per the British Society of Gastroenterology guidelines.^{12 13}

Patients were excluded if they were undergoing a repeat procedure, were undergoing routine inflammatory bowel disease assessment, had had previous resectional surgery, were involved in the Scottish Bowel Scope Screening Pilot study¹⁴ or those in whom incomplete information was recorded.

This study was carried out utilising a local data set and so no formal ethical review or individual patient consent was sought.¹⁵ Data were stored and statistically analysed in an anonymised manner.

STATISTICAL ANALYSIS

The χ^2 test was used to examine associations between categorical variables, with the χ^2 test for linear trend used for ordered variables with multiple categories. Multivariate analysis was carried out using Poisson regression model; an appropriate approach when analysing count data.¹⁶ A value of $p < 0.05$ was considered statistically significant. Statistical analysis was performed using SPSS software (SPSS).

RESULTS

From January 2013 to January 2016, up to 10846 flexible sigmoidoscopies were performed, of which 7713 (71%) were included for analysis. Details on those excluded are noted in [figure 1](#). The baseline characteristics of the cohort are shown in [table 1](#). The

Figure 1 Patients undergoing FS in NHS Greater Glasgow and Clyde (January 2013–January 2016). FS, flexible sigmoidoscopy; IBD, inflammatory bowel disease.

median age at scope was 52 years and 50% of patients were male. The predominant indications for carrying out the procedure were per-rectal bleeding (38%), altered bowel habit (17%) or a combination of the two (12%). Sedation was not used in 5963 (77%) patients and the majority of patients underwent enema bowel preparation (63%).

The maximum distance the scope was inserted to was most commonly the splenic flexure (34%), with 1217 (16%) flexible sigmoidoscopies being inserted proximal to this area. A total of 1172 (13%) patients had polyps and 298 (4%) patients had carcinomas.

Table 1 Baseline characteristics of cohort undergoing routine flexible sigmoidoscopy

	All patients n (%)
Age	
<50	3682 (48)
50–70	2404 (31)
>70	1627 (21)
Gender	
Male	3811 (50)
Female	3902 (50)
Indication	
Pain	330 (4)
Abnormal imaging	433 (6)
Altered bowel habit	1339 (17)
Per-rectal bleeding	2924 (38)
Altered bowel habit and per-rectal bleeding	886 (12)
Previous polyp/cancer	573 (7)
Other	1228 (16)
Sedation	
No	5963 (77)
Yes	1750 (23)
Bowel preparation	
None	271 (4)
Enema	4867 (63)
Laxative preparation	2575 (33)
Quality of bowel preparation	
Good/satisfactory	6500 (84)
Poor	1045 (14)
No bowel preparation	168 (2)
Maximum distance scope inserted	
Rectum	541 (7)
Sigmoid colon	1346 (18)
Descending colon	1954 (25)
Splenic flexure	2655 (34)
Proximal to splenic flexure	1217 (16)
Endoscopist	
Consultant surgeon	1561 (20)
Consultant gastroenterologist	1123 (15)
Nurse endoscopist	3831 (50)
Trainee	1198 (15)
Insertion limited by	
No limitation	6354 (82)
Discomfort	137 (2)
Poor bowel preparation	560 (7)
Pathology encountered	136 (2)
Intent of examination	489 (6)
Other	37 (1)
Pathology found	
None	1831 (24)
Non-neoplastic colorectal pathology	4412 (59)
Polyp	1172 (13)
Carcinoma	298 (4)

Factors affecting maximum distance scope inserted

The influence of the baseline characteristics on the maximum distance scope inserted is shown in [table 2](#). Endoscopists were more likely to reach the splenic flexure or more proximally in patients below 50 years of age (both $p<0.001$). There was also a significant relationship between gender and distance examined with male patients more likely to be examined proximal to the splenic flexure ($p<0.001$).

With regard to bowel preparation, the use of laxative preparation was increasingly important in examining more proximal distances (21% rectum vs 46% proximal to splenic flexure, $p<0.001$), as was the quality; with good/satisfactory bowel preparations required to visualise more of the bowel (64% rectum vs 88% proximal to splenic flexure, $p<0.001$).

Factors affecting polyp detection rate

Patients in whom carcinoma or non-neoplastic colorectal pathology was detected were excluded, and of the remaining 3003, a total of 1831 (61%) patients had no polyps, 1057 (35%) had 1–2 polyps, 81 (3%) had 3–4 polyps and 34 (1%) had more than 5 polyps. Factors that affected polyp detection rate are shown in [table 3](#).

On univariate analysis, age under 50 years ($p<0.001$), female sex ($p<0.001$) and the use of no bowel preparation ($p<0.001$) were associated with lower numbers of polyps being detected. These factors retained significance on multivariate analysis. With regard to bowel preparation, there were 3.45 (1.43–8.34, $p=0.006$) times as many polyps found when an enema was used and 3.81 (1.57–9.22, $p=0.003$) times as many were found if a laxative preparation was used, compared with using no preparation. The greatest number of polyps was found in sigmoidoscopies being carried out by consultant surgeons ($p<0.001$). In addition, multivariate analysis did not identify any association between the number of polyps found and whether sedation was used or not ($p=0.591$).

With regard to distance examined, there was an association with insertion of the scope more proximally and more polyps being identified ($p<0.001$). This was confirmed by multivariate analysis which indicated that 1.30 (1.04–1.63, $p=0.026$) times as many polyps were found when the scope was inserted to the descending colon compared with the rectum ([table 3](#)).

Region of most proximal polyp

Of the 1172 patients in whom polyps were found, the most proximal polyp was found in the majority of cases within the sigmoid colon (636 (54%) patients) ([table 4](#)).

When inserted to the descending colon, the most proximal polyp was found within the sigmoid colon in 62% of cases. Similarly, when examining to the splenic flexure, the most proximal polyp was found within the sigmoid colon in 61% of cases. However,

Table 2 Factors associated with maximal distance of scope insertion during routine flexible sigmoidoscopy

	Rectum n (%)	Sigmoid colon n (%)	Descending colon n (%)	Splenic flexure n (%)	Proximal to splenic flexure n (%)	p Value
Age						
<50	88 (16)	374 (28)	938 (48)	1696 (64)	586 (48)	
50–70	224 (41)	465 (35)	612 (31)	693 (26)	410 (34)	
>70	229 (43)	507 (37)	404 (21)	266 (10)	221 (18)	<0.001*
Gender						
Male	304 (56)	615 (46)	898 (46)	1362 (51)	723 (59)	
Female	237 (44)	731 (54)	1056 (54)	1293 (49)	494 (41)	<0.001*
Indication						
Pain	18 (3)	33 (2)	98 (5)	125 (5)	56 (5)	
Abnormal imaging	48 (9)	142 (11)	102 (5)	71 (2)	70 (6)	
Change in bowel habit	42 (8)	199 (15)	342 (18)	492 (19)	264 (22)	
Per-rectal bleeding	128 (24)	376 (28)	763 (39)	1221 (46)	436 (36)	
Altered bowel habit and per-rectal bleeding	24 (4)	112 (8)	208 (11)	418 (16)	124 (10)	
Previous polyp/cancer	108 (20)	196 (15)	126 (6)	72 (3)	71 (6)	
Other	173 (32)	288 (21)	315 (16)	256 (9)	196 (16)	<0.001†
Sedation						
No	358 (66)	878 (65)	1545 (79)	2318 (87)	864 (71)	
Yes	183 (34)	468 (35)	409 (21)	337 (13)	353 (29)	<0.001*
Bowel preparation						
None	71 (13)	89 (7)	60 (3)	22 (1)	29 (2)	
Enema	355 (66)	879 (65)	1332 (68)	1678 (63)	623 (52)	
Laxative preparation	115 (21)	378 (28)	562 (29)	955 (36)	565 (46)	<0.001*
Quality of bowel preparation						
Good/satisfactory	344 (64)	912 (68)	1658 (85)	2520 (95)	1066 (88)	
Poor	155 (29)	380 (19)	259 (13)	121 (4)	130 (10)	
No bowel preparation	42 (7)	54 (3)	37 (2)	14 (1)	21 (2)	<0.001*
Endoscopist						
Consultant surgeon	261 (48)	411 (31)	358 (18)	240 (9)	291 (24)	
Consultant gastroenterologist	80 (15)	266 (20)	335 (17)	220 (8)	222 (18)	
Nurse endoscopist	99 (18)	383 (28)	942 (49)	1952 (74)	455 (37)	
Trainee	101 (19)	286 (21)	319 (16)	243 (9)	249 (21)	<0.001†
Insertion limited by						
No limitation	298 (55)	783 (58)	1618 (82)	2536 (89)	1120 (92)	
Discomfort	8 (1)	58 (4)	65 (3)	3 (0.1)	3 (0.1)	
Poor bowel preparation	77 (14)	280 (21)	168 (9)	18 (1)	17 (1)	
Pathology encountered	47 (10)	72 (5)	15 (1)	1 (0.1)	1 (0.1)	
Intent of examination	103 (19)	130 (10)	86 (4)	95 (10)	75 (7)	
Other	9 (1)	23 (2)	2 (0.1)	2 (0.1)	1 (0.1)	<0.001†
Pathology found						
None	89 (16)	229 (17)	413 (21)	732 (28)	368 (30)	
Non-neoplastic colorectal pathology	247 (46)	700 (52)	1215 (62)	1628 (60)	622 (51)	
Polyp	95 (18)	297 (22)	295 (15)	280 (11)	205 (17)	
Carcinoma	110 (20)	120 (9)	31 (2)	15 (1)	22 (2)	<0.001†

* χ^2 test for linear trend.†Pearson χ^2 .

when the scope was inserted proximal to the splenic flexure, this proportion fell and the most proximal polyp was found within the sigmoid colon in only 46% of cases.

DISCUSSION

The present study provides a comprehensive analysis of flexible sigmoidoscopy practice within our geographical area over a 3-year period, focusing on

Table 3 Factors associated with the detection of polyps during routine flexible sigmoidoscopy

	Number of polyps detected				χ^2 p value	Multivariate analysis HR (95% CI)	p Value
	0 n (%)	1–2 n (%)	3–4 n (%)	≥5 n (%)			
Age							
<50	1138 (62)	245 (23)	13 (16)	7 (21)		1	
50–70	479 (26)	461 (44)	41 (51)	15 (44)		2.01 (1.72 to 2.35)	<0.001
>70	214 (12)	351 (33)	27 (33)	12 (35)	<0.001*	2.22 (1.86 to 2.64)	<0.001
Gender							
Female	1044 (57)	440 (41)	35 (43)	17 (50)		1	
Male	787 (43)	617 (59)	46 (57)	17 (50)	<0.001*	1.23 (1.10 to 1.38)	<0.001
Indication							
Pain	113 (6)	36 (3)	2 (2)	0 (0)		1	
Abnormal imaging	42 (2)	127 (12)	3 (4)	5 (15)		1.93 (1.35 to 2.76)	<0.001
Change in bowel habit	634 (35)	108 (10)	7 (9)	2 (6)		0.64 (0.45 to 0.91)	0.014
Per-rectal bleeding	471 (26)	288 (27)	21 (26)	7 (20)		1.54 (1.11 to 2.14)	0.010
Altered bowel habit and per-rectal bleeding	241 (13)	40 (4)	6 (7)	3 (9)		0.96 (0.65 to 1.44)	0.857
Previous polyp/cancer	90 (5)	281 (27)	32 (40)	14 (41)		1.93 (1.38 to 2.71)	<0.001
Other	240 (13)	177 (17)	10 (12)	3 (9)	<0.001†	1.26 (0.89 to 1.77)	0.195
Sedation							
No	1420 (78)	736 (70)	55 (68)	24 (71)		1	
Yes	411 (22)	321 (30)	26 (32)	10 (29)	<0.001*	1.04 (0.91 to 1.17)	0.591
Bowel preparation							
None	37 (2)	5 (1)	0 (0)	0 (0)		1	
Enema	1172 (64)	611 (58)	42 (52)	22 (65)		3.45 (1.43 to 8.34)	0.006
Laxative preparation	622 (34)	441 (41)	39 (48)	12 (35)	<0.001*	3.81 (1.57 to 9.22)	0.003
Quality of bowel preparation							
Good/satisfactory	1539 (84)	900 (85)	69 (85)	30 (88)			
Poor	272 (15)	154 (14)	12 (15)	4 (12)			
No bowel preparation	20 (1)	3 (1)	0 (0)	0 (0)	0.149*		
Maximum distance scope inserted							
Rectum	89 (5)	91	2 (2)	2 (6)		1	
Sigmoid colon	229 (13)	275 (26)	16 (20)	6 (18)		1.24 (0.99 to 1.55)	0.061
Descending colon	413 (23)	262 (25)	23 (28)	10 (29)		1.30 (1.04 to 1.63)	0.026
Splenic flexure	732 (39)	256 (24)	13 (17)	11 (32)		1.12 (0.88 to 1.42)	0.348
Proximal to splenic flexure	368 (20)	173 (16)	27 (33)	5 (15)	<0.001*	1.22 (0.96 to 1.56)	0.110
Endoscopist							
Consultant surgeon	239 (13)	360 (34)	28 (35)	12 (35)		1	
Consultant gastroenterologist	374 (20)	159 (15)	14 (17)	9 (26)		0.75 (0.63 to 0.88)	<0.001
Nurse endoscopist	999 (55)	322 (30)	18 (22)	6 (18)		0.65 (0.56 to 0.76)	<0.001
Trainee	219 (12)	216 (21)	21 (26)	7 (21)	<0.001†	1.02 (0.87 to 1.19)	0.827

* χ^2 test for trend.†Pearson χ^2 .

factors affecting the number of polyps found. It has shown that the number of polyps detected at flexible sigmoidoscopy is determined by both patient factors, such as age, sex and quality of bowel preparation; and also procedural factors, such as the maximum distance the scope is inserted.

The results of this study have shown that the number of polyps found varies depending on the distance of bowel examined. While this would make sense intuitively, to our knowledge this relationship has not been quantified previously. The results of the present

study have shown that the highest polyp detection rate was when the bowel was examined to the descending colon, with a fall in the number of polyps found more proximal to this. This is surprising as logical reasoning would expect the number of polyps found to increase as the bowel was examined more proximally. One explanation for this may be the patient population included in the present analysis overall. This is evident in the proportion of patients with polyps detected being below that of the UK Flexible Screening Sigmoidoscopy Trial.⁷ The patients in whom more proximal

Table 4 Region of most proximal polyp

Region of most proximal polyp	Maximum distance scope inserted					Proximal to splenic flexure n (%)
	Overall n (%)	Rectum n (%)	Sigmoid colon n (%)	Descending colon n (%)	Splenic flexure n (%)	
Rectum	382 (33)	95 (100)	109 (37)	76 (26)	64 (23)	38 (19)
Sigmoid colon	636 (54)	0 (0)	188 (63)	182 (62)	172 (61)	94 (46)
Descending colon/splenic flexure	124 (11)	0 (0)	0	37 (12)	44 (16)	43 (21)
Proximal to splenic flexure	30 (2)	0 (0)	0	0	0	30 (14)

scope insertion was carried out were more likely to be younger and female and hence were less likely to have polyps detected. Further work in an older population that may better represent the screening population is required.

Of interest, the present study identified that the most proximal polyp was found within the sigmoid colon in the majority of cases, even when the scope was inserted more proximal to this area. Examining up to and including the sigmoid colon would have picked up all the polyps within 1018 (87%) patients, and so, in the majority of patients it would appear to be of limited flexible sigmoidoscopy screening benefit examining the colon more proximally. As detailed above, the highest polyp detection rate was when the scope was inserted to the descending colon, confirming the fact that the entire sigmoid colon has to be visualised to ensure efficacy of the test. Currently, the definition for an adequately inserted screening flexible sigmoidoscopy is subjective and not clearly defined. For example, the definition in the UK Flexible Sigmoidoscopy Screening Trial aimed to progress as far as could be reached with enema preparation, no sedation and without causing significant patient pain,⁷ compared with the US study which aimed to reach 60 cm.¹⁰ Considering this, the overall data from this study suggest that screening flexible sigmoidoscopy should be inserted proximal to the sigmoid colon; at least up until the descending colon to ensure the most number of polyps are found. A positive examination would subsequently be followed by a full colonoscopy ensuring any polyps proximal to the descending colon are found.

In addition, this study has confirmed the finding of several epidemiological studies,^{17 18} indicating that the incidence of polyps increases above the age of 50, with more than twice as many polyps being detected in these patients within the present study. Gender is also an established risk factor for polyps, with the findings of this study mirroring previous studies illustrating a higher prevalence of polyps within men.¹⁹ It was of interest to note, however, that the present study did not identify a significant difference in the number of polyps found in patients who had received a laxative preparation compared with an enema. Laxative

preparation is associated with increased discomfort, reduced patient compliance and more adverse effects than enema preparation,^{20 21} and it is reassuring that the present study does not support its routine use. Although it was out with the scope of the present study to assess bowel preparation compliance levels, the overall levels of bowel preparation were rated as good/satisfactory in 84% of cases suggesting good adherence.

This study has a number of limitations. In particular, the present study relies on the endoscopists' subjective knowledge of where they are within the colon or rectum. There are studies that have examined the accuracy of colonoscopic localisation,^{22–24} and although the largest of these identified an overall accuracy of 96%,²³ the majority of inaccurately identified lesions were within the sigmoid (47%) and descending colon (27%), the major areas of the colon visualised by flexible sigmoidoscopy. In our geographical area, it is not routine practice to use the ScopeGuide for flexible sigmoidoscopy which may aid navigation through the colon, nor is it routine practice to measure the distance in centimetres that the scope is inserted. Such additional information where it were to have been available would have added to the accuracy of the present study. For the purpose of the present study, it was also presumed that the endoscopist began each flexible sigmoidoscopy with the intention to intubate to the splenic flexure; however, due to its retrospective nature, this could not be confirmed. Furthermore, the present study included all polyps and did not differentiate between histological subtypes such as adenomata or hyperplastic polyps. Adenoma detection rate is of increased clinical importance due to a higher prevalence of hyperplastic polyps within the rectosigmoid colon. However, analysis examining this would have required additional linkage to pathology data sets, which was out with the remit of the present study. Moreover, since rectosigmoid hyperplastic polyps are considered to have no significant malignant potential,²⁵ experienced endoscopists are increasingly identifying them with high confidence and leaving them in situ. As a

result, a small percentage of such polyps may have been visualised but left within the colon; although it would still be standard practice to record these within the gastrointestinal reporting system. One further potential confounder not available in the present study is withdrawal time. It is accepted from colonoscopy studies that longer scope withdrawal times are associated with higher polyp detection rates²⁶; however, this has yet to be demonstrated for flexible sigmoidoscopy. These data are not routinely recorded in practice, and due to the retrospective nature of the present study could therefore not be evaluated. The Scottish Bowel Scope Screening Pilot Study has recorded this prospectively and it will be of interest to note whether withdrawal time is as relevant in sigmoidoscopy practice as it is in colonoscopy when these data become available.¹⁴ In addition, endoscopist experience and specialty are of importance with regard to the overall efficiency of sigmoidoscopy. However, subanalysis within the specialty of the endoscopist was not possible within this study due to limited numbers.

In conclusion, the present study demonstrates that a variety of both patient and procedural factors can influence the number of polyps found during a flexible sigmoidoscopy. In particular, age, gender, quality of bowel preparation and the distance of bowel examined are of importance. There appears

to be no significant difference in the number of polyps found comparing enema or laxative use. In addition, the most number of polyps were found when the scope was inserted up until the descending colon, with the most proximal polyp being found within the sigmoid colon in the majority of cases. Compelling evidence from randomised controlled trials indicates that flexible sigmoidoscopy may be an important screening modality in the future, with the results of this study providing information that could help better standardise its use in clinical practice.

Contributors AJM: study concept and design; acquisition of data; analysis and interpretation of data; drafting of the manuscript; critical revision of the manuscript for important intellectual content; statistical analysis. DCM and JHA: study concept and design; analysis and interpretation of data; critical revision of the manuscript for important intellectual content. PGH: study concept and design; critical revision of the manuscript for important intellectual content. DM: study concept and design; acquisition of data; analysis and interpretation of data; critical revision of the manuscript for important intellectual content; statistical analysis, study supervision.

Competing interests None declared.

Patient consent Detail has been removed from this case description/these case descriptions to ensure anonymity. The editors and reviewers have seen the detailed information available and are satisfied that the information backs up the case the authors are making.

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Significance of this study

What is already known on this topic

- ▶ Standardisation of flexible sigmoidoscopy is lacking, and as a result the efficacy of the polyp detection is variable in clinical practice. Increasing age and male sex have been shown to be associated with an increased polyp detection rate. However, data regarding the association between polyp detection and endoscopist factors, such as the length of bowel examined and the use of bowel preparation, are incomplete.

What this study adds

- ▶ The results of this present study indicate that insertion to the descending colon optimises the efficacy of flexible sigmoidoscopy polyp detection. Furthermore, there was no significant difference in the number of polyps found in patients who had received an oral laxative preparation compared with an enema.

How might it impact on clinical practice in the foreseeable future

- ▶ Compelling evidence indicates that flexible sigmoidoscopy may be an important screening modality in the future, with the results of this study providing information that could help better standardise its use in clinical practice.

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