

## Looking Inside - Role of colonoscopy in lower gastrointestinal conditions

<sup>1</sup>Dr. Balaji. D. Dhaigude, Professor & head, Surgery, PCMC'S PGI YCMH Pimpri, Pune -18

<sup>2</sup>Dr. Diksha, Post Graduate Resident, Surgery, PCMC'S PGI YCMH Pimpri, Pune -18

**Corresponding Author:** Dr. Balaji. D. Dhaigude, Professor & Head, Surgery, PCMC'S PGI YCMH Pimpri, Pune -18

**How to citation this article:** Dr. Balaji. D. Dhaigude, Dr. Diksha, "Looking Inside - Role of colonoscopy in lower gastrointestinal conditions", IJMACR- March - 2023, Volume – 6, Issue - 2, P. No. 372 – 378.

**Open Access Article:** © 2023, Dr. Balaji. D. Dhaigude, et al. This is an open access journal and article distributed under the terms of the creative commons attribution license (<http://creativecommons.org/licenses/by/4.0>). Which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

### Abstract

**Introduction:** The lower gastrointestinal tract is a common site for various medical conditions ranging from benign to life threatening conditions. These conditions can cause varied symptoms, this is where colonoscopy allows examination from inside the lower gastrointestinal tract. Its role in such conditions cannot be overstated, as it is highly effective tool for early detection, treatment and prevention of these conditions

**Aim:** To study the diagnostic and the therapeutic role of colonoscopy in the management of lower gastrointestinal conditions.

**Methods and materials:** This is an prospective observational study done over a duration of 18 months from January 2021 to June 2022 by including patients undergoing colonoscopy at our institute after taking written and informed consent. All data analysis had been done by using SPSS (version 22) software.

**Results:** Out of 96 colonoscopies, 27 had normal findings and polyp was the second most common finding. A higher frequency of colonic diseases occur in

males with male: female ratio -2:1 and the average age was 51.8 years. Among the non-neoplastic lesions, polyp was most common diagnosis. Uncommon but interesting lesions like pseudo membranous colitis (3 cases), Puetz Jeghers (1 case) & were also found. Among the neoplastic lesions, conventional adenocarcinoma was the commonest subtype with colorectum as the most common site.

**Conclusion:** Colonoscopy is a vital tool utilized in modern medicine today. Its versatility and utility make it a vital life-saving procedure and successfully used for the diagnosis and treatment of various large bowel pathologies

**Keywords:** Colonoscopy, FOBT, Colorectal carcinoma, Polyp.

### Introduction

With the arrival of video guided colonoscopy, the clinical medicine has gained a bigger role in diagnosis. It can be said to be an extension of the routine physical examination, being to the eye, what the stethoscope is to the ear. Colonoscopy serves a purpose, far greater than

the primary visual diagnostic aid it is, with upcoming applications of endo scopy in surveillance and therapeutic interventions. Therapeutic role of colonoscopy for lower GI bleeding, stricture dilatation, management of precancerous lesions & malignant lesions is already well known.[1]

The technology used in endoscopy itself has come a long way from the first fibroscope to the modern CCD Video-colonoscopy, and along with it, its influence on how gastroenterology is practiced, taught and perceived.[2]

The lower GI endoscope i.e., colono scope has applications spanning from paediatric age group to adults. With better understanding and technological advancements, the indications are being enlarged while the complications are being reduced. The ever-expanding development of new colono copic interventions continues to the conventional trans abdominal surgery for example, Colonoscopy is beneficial in foreign body removal, dilatation of strictures, polypectomy, stenting of malignant obstruction as an emergency procedure or palliation. The purpose of this study is to understand the capabilities of Colono scopy, mainly from the point of view of a Surgeon to examine patients in population with lower gastrointestinal conditions.[3]

### Material and methods

It is a prospective observational study to be conducted on all consecutive indoor patients admitted to General Surgery ward in view of lower Gastro intestinal complaints which indicate the need of colonoscopy

### Sample size

At the given prevalence of colonic pathologies of 4% in the general population, a sample size of minimum 93 cases will correctly estimate the colonic pathologies with 95% Confidence level with a margin of error of 5%. We

decided to include 100 cases to account for attrition of cases. Sample Size Calculation:

Taking  $z=1.645$  at 90% Confidence level,  $P=45\%$  (Reference)

$$Q = (100-45) = 55\% \quad E=9\%$$

Required sample size = 83. Adding 10% dropout rate, required sample size =  $83+09 = 92$ , minimum.

All responses were tabulated in Microsoft Excel 2019 spreadsheet. Graphical representations were made whenever necessary using Microsoft excel 2019 Statistical analysis. Descriptive statistics were calculated for both categorical and continuous variables. Categorical variables are described in terms of frequency (percentages) and continuous variables as the median (range) or mean ( $\pm$  standard deviation SD).

Univariate analyses were conducted using a student's t-test or a Mann-Whitney test for continuous variables as appropriate

Chi square test was used to determine association between categorical variables.

Comparison of the means was used to associate continuous and categorical variables at bivariate level. Patient's demographic characteristics were summarized using frequency distribution tables.

All P values are two-tailed;  $P < 0.05$  was considered statistically significant.

Data were analysed using the IBM-SPSS® statistics application, version 25

### Results

Table 1: Distribution according to age

Age	No of patients
Less than 30	10
31-40	14
41-50	24
51-60	14

61-70	20
71-90	14
Total	96

The most common age group in our study was between 41 to 50 years. This was a typical bell-shaped distribution of patients by age. There were more men in our study, compared to other studies of screening colonoscopy done [4] or other meta-analyses where the mean age of population was more than 60 years.[5]

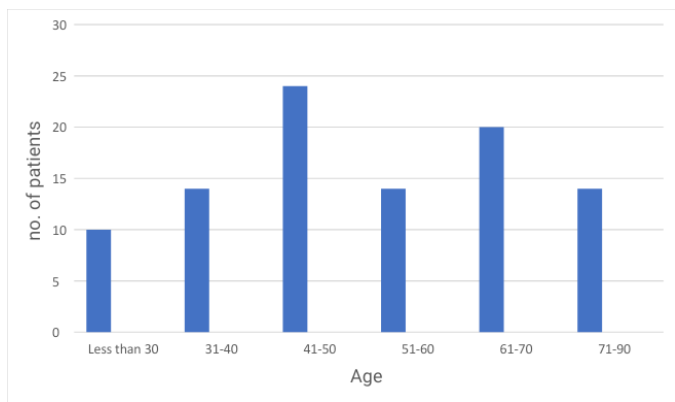


Figure 1: Distribution according to age.

Table 2: Distribution of patients according to sex

Gender	Number	Percentage
Male	64	66.66
Female	32	33.33
Total	96	96

The above table shows sex distribution among patients. Out of 96 cases 64 were male (66.66%) and 32 were females (33.33%)

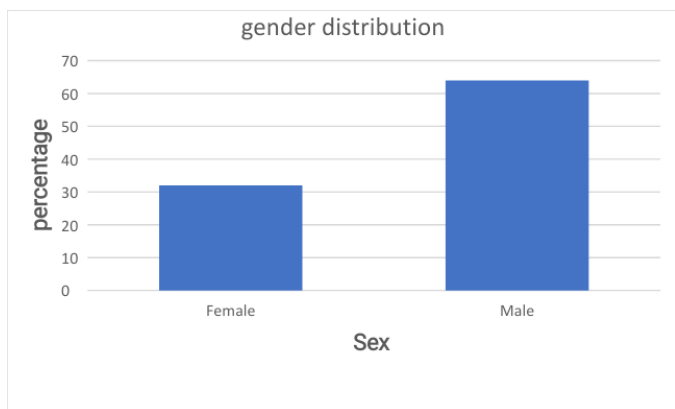


Figure 2: Distribution of patients according to sex

Table 3: Distribution of patients according to comorbidities and addictions

Gender	DM	HTN
Female	6	8
Male	9	8
Gender	Smoker	Alcoholic
Female	1	2
Male	13	16
Grand Total	14	18

The above table shows that Total of 15 patients suffered from DM and 16 suffered from Hypertension.

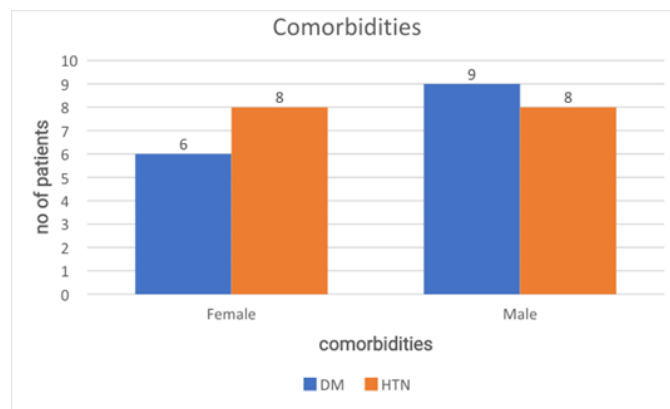


Figure 3: Distribution of patients according to comorbidities

Table 4: Symptoms and presenting complaints

Presenting complaints	No of patients
Pain in abdomen	40
PR Bleed	14
Anal growth	10
Lump in abdomen	7
Abdominal distention	6
Loss of weight and appetite	6
Mucus in stools	6
Weight loss	5
Blackish Oral cavity	1
Vomiting	1
Grand total	96

The above table shows most common presenting symptom was pain in abdomen followed by bleeding per rectum. Other causes include anal growth, lump in abdomen, abdominal distension, loss of weight and appetite, mucus in stools, weight loss, blackish lesions in oral cavity, vomiting.

Table 5: Stool occult blood test

Feecal occult blood test	Adenocarcinoma Present	Adenocarcinoma Absent	Total
Positive test	6	9	15
Negative test	5	76	81
Total	11	85	96

Table 6: Colonoscopic findings

	Colonoscopic findings	No. of patients
Normal	Normal Study	27
Benign	Inflammatory Bowel	11
	Anal papilloma	8
	Hemorrhoids	8
	Abdominal Tuberculosis	6
	Ischemic colitis	7
	P J syndrome	1
	Pseudomembranous colitis	3
	Rectal polyp	15
Malignant	Carcinoma colon	10
	Grand Total	96

Table 7: Location

Location of lesion	No. of patient
Normal	27
Terminal ileum	5
Caecum	4
Ascending colon	1
Hepatic flexure	2
Transverse colon	3

Splenic flexure	2
Descending colon	8
Sigmoid colon	4
Rectum	21
Anal Canal	15
Complete bowel with skip lesions	4
Grand Total	69

Table 8: Histopathological diagnosis

	Histological findings	No. of patients
Colonoscopic normal	Biopsy from suspicious site but normal histopathology	27
Benign	Inflammatory changes	10
	Nonspecific inflammatory lesion	25
	Juvenile polyp	4
	Mild dysplasia	7
	Tubular adenoma	3
	Anal papilloma	4
	malignant	Squamous cell carcinoma
	adenocarcinoma	12
	No conclusive reports	2
Total		96

Table 9: Complications

Complications	No. of cases
Abdominal pain	2
Vomiting	1
Abdominal distension	3
Hemorrhage	0
Perforation	0
Total	6

## Discussion

A total 96 patients with who underwent colonoscopy were included in the study based on the inclusion and exclusion criteria. The period of the study was 1 Year. Most common age group was between 41 to 50 years of age. At the end of over observation, we reviewed the literature to compare our results with world statistics.

### Age and gender

In our study, 66% of population were men. The most common age group in our study was between 41 to 50 years. This was a typical bell-shaped distribution of patients by age. There were more men in our study, compared to other studies of screening colonoscopy done [6] or other meta-analyses where the mean age of population was more than 60 years.[7]

### Comorbidities

Total of 15 patients suffered from Diabetes and 16 suffered from Hypertension. This does not correlate or confound any of the study outcomes, as was expected. Thus, comorbidity in our patient group was 15%. About 24% of patients undergoing outpatient colonoscopy had a comorbid condition in a study by Askar et al [6]. In comparison with patients without comorbidities, the adjusted risks of adverse events were greater for patients with several single comorbidities and combinations of multiple comorbid conditions.

### Clinical features of patients

The most common presenting symptoms are Pain in abdomen and PR Bleed similar to other studies reported in literature [8]. This is because most of our patients are from OPD and elective setting and we don't conduct colonoscopy as an emergency procedure. A patient with blackish oral cavity was an unusual presenting complaint who later got diagnosed as Peutz-Jeghers syndrome.

## Risk factors

Current smokers showed a modestly higher risk of CRC (relative risk [RR], 1.20; 95% confidence interval [CI], 1.10-1.30) than never smokers. The risk of CRC among male smokers (RR, 1.38; 95% CI, 1.22-1.56) was more significant than among female smokers (RR, 1.06; 95% CI, 0.95-1.19). Rectal cancer was more closely related to smoking (RR, 1.36; 95% CI, 1.15-1.61) than colonic cancer. Former smokers still carried a higher CRC risk than never smokers. The increased risk of CRC was related to cigarettes per day, longer years of smoking, or larger pack-years.[9] However, in our study, association between smoking and ca colon was not found to be statistically significant ( $p < 0.16$ )

## Investigations

Fecal Occult blood test (FOBT) Immunochemical fecal occult blood test (FOBT) (qFIT) has better performance characteristics than the standard guaiac-based FOBT (GT) for identifying advanced colorectal neoplasia. [10] The sensitivity and specificity of the GT for detecting advanced adenomas, cancer, and ACRNs were 13.6%/ 92.4%, 30.8%/ 92.4%, and 16.7%/ 92.9%, respectively [81] These tests have low sensitivity and high specificity. These values are similar to the sensitivity of 54% and specificity of 89% for FOBT in diagnosing Adenocarcinoma.

## Diagnosis

27 of the patients had a normal colonoscopy finding. Polyps in the rectum were the second most common. Most of the pathologies were located in the rectum and anal canal region.

## Complications

Although the risk of perforation with colonoscopy is usually low, other complications include vomiting, distension, nausea, abdominal pain and bleeding and the

procedure is safe, 0.14% (or 1 in 1000 colonoscopies) is the risk of perforation as described in literature. [11-13] However no complications were seen in our study probably due to the low sample size and owing to the bias that more stable patients are posted for colonoscopy at our Centre.

### **Limitations**

1. Single Centre Study
2. Sample Size small

### **Conclusion**

Our study has shown that colonoscopy is a vital tool utilized in modern medicine today. Its versatility and utility make it a vital life-saving procedure. It can be used for oncological and non-oncological conditions. Our complication rates were lower than the expected average incidence. FOBT can be used as a screening test for the diagnosis of adenocarcinoma but it has low sensitivity. Colonoscopy has been successfully used for the diagnosis and treatment of various large bowel pathologies

### **Acknowledgement**

We would like to acknowledge for helping us with the statistical data. We would also like to thank for helping in data collection.

### **References**

1. Wolff WI. Colonoscopy: history and development. *American Journal of Gastroenterology* (Springer Nature). 1989 Sep 1;84(9).
2. Anderson J, Alpern Z, ... *GSO journal of the*, 2005 undefined. Prevalence and risk of colorectal neoplasia in consumers of alcohol in a screening population.
3. Huang EH, Marks JM. The diagnostic and therapeutic roles of colonoscopy. *Surgical endoscopy*. 2001 Dec; 15:1373-80.

4. Zgraggen A, Stoffel ST, Barbier MC, Marbet UA. Colorectal cancer surveillance by colonoscopy in a prospective, population-based long-term Swiss screening study – outcomes, adherence, and costs.
5. Reumkens A, Rondagh EJA, Bakker CM, Winkens B, Masclee AAM, Sanduleanu S. Post-Colonoscopy Complications: A Systematic Review, Time Trends, and Meta Analysis of Population-Based Studies. *Am J Gastroenterol*.
6. Chukmaitov A, Siangphoe U, Dahman B, Bradley CJ, Bouhaidar D. Patient Comorbidity and Serious Adverse Events after Outpatient Colonoscopy: Population-based Study From Three States, 2006 to 2009. *Dis Colon Rectum*
7. Clyde M. Stauffer, Christopher Pfeifer. Colonoscopy – Stat Pearls. In *Treasure Island (FL): Stat Pearls Publishing*
8. Gordon Carlson, Jonathan Epstein. The small and large intestines. In: Norman S. Williams, Christopher J.K. Bulstrode, P. Ronan O’Connell, editors. *Bailey & Love’s Short Practice of Surgery*. 26th ed. 2013
9. Tsoi KKF, Pau CYY, Wu WKK, Chan FKL, Griffiths S, Sung JY. Cigarette smoking and the risk of colorectal cancer: a meta-analysis of prospective cohort studies. *Clin Gastroenterol Hepatol* [Internet]. 2009 [cited 2022 Dec 5];7(6).
10. Park D il, Ryu S, Kim YH, Lee SH, Lee CK, Eun CS, et al. Comparison of guaiac-based and quantitative immunochemical fecal occult blood testing in a population at average risk undergoing colorectal cancer screening. *Am J Gastroenterol*
11. Fisher D, Maple J, Ben-Menachem T, Cash B, Decker G, Early D, et al. Complications of colonoscopy. [giejournal.org](http://giejournal.org)

12. Bielawska B, Day A, ... DLGG, 2014 undefined.  
Risk factors for early colonoscopic perforation include non – gastro entero logist endoscopists: a multi variable analysis.
13. Waye J, Kahn O, of MAG endoscopy clinics, 1996 undefined. Complications of colonoscopy and flexible sigmoidoscopy.