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Surgeon and Patient Experience of Rigid Sigmoidoscopy in Colorectal Rapid Access Clinic- How Useful is it?

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Abstract

Introduction: Rigid sigmoidoscopy remains part of the initial clinical assessment for patients referred via the suspected colorectal cancer "Two-week-wait" pathway. It may be limited by lack of bowel preparation and pain; thus its usefulness has been questioned given subsequent formal luminal investigations. Aims were to evaluate patient experience with outpatient clinic rigid sigmoidoscopy and sensitivity of the procedure.

Methods: A prospectively maintained database of consecutive patients attending colorectal rapid access clinics at a UK district general hospital was analysed. Subjective patient experience was assessed using a validated 8-part questionnaire. Accuracy of sigmoidoscopy findings was evaluated by subsequent investigation findings.

Results: 135 patients were included. The procedure was abandoned in 7 patients (5.2%) due to pain or faecal loading. One rectal tumour was suspected on rigid sigmoidoscopy which was subsequently proven malignant. No additional cancers were missed at initial sigmoidoscopy, however only 20% benign rectal polyps were detected. 49.6% of patients did not expect the procedure and 45.2% felt anxious about it. 97% would be willing to have future rigid sigmoidoscopy.

Discussion and Conclusions: Rigid sigmoidoscopy remains a useful assessment but has potential to miss pathology. Most patients were satisfied with their experience of rigid sigmoidoscopy; however, many did not expect the procedure during their consultation. Patients should be better informed and educated of what to expect at time of primary care referral.

Keywords: Colorectal Cancer; Patient Care; Sigmoidoscopy

Introduction

Colorectal malignancies are the second commonest cause of cancer-related mortality in the UK following lung cancer. National guidelines recommend all suspected lower gastrointestinal malignancies from primary care necessitate referral under the fast-track "Two-week rule" to hospital rapid access clinics for surgical specialist consultation [1]. Approximately 35% of all colorectal cancers are diagnosed via rapid access clinics; therefore, thorough surgical assessment with appropriate subsequent investigation is crucial for early diagnosis [2]. Rigid sigmoidoscopy has long been a part of initial clinical assessment for patients referred to colorectal clinic; however, it is a time consuming and often unpleasant invasive procedure to patients. The value of rigid sigmoidoscopy in rapid access clinics has been questioned as patients proceed to prompt outpatient investigations following initial consultation. Other limitations to rigid sigmoidoscopy include patient tolerance, skill of performing surgeon and restricted views secondary to faecal loading or blood [3,4]. Surgeon experience and rectal cancer yield from rigid sigmoidoscopy in the rapid access colorectal clinic setting has never been examined before. Significant pathology can be missed on rigid sigmoidoscopy with flexible sigmoidoscopy being far superior in regard to diagnostic value and ease of obtaining tissue biopsies [4]. Patient tolerance of rigid sigmoidoscopy is variable with significant discomfort reported particularly on negotiating the recto-sigmoid angle [5]. Detailed analysis of patient experience with rigid sigmoidoscopy in clinic is also under-reported in previous literature. The aims of this study were to evaluate yield of rigid sigmoidoscopy in colorectal rapid access clinics for cancer and benign pathology, reasons for abandoned procedures, sigmoidoscopy advancement distances and correlation with subsequent

investigation results. Secondary aims were to assess patient satisfaction and experience with rigid sigmoidoscopy.

Materials and Methods

A prospectively maintained database of patients referred with suspected colorectal cancer under the two-week rule attending rapid access clinic at our district general hospital in 2016 was analysed. Patients attending clinic were recruited into the study after obtaining informed consent to participate by the sigmoidoscopy performing surgeon. Following surgical consultation and examination, immediate rigid sigmoidoscopy without bowel preparation was performed in clinic using a 25cm disposable rigid sigmoidoscope connected to insufflation bellows and a light source. The performing surgeon would complete a formulated proforma (Table 1).

Symptoms present (as reported by patient)		
Change in bowel habit		
Rectal bleeding		
Weight loss		
Iron deficiency anaemia		
Abdominal/rectal mass		
Tenesmus		
Rectal examination findings		
Blood		
Haemorrhoid		
Palpable polyp		
Palpable mass suspicious of cancer		
Fissure-in-ano		
Loaded stool		
Rigid sigmoidoscopy		
Performed:	Yes/ No	
If no, reason why not:		
Loaded with stool		
Patient refused		
Excessive pain		
No chaperone/equipment		
External pathology e.g fissure		
Time restraint		
Advancement distance:		cms
Hard stool present:	Yes/ No	
Blood present:	Yes/ No	
Polyps :	Yes/ No	**Distance from anal**
verge:	**cms**	
Mass suspicious:	Yes/ No	**Distance from anal**
verge:	**cms**	
Proctitis:	Yes/ No	**Distance from anal**
verge:	**cms**	

Table 1: Surgeon experience proforma completed following clinic consultation 17.

Including information on presenting symptoms, rectal examination and sigmoidoscopy findings, sigmoidoscopy advancement distances and reasons for procedure abandonment. Rigid sigmoidoscopy findings were analysed with subsequent investigation recto-sigmoid pathology findings for comparison of diagnostic pathological yield. Data for subsequent investigation findings were collected from electronic endoscopy, radiology and histopathology reports. Following rapid access surgical consultation, recruited patients were subsequently asked to complete a questionnaire regarding their experience with rigid sigmoidoscopy (Table 2).

1. Were you expecting to have rigid sigmoidoscopy during this consultation?				
Yes		No		
2. During my surgical consultation, the rigid sigmoidoscopy was more comfortable than I expected				
Strongly disagree	Disagree	Neither	Agree	Strongly agree
3. My surgeon was gentle during the rigid sigmoidoscopy				
Strongly disagree	Disagree	Neither	Agree	Strongly agree
4. I felt as if I had enough privacy when the rigid sigmoidoscopy was performed				
Strongly disagree	Disagree	Neither	Agree	Strongly agree
5. I felt very anxious about having the rigid sigmoidoscopy prior to the procedure				
Strongly disagree	Disagree	Neither	Agree	Strongly agree
6. I felt generally embarrassed/awkward during the rigid sigmoidoscopy procedure				
Strongly disagree	Disagree	Neither	Agree	Strongly agree
7. From my perspective, the rigid sigmoidoscopy was necessary and could benefit my health				
Strongly disagree	Disagree	Neither	Agree	Strongly agree
8. I would be willing to have another rigid sigmoidoscopy procedure in the future if indicated				
Strongly disagree	Disagree	Neither	Agree	Strongly agree

Table 2: Patient experience questionnaire.

The 48-part subjective questionnaire implemented was adapted from a previously validated tool used to examine screening flexible sigmoidoscopy patient experience [6]. Patient responses were marked on a 5-point ordinal scale for each question. Patient exclusion criteria included patients lacking mental capacity or with significant visual impairment. Statistical analysis calculations were performed using Statistical Package for the Social Sciences (SPSS Windows Version 22.0, Chicago, IL, USA) with statistical significance set at p-values less than 0.05. Data is expressed as whole numbers (%) and median (Interquartile Range (IQR)), with p-values from Chi-squared test for categorical data.

Results

Demographics and Presenting Symptoms

One hundred and thirty-five patients who underwent rigid sigmoidoscopy during their surgical consultation were included in our study. These patients were all referrals to colorectal rapid access clinic from primary care general practitioners from January to March 2016. Median age was 69 years (IQR, 61-77) with 78 (57.8%) being female and 57 (42.2%) male. All examinations were performed in the left lateral decubitus position by registrar level surgeons with a nurse chaperone present. The rigid sigmoidoscopy findings of five registrars within our colorectal unit were included during the study period. There were no complications reported or biopsies taken during rigid sigmoidoscopy performed in our study. Indications for referral to colorectal rapid access clinic correlating with patient reported symptoms were change in bowel habit (94/135, 69.6%), rectal bleeding (53/135, 39.3%), iron deficiency anaemia (10/135, 7.4%), weight loss (6/135, 4.4%), tenesmus (5/135, 3.7%) and abdominal/rectal mass (5/135, 3.7%). Rigid sigmoidoscopy was abandoned in 7 patients (5.2%); 5 for excessive procedural pain and 2 for significant rectal faecal loading.

Surgeon Experience of Rigid Sigmoidoscopy

All patients underwent full surgical assessment in rapid access clinic including a digital rectal examination (DRE) and subsequent rigid sigmoidoscopy after obtaining consent. 87 (64.4%) DREs were unremarkable. Abnormal DREs included haemorrhoids (21/135, 15.6%), loaded hard stool (14/135, 10.4%), blood (5/135, 3.7%), palpable mass (3/135, 2.2%) and fissure-in-ano (2/135, 1.5%). The median sigmoidoscope advancement distance from the anal verge was 10cms (IQR, 8-12cms; range: 3-20cms). Rectal masses in 3 (2.4%) patients were visualised on rigid sigmoidoscopy, 1 (0.8%) suspicious of a low rectal tumour and 2 (1.6%) of rectal polyps. Other positive findings included hard stool (27/135, 20.9%), blood (13/135, 8.8%) and proctitis (4/135, 3.1%). Various modalities of outpatient investigations were requested following initial rapid access clinic assessment including flexible sigmoidoscopy (23.0%), colonoscopy (31.1%), Computed Tomography (CT) pneumocolon (31.9%) and contrast CT (5.2%). Median time between clinic and endoscopy investigations was 22 days (IQR, 16.5-27 days) and between clinic and CT scans was 15 days (IQR, 11-18.25 days). No investigations were performed in 16 (11.9%) patients for a multitude of reasons: 7 reported complete symptom resolution, 6 did not attend endoscopic investigations, 2 declined further investigations and 1 patient opted for further management under private healthcare.

The sole rectal tumour suspected on rigid sigmoidoscopy at 4cms from the anal verge was subsequently proven malignant (30mm tumour, moderately differentiated adenocarcinoma). No additional cancers were missed within range of insertion at initial rigid sigmoidoscopy. Following completion of subsequent endoluminal or CT imaging investigations, 12 rectal polyps were discovered with a median distance from the anal verge of 12cms (IQR, 7.5-

12.25cms). From initial rigid sigmoidoscopy insertion distances achieved by the performing surgeon, only 5 of these 12 rectal polyps were in range. Only 1 out of 5 (20%) was detected by the performing surgeon, hence 80% were overlooked. Missed pathology was not specific to one performing registrar. 4 patients had proctitis evident on rigid sigmoidoscopy with no additional cases diagnosed following subsequent investigations.

Patient Experience of Rigid Sigmoidoscopy

Completion of the post-procedure patient experience questionnaire was 100%. A full summary of questionnaire results is displayed in (Table 3).

Questions	Yes	No	
1. Were you expecting to have RS during this consultation?	68 (50.4%)	67 (49.6%)	
	Strongly agree/agree	Neither	Strongly disagree/disagree
2. During my surgical consultation, the RS was more comfortable than I expected	11 (8.1%)	23 (17.0%)	101 (74.8%)
3. My surgeon was gentle during RS	0 (0.0%)	3 (2.2%)	132 (97.8%)
4. I felt as if I had enough privacy when the RS was performed	0 (0.0%)	6 (4.4%)	129 (95.6%)
5. I felt very anxious about having RS prior to the procedure	39 (28.9%)	35 (25.9%)	61 (45.2%)
6. I felt generally embarrassed/ awkward during the RS procedure	74 (54.8%)	26 (19.3%)	35 (25.9%)

7. From my perspective, the RS was necessary and could benefit my health	2 (1.5%)	5 (3.7%)	128 (94.8%)
8. I would be willing to have another RS procedure in the future if indicated	2 (1.5%)	2 (1.5%)	131 (97.0%)
Number of patients out of 135 (%)			

Table 3: Summary of completed patient rigid sigmoidoscopy questionnaires.

49.6% (67/135) of patients did not expect to have rigid sigmoidoscopy during their consultation. There was no significant difference in male or female expectation of the procedure (p= 0.91). 74.8% (101/135) either strongly or agreed that their rigid sigmoidoscopy had been more comfortable than expected with 97.8% (132/135) reporting the surgeon performing their procedure was gentle. No patient required analgesia throughout or after sigmoidoscopic examination. The vast majority of patients (95.6%, 129/135) felt adequate privacy was given during their examination. The remaining 4.4% (6/135) patients claimed a neutral opinion regarding privacy provided. 45.2% (61/135) felt anxious about having sigmoidoscopy prior to the procedure during their clinic appointment. This compared with 28.8% (39/135) denying feeling anxious and 25.9% (35/135) expressing neither. 21.5% (35/135) strongly agreed or agreed to experiencing embarrassment/awkwardness during the procedure while 54.8% (74/135) denied such feelings.

A strong majority of our study cohort felt rigid sigmoidoscopy was beneficial to their overall health and would be willing to have future examinations if clinically warranted (94.8% and 97.0% respectively). Sub-group analysis between sexes and those expecting the procedure vs those not within our study population revealed no significant differences in procedural experience examined from questions [2-8].

Discussion and Conclusions

This study is the first to report surgeon and patient experience with rigid sigmoidoscopy in the colorectal rapid access clinic setting. We report a single rectal malignancy (0.8%) from our study sample which was suspicious on both digital rectal and rigid sigmoidoscopy prior to biopsy confirmation. Of note, subsequent investigations following rapid access clinic did yield 5 colorectal malignancies (3.7%) including two right colonic and two sigmoid tumours in addition to our isolated rectal cancer. Reported malignancy yield from colorectal rapid access clinics in previous UK studies have ranged between 6-14% [7-10]. However, national guidelines on diagnosis of colorectal malignancies and indications to trigger primary care General Practitioners (GP) to refer under the 'Two-week rule' have been revised in 2015 and could account for our lower cancer yield [11]. No rectal cancers were missed on rigid sigmoidoscopy in our study, however more worryingly only 20% of rectal polyps were detected by the performing surgeon within the examined rigid scope range. One could argue that the majority of these patients would go on to have further endoluminal investigations in the near future (22 days in our study) where biopsies or snare polypectomies could be performed. For this reason, as well as restricted rectal views and rapid access consultation time restraints, few surgeons perform biopsies of lesions through a rigid sigmoidoscope in a clinic setting. Multiple studies have concluded flexible sigmoidoscopy to be superior to rigid sigmoidoscopy in terms of range of insertion from the anal verge and diagnostic value in detecting anorectal lesions [3,4,12,13]. 'One Stop' colorectal rapid access clinics with same-consultation flexible sigmoidoscopy have previously been implemented with observed high diagnostic accuracy and better streamlining of patients referred under the 'Two-week rule' [14,15]. However, these two studies revealed 74-80% patients required further investigations following flexible sigmoidoscopy to complete whole colon examination hence raising doubt on cost-effectiveness of these 'One-Stop' clinics.

The average time to perform rigid sigmoidoscopy in clinic is approximately 4 to 6 minutes and therefore takes up a significant portion of the entire clinic appointment [5]. Also, steadily increasing 'Two-week rule' referrals for suspected colorectal malignancies from GPs have placed augmented pressure on outpatient rapid access clinics [16]. One could postulate omission of the procedure would allow more patients to be seen in an individual clinic, thus alleviating pressures from increasing referral numbers. Average median depth of sigmoidoscope insertion in our study was 12cms, which is lower than previous studies averaging up to 20cm [17,18]. This could possibly be accounted for by lack of pre-procedure bowel preparation or reduced experience of the performing registrar-level surgeon. Less-skilled flexible sigmoidoscopists have been shown to achieve lower insertion distances and increased patient discomfort 6. Bulmer et al have previously demonstrated that pre-appointment suppositories self-administered by patients can significantly improve views and patient compliance during rigid sigmoidoscopy in a clinic setting, thus making it a useful assessment in evaluating rectal pathology [19].

There is a plethora of benefits from performing rigid sigmoidoscopy in colorectal clinics. Obvious tumour presence on rigid examination equates to immediate diagnosis and allows for expediting further investigations including staging CT and rectal Magnetic Resonance Imaging (MRI) scans, timely introduction to colorectal specialist nurses and swift colorectal multi-disciplinary team meeting discussion regarding future treatment. Rigid sigmoidoscopy is essential in accurately localising position of rectal tumours. There have been major discrepancies observed between measurements of rectal tumours from the anal verge between rigid

sigmoidoscopy and colonoscopy modalities [20,21]. Schoellhammer, et al. used rigid sigmoidoscopy as an adjunct to localising anorectal lesions and reported alteration in subsequent oncological management in up to 25% of patients 21. In regard to non-malignant pathology visualised, polyps and proctitis will require further endoluminal investigations to take biopsies and evaluate the remaining colon. An immediate diagnosis of proctitis can be achieved with rigid sigmoidoscopy assessment and thus allows for appropriate treatment to be initiated whilst waiting for pending lower gastrointestinal endoscopy.

Patient discomfort associated with rigid sigmoidoscopy is observed in up to a third of patients [5,22]. Our study revealed that 25.2% of patients found the procedure less comfortable than expected and this lower proportion may be accountable for by the shorter insertion distances achieved, especially with most not reaching the rectosigmoid angle usually positioned at 17cm4. Rectal air insufflation was not analysed in our study but has been linked 11 to increasing procedural related in pain in flexible sigmoidoscopy and this may account for comfortability during the procedure [23]. Pre-procedural anxiety was expressed by 45% of our sample and this can augment pain experienced. Interestingly, just under half the patients in our study did not expect to have rigid sigmoidoscopy, however these patients did not feel increased levels of pre-procedural anxiety ($p=0.33$). Previous studies have concluded to pre-procedural counselling reducing state procedure-related anxiety and also associated pain [24,25]. Patients referred from general practitioners should be informed and counselled about rigid sigmoidoscopy as part of their near future rapid access clinic consultation to reduce subsequent pre-procedural anxiety. Our study identifies this deficiency as a gap in this particular patient care pathway and thus a need for education to patients within the primary care setting. Embarrassment was experienced in over 21% of our patients with no significant difference between males and females. Similar figures were reported by Winawer, et al. who also observed flexible sigmoidoscopy caused less discomfort and anxiety than rigid sigmoidoscopy when used in the colorectal cancer screening setting [5].

Gender differences with have been documented previously with women generally experiencing more pain and discomfort during the procedure, which mirrors also what is observed with flexible sigmoidoscopy [6,22]. Our study did not reveal any significant differences between males and females within the questionnaire results. This may represent a type II error and certainly sample number is a potential limitation to our study. Rigid sigmoidoscopy is associated with a very low complication rate, including 0.01% rectal perforation [26,27], of which none of our patients experienced. We would certainly advocate its safety in assessing for rectal pathology. This study is the first to implement a previously validated subjective tool to examine rigid sigmoidoscopy on 'Two-week rule' referrals.

Clinically, we have observed missed rectal pathology, short insertion distances and procedure related anxiety and discomfort. Majority of patients require further investigation consistent with previous studies and this raises the question whether rigid sigmoidoscopy is necessary in the context of colorectal rapid access clinics. Anderson et al analysed the feasibility of a straight-to-endoscopy pathway from GP referrals for suspected colorectal cancer and concluded that as GP assessment lacked rigid sigmoidoscopy compared to surgeon clinic assessment, certain patients would be denied an early immediate diagnosis of rectal pathology [28]. This would be the primary benefit of performing rigid sigmoidoscopy in rapid access clinics along with expediting subsequent oncological management. Limitations of our study include only examining patients from a single centre colorectal unit with no pre-procedural bowel preparation. Although many centres in the UK practice rigid sigmoidoscopy under these conditions, a comparison of experience with a second arm of patients self-administering enemas prior to their examination would have been useful to evaluate clinical benefit. Cost-analysis of use of rigid sigmoidoscopy has never been performed before either. The non-blinded design of the study may have contributed to the performing surgeon's approach to rigid sigmoidoscopy resulting in performance bias.

In conclusion, rigid sigmoidoscopy remains a useful diagnostic tool within colorectal rapid access surgical assessment. Our study findings demonstrated important procedure-related deficiencies including missed rectal pathology, limited insertion distances and restricted views. Overall patient satisfaction and tolerability of rigid sigmoidoscopy was acceptable in the clinic setting, yet a large proportion of patients experienced anxiety and did not expect the procedure during their consultation. With cancer referrals and time pressures on outpatient waiting lists increasing, the feasibility of future rigid sigmoidoscopy in rapid access clinics may face scrutiny with a need for national cancer pathways to facilitate early diagnosis and subsequent oncological management.

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