

**Original Article****Three Years of Colonoscopy Experience in a Tertiary Hospital in Maldives****Mohan Khadka**

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Article Received: 27<sup>th</sup> March, 2022; Accepted: 16<sup>th</sup> June, 2022; Published: 30<sup>th</sup> June, 2022**DOI: <https://doi.org/10.3126/jonmc.v11i1.45782>****Abstract****Background**

Colonoscopy is the procedure of choice in investigations of suspected pathologies related to colon and terminal ileum and the standard practice for screening colonic polyps and cancer, especially in the elderly. Adequate bowel preparation is important for the efficacy of the procedure. As there is a lack of published data on colonoscopy preparation and findings in the Maldives, this study was conducted to share the single-center experience.

**Materials and Methods**

This was a retrospective observational preliminary study carried out in the endoscopy center at ADK hospital, Maldives from April 2017 to March 2020. All patients were evaluated as per pre-designed Pro-forma. The procedure was performed after a pre-anesthetic check-up with intravenous sedation after bowel preparation as protocol. Findings were noted and Biopsies were taken as per need and sent for histopathologic examination.


**Results**

Out of 129 patients who underwent lower gastrointestinal endoscopy, only 98 were included for the study analysis. Among them, 44% of patients were male and 56% were female. Young adults were more involved in the procedure. Bowel preparation was poor in the majority (52%). Bleeding per rectum was the most common indication (40%) and hemorrhoids were the most frequent finding (52%). In 86% of patients, colonoscopy was complete up to cecum with the majority of them up to terminal ileum.

**Conclusion**

Per rectal bleeding was the most common indication for colonoscopy and hemorrhoids were the most common findings. Despite poor bowel preparation due to the lack of a standard cleansing regimen, the yield of the procedure was yet satisfactory.

**Keywords:** *Colonoscopy, Colon cancer, Hemorrhoids, Ulcerative colitis*

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## Introduction

Flexible colonoscopy is a gold standard investigation of choice for the evaluation of colonic mucosa and is used commonly worldwide [1]. The success of colonoscopy procedure depends on many factors however colonic cleansing is one of the important factors [2]. A positive test is almost always an indication to do a colonoscopy [3]. In most cases the positive result may be due to hemorrhoids; however, it could also be due to diverticulosis, inflammatory bowel disease, colon cancer, or polyps. Polypectomy can be done as a routine part of colonoscopy, allowing for effective and safe removal of polyps without invasive surgery [4].

Inadequate bowel preparation often leads to ineffective colonoscopy, prolonged intubation time, incomplete procedure and increased withdrawal time [5, 6]. Polyethylene glycol (PEG LEC) solution has become the preferred bowel cleansing agent due to its proven safety and efficacy [7].

Colonoscopy was not commonly practiced in Maldives for various reasons. I performed colonoscopy procedures for various indications in one of the two largest high volume referral centers, the ADK Hospital located in the capital of the country in capacity of a single gastroenterologist in whole country during the period of the study. No official data was published about colonoscopy preparation and findings in the country and hence, this study was carried out for the purpose.

## Materials and Methods

It was a retrospective study carried out from April, 2017 to March, 2020 in ADK Hospital of Maldives. A total of 129 patients underwent lower gastrointestinal endoscopy during the period of study. Data on patients who underwent the procedure was collected from the colonoscopy registry as per pro-forma. Informed consent was taken from each patient. The study was conducted after getting waiver for ethical approval from ADK Hospital ethical committee as the study being retrospective in nature with de-identified patients' data. Patients who underwent only sigmoidoscopies were 31 and excluded from the study. All patients who underwent colonoscopy procedure were 98 in number and included for the study. Patients who underwent repeat colonoscopies were also excluded. I myself performed all procedures.

As Polyethylene Glycol (PEG LEC) was unavailable in Maldives for standard bowel preparation, patients were given bisacodyl 10 mg and

lactulose 45 gm once a day before sleep for consecutive two days prior to the day of procedure as alternatives. Furthermore patient was prepared with fiber free, low residue soft diet for 2 days followed by liquid diet one day prior with nil per oral for 6 hours before the procedure. All patients underwent pre-anesthetic check up. Colonoscopy was performed under sedation with parenteral infusion of Midazolam 2 mg in most patients with addition of Fentanyl, Propofol or Ketamine in some patients as per individual need on discretion of anesthesiologist with standard cardiac and pulse oxygen monitoring.

Data were obtained from the colonoscopy registry maintained in the endoscopy room. Recorded information included demographic data (age, sex), indication for colonoscopy, preparation used for bowel preparation, type of anesthesia used, endoscopic findings, cecal intubation completion rate etc. Biopsies were done as per need from lesions. The histopathology was examined by an expert pathologist. The data were entered in Microsoft Excel spreadsheet and was analyzed using SPSS version 20,

## Results

A total of 129 patients underwent lower gastrointestinal endoscopy over the 3-year period. Data were collected from only 98 patients after excluding patients fulfilling the exclusion criteria.

43 patients (44% of total) were male whereas 55 (56% of total) were female (Figure 1). Patients with age ranged from 11 to 80 years with mean age of 40 years with predominance of young adults were present as depicted in Figure 2. Bleeding per rectum was the most common indication (40%). The second most common indication was chronic diarrhea (32%) followed by chronic constipation (20%), chronic abdominal pain (6%) and screening colonoscopy (2%) respectively.

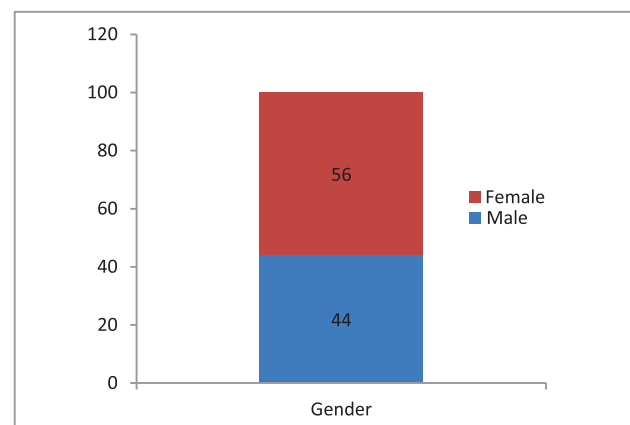
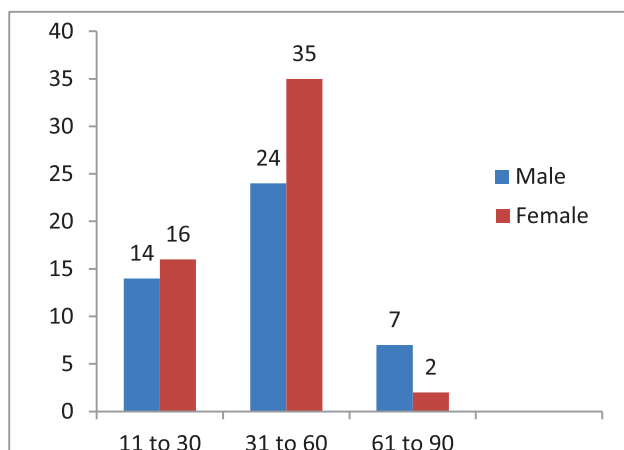


Figure 1: Sex distribution of patients undergoing endoscopy.





**Figure 2: Age wise distribution of patients undergoing endoscopy.**

Colonoscopy procedure was complete that is visualized up to the cecum in 88 (86%) patients with in majority up to few centimeters of terminal ileum. In remaining 10 (14%) patients, the procedure was incomplete that is seen up to left colon or transverse colon only. Hemorrhoids were the most common finding in colonoscopy (52%) followed by Inflammatory bowel disease (20%). Non specific colitis was noticed in 9% where as anal fissures were present in 8%. Polyps were present in 7%. Diverticulae and AV malformations were found in 3% and 2 % respectively. Rectal malignancy was seen in only one patient. Solitary rectal ulcer syndrome (SRUS) was detected in one patient. 20.4% patients had a normal study. The various lesions found have been tabulated (Table 1).

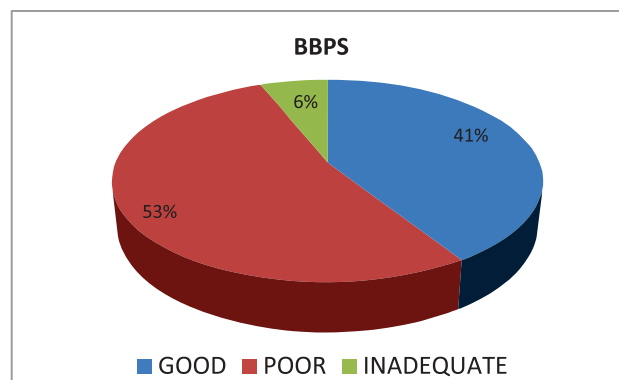
**Table 1: Diagnosis of patients undergoing endoscopy.**

COLONOSCOPY FINDINGS (TOTAL=98)	N (%)
HEMORRHOIDS	51(52%)
ULCERATIVE COLITIS	13(13%)
ANAL FISSURES	8(8%)
CROHN'S DISEASE	7(7%)
NON SPECIFIC COLITIS	9(9%)
POLYPS	7(7%)
DIVERTICULUM	3(3%)
AV MALFORMATIONS	2(2%)
NON SPECIFIC ILEITIS	1(1%)
RECTAL CARCINOMA	1(1%)
SRUS	1(1%)

The most common causes identified in bleeding per rectum patients were hemorrhoids, IBD and polyps respectively.

With regard to bowel preparation scale as graded according to Boston Bowel preparation scale (BBPS) in Figure 3, overall preparation was poor (53%) and Inadequate (6%). Only 41% patients

had good bowel preparation and there was no single patient having excellent bowel preparation.



**Figure 3: Boston Bowel preparation scale findings among patients for colonoscopy.**

### Discussion

Colonoscopy is an established procedure in the work up and screening of patients with lower GI symptoms [8-10]. The demand for colonoscopy has been increasing over the years given the relative safety and the low complication rate associated with the procedure [11-13]. The American cancer society recommends, starting at the age of 50 years, for both gender that they undergo a flexible sigmoidoscopy every 5 years or a colonoscopy in interval of every 10 years [14]. People with a family history of colon cancer are often first screened during their teenage time. Among people who have had an initial colonoscopy that could not find polyps, the risk of developing colorectal malignancy within next 5 years would be extremely low. That is why, next colonoscopy earlier than 5 years after the first screening is not indicated [15, 16]. Colonoscopy screening prevents nearly two-thirds of the deaths due to colorectal cancers of the left sided colon, however is not associated with a significant reduction in deaths from right-sided colon cancer [17]. Colonic perforations happen at a rate of 1 in 1000 procedures, and death at a rate of 1 in 3300 to 333000. A study by Levin et al. done in period of 1994 to 2002, revealed serious complications in 5 out of 1000 colonoscopy procedures, comprising 0.8 in 1000 without biopsy or polypectomy, and 7 out of 1000 with biopsies or polypectomies [18]. However Mc Donnell and Loura denied this rate as being unusually higher [19]. The risk of complications with polypectomy during colonoscopy is higher at a rate of 2.3% [20]. This study has revealed much information about colonoscopy in Maldives. There were more indications of colonoscopy in female (56%) than male (44%) in the study unlike opposite findings in the other study [21]. It may be

that people are more literate and unbiased for gender difference with regard to health concern in Maldives. With regard to age, colonoscopy has been performed more frequently in young adult patients (mean age 40) that are consistent with other studies where the younger population was much involved [22]. The most common indication in our study was bleeding per rectum that is similar to the other study [22]. Hemorrhoids were the most common diagnosis found in per rectal bleeding and are consistent with the other study [23]. Complete colonoscopy visualization up to cecum was observed in 86% which is similar to this study [24]. Colorectal cancer was identified in only one patient after histopathological examination. This is an unexpectedly low percentage as compared to the other study [25]. The surprisingly low incidence of carcinoma in the study could be attributed to excluding patients undergoing sigmoidoscopy only; poor bowel preparation; negligible number of screening patients for colonoscopy and last but not the least is the relatively low mean age of patients involved. The Colonoscopy findings of IBD (20%) and nonspecific colitis (7%) after histopathology reports were consistent with a study from Nepal [26]. Patients with nonspecific colitis which could probably be of infective etiology were resolved with either antibiotics, antiamebic or antihelminthics.

The occurrence of colorectal polyps is generally thought to be low in Southeast Asia. In our study, the colorectal polyps were fourth common finding. We found a prevalence of 7% of polyps which is consistent with the other study [27]. The use of bisacodyl and lactulose was poorly effective for our patients in overall as contrast to standard use of Polyethylene Glycol that is preferred bowel cleansing agent given the best efficacy [7].

There were few limitations of the study as well. First of all, the total number of patients was low with retrospective study in nature and was performed only in a single center. I would therefore recommend multicenter prospective study for colonoscopy procedures in the country for better outcome

### Conclusion

In Maldives, female were more involved for colonoscopy procedures. Per rectal bleeding was the most common indication for colonoscopy and hemorrhoids were the most common findings. In spite of poor bowel preparation with use of bisacodyl and lactulose, the yields of procedure was still good. However, If PEG LEC, the standard bowel preparation agent was made

easy access in the country, there would have been better efficacy of the procedure.

### Acknowledgement

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**Conflict of interest:** None

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