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Diagnostic value of rectal retroflexion in polyp and adenoma detection

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Abstract

Objectives: Rectal retroflexion is a technique used during colonoscopy to better visualize the anorectal junction, which is a blind spot not seen on antegrade view. However, its utility remains to be a matter of controversy, especially in detecting malignancy. The aim of this study is to assess whether significant lesions are missed when rectal retroflexion is not done. **Materials and Methods:** This is a prospective cohort study. Consecutive patients for lower gastrointestinal endoscopy from October 2019 to February 2020 were included. **Results:** There were 369 eligible patients. Retroflexion was successfully performed in 188 patients including 92 females (49%) and 96 males (51%), with a mean age of 59±13 years. Of the 188 patients, 21 (11%) had distinct lesions detected in the distal rectum wherein 18 were polyps, two were erosions/ulcers, and one was a fistulous opening. Of the 18 polyps identified, 11 were visible only during retroflexion. One adenomatous polyp was identified on the retroflexed view, while the rest were hyperplastic. Performance of rectal retroflexion significantly increased the yield of detecting polyps compared with forward view alone. However, the adenoma detection rate did not increase in our study. **Conclusion:** Performing a retroflex maneuver as part of lower GI endoscopy would increase the diagnostic yield of rectal polyps. Although rectal retroflexion does not increase adenoma detection, its safety and possibility of detecting lesions undetectable by straight view justifies its use.

Keywords: retroflexion, lower endoscopy, colonoscopy, rectal polyps, adenoma detection

Rectal retroflexion is a technique used during colonoscopy to better visualize the entire rectal vault. It is a maneuver performed by bending the tip of the colonoscope by up to 180 degrees after initial examination of the rectum in the forward view. It also aids in the visualization of the anorectal junction, which is a blind spot that may not be seen on antegrade view.[1] Retroflexion has been recommended as an integral part of colonoscopy, specifically for the purpose of detecting neoplastic lesions.[2] Published reports of premalignant and malignant lesions that were missed when lower gastrointestinal endoscopy was performed without retroflexion further illustrates the value of this colonoscopic technique.[3,4] However, its utility still remains to be a matter of controversy especially in detecting malignancy.[5,6] Two previous studies failed to detect an adenoma in the retroflexed view.[6,7] Furthermore, retroflexion is not routinely performed due to lack of appreciation of its importance and concerns of discomfort. Iatrogenic perforation and Iatrogenic rectal perforation, although rare, have been reported because of retroflexion.[8-13] Given the conflicting literature on the risks versus benefits of rectal retroflexion, this prospective study was conducted to assess whether significant lesions are missed when retroflex visualization is not done.

Methodology

This prospective study was conducted at the Metropolitan Medical Center Manila, Philippines. All patients who underwent lower gastrointestinal endoscopy from October 2019 to February 2020, regardless of indication, were included. Excluded were patients with poor bowel preparation, failure of rectal retroflexion due to technical and anatomic issues, previous rectal surgery, and history of rectal lesion. The protocol was reviewed and approved by the institutional ethics committee. Informed consent was taken from all patients.

Procedure

All patients were placed under sedation or general anesthesia using intravenous administration of Midazolam 2.5 mg, with monitoring of vital signs and oxygen saturation. The procedure was done or supervised by three gastroenterologists, each with more than five years of clinical experience. Colonoscopy was performed according to standard recommendations, emphasizing a minimal duration of six minutes withdrawal time.[14]

Bowel preparation was done using two Bisacodyl (Dulcolax®) tablets and 20 mg of sodium picosulphate (Picoprep®) given the day prior to the study, and patients instructed to have clear liquid diet. Colonoscopy was performed using a KarlStorz colonoscope. The scope was advanced up to the terminal ileum or cecum. During scope withdrawal, all colonic segments were assessed, and findings documented. The rectum was first examined on forward view upon withdrawal of the endoscope. It was then reinserted up to 8-10 cm from the anal verge and withdrawn slowly to have a second look at forward view. Evaluation of the presence or absence of colonic polyps in the forward view were recorded. After withdrawal to the dentate line, the colonoscope was readvanced and retroflexed. Retroflexion was done by advancing the colonoscope up to 10 cm from the anal verge then inflating with air and maximally deflecting the scope upward. With the colonoscope retroflexed, the instrument was rotated to allow inspection of the anorectal area in a circumferential fashion. Determination for the presence or absence of colonic polyps while in the retroflexed view was done. Cases of retroflexion that were successful, unsuccessful, and not attempted were recorded. The presence or absence of colonic polyps, whether it was seen on forward view, retroflex view or both views, were prospectively recorded. All polyps, regardless of size, were removed using biopsy forceps or snare technique and submitted for histopathological analysis.

Study Design and Statistical Analysis

This was a prospective cohort study. The demographic and clinical characteristics of the patients are summarized using means, median and standard deviations. (**Table 1**). The difference in the number of rectal polyps detected with forward view alone compared to forward view plus retroflexion was analyzed using odds ratio with a 95% confidence interval. A p value of <0.05 was considered significant. Statistical analysis was performed utilizing SPSS version 2.0.

Results

There were 269 eligible patients. Retroflexion was successfully performed in 188 patients including 92 females (49%) and 96 males (51%), with a mean age of 59 ± 13 years. Retroflexed view was not obtained in 81 patients because of technical difficulty or presence of resistance during retroflexion (53 cases) and because the endoscopist judged that the rectum was too narrow (28 cases). Indications for colonoscopy are shown in **Table 1**.

Table 1. Demographic and clinical characteristics. N = 188

Characteristics		**n (%)**
Age (years)		59 ± 13
Gender:	Male	96 (51)
	Female	92 (49)
Indications for Colonoscopy		
GI bleeding		61 (32)
Screening colonoscopy		56 (16)
Surveillance colonoscopy		19 (10)
Abdominal pain		19 (10)
Constipation		7 (4)
Chronic diarrhea		5 (3)
Perianal fistula		5 (3)
Anemia		4 (2)
Anal pain		1 (0.06)

Of the 188 patients, 21 (11%) had distinct lesions detected in the distal rectum, of which 18 were polyps, two were erosions/ulcers and one was a fistulous

opening. Of the 18 polyps identified, 11 were visible only during retroflexion, while seven polyps were visible in both forward and retroflexed view. One adenomatous polyp was identified only on the retroflexed view, while the rest were hyperplastic (**Table 2**).

Table 2. Type of lesions identified in the rectal vault using different maneuvers.

Type of Lesion	Retroflex View Only	Straight View Only	Both Views
Hyperplastic polyp	10	-	7
Adenomatous polyp	1	-	-
Erosions / ulcers	2	-	-
Fistulous opening	1	-	-

The mean size of the 11 polyps detected only by retroflexed view was 4 mm (range 3-8 mm) and were sessile. All were detected in separate patients, and none had high grade dysplasia. Performance of rectal retroflexion significantly increased the yield of detecting polyps compared with forward view alone (odds ratio [OR] 2.73, 95% confidence interval [95% CI], *p* value = 0.0279). However, rectal retroflexion did not increase the recognition of adenomas (odds ratio [OR] 0, 95% confidence interval [95% CI], *p* value = 0.49). Minor complications involving rectal mucosal erosion without bleeding were encountered in five (2%) patients. No case of rectal perforation was encountered in the study.

Discussion and Conclusion

Colonoscopy is a diagnostic and therapeutic modality used in the prevention and management of premalignant lesions. An essential component of a complete colonoscopy would include rectal retroflexion.[1] However, previous studies have varied conclusions with regards the importance of this maneuver in lower gastrointestinal endoscopy. In this prospective study, rectal retroflexion was beneficial in increasing the yield of detecting lesions/polyps but had a limited significance on adenoma detection.

The efficacy and safety of rectal retroflexion was first evaluated by Grobe et al. on 75 consecutive endoscopies. They concluded that retroflexion improves the detection of lesions such as perirectal polyps; however, no adenoma was seen.[7] A study by Cutler and Pop involving 453 patients questioned the value of rectal retroflexion. In all except nine cases, retroflexion did not produce additional information compared with the antegrade view. The lesions identified were three inflammatory pseudopolyps, five hyperplastic polyps, and one case of erosions/ulcerations.[6] Reddy et al. concluded that rectal retroflexion did not yield additional precancerous findings among 1,513 patients wherein eight had hyperplastic and one had benign inflammatory polyp on retroflexion alone.[15] However, Hanson et al. reported that retroflexion increases adenoma detection by approximately one percent without significant adverse effects. Among 526 patients, 12 polyps were seen only on rectal retroflexion. Of these, eight had metaplastic and four had adenomatous polyps.[1] A study by Avila et al. involving 934 patients showed the presence of three hyperplastic polyps, three tubular adenoma and one tubulovillous adenoma detected on retroflexion.[16] Saad and Rex reported that among 1,411 patients, seven patients had polyps and one had adenoma on the retroflexed view.[5] Varadarajulu and Ramsey reported the highest yield of retroflexion. Among 590 patients 16 had polyps and six had adenomas seen only on the retroflexed view.[17] In our study we found ten hyperplastic and one adenomatous polyp on retroflexed view of the rectal vault that were missed on straight view.

Quallick and Brown reported four cases of rectal perforation from a total of 39,000 colonoscopies (0.10 per 1000). Three of the four perforations were managed successfully without surgical intervention with all four patients having good outcomes after repair of the perforation.[8] No complication of rectal perforation was encountered in our study.

In conclusion, performing a retroflex maneuver as part of lower GI endoscopy would increase the diagnostic yield of rectal lesions/polyps. Although rectal retroflexion does not increase adenoma detection, the possibility of detecting lesions undetectable by straight view and associated low rate of major complications justify its use.

Conflicts of Interest

The authors declare no conflicts of interest.

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