

# Colonoscopy: Analysis of Indications and Diagnoses at a Specialist Unit

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**Objective:** To determine the frequency of various indications and different colonoscopic diagnoses at a tertiary care unit.

**Study Design:** Retrospective review.

**Place and Duration:** Endoscopy Unit, Department of Gastroenterology, Military Hospital Rawalpindi, over a period of one year (Jan 1, 2007 to Dec 31, 2007).

**Materials and Methods:** The study included all patients of either gender, who underwent colonoscopies during the study period. Data were retrieved from reports of Endoscopy Department regarding indications and colonoscopic diagnoses. All colonoscopies were performed by one qualified gastroenterologist. Patients who were poorly prepared at the time of colonoscopy were also considered in analyses of frequencies of indications. Patients who had missing data in above variables were not included. Tumors and polyps were biopsied however histopathological results were not considered in colonoscopic diagnoses.

**Results:** Out of 436 patients, 331(75.9%) were males and 105(24.1%) were females. 18 patients had missing data. Out of 418 patients major indications were rectal bleeding 38.8%, chronic diarrhea 25.6%, occult gastrointestinal bleeding 10.0%, clinical suspicion of carcinoma colon 5.7%, mass abdomen 4.8%, altered bowel habits 4.1%, constipation 3.6%, abdominal pain 3.1% and other minor indications 4.1%. Colonoscopic results were normal in 159 (38.0%) patients. Major diagnoses were Inflammatory bowel disease 19.3% (Crohn's disease 2.2%, Ulcerative Colitis 17.2%), Tumors/growths 12.2%, Hemorrhoids 10.7%, Polyps 6.2%, Diverticulosis 2.3%, Colitis 2.6%, and other minor diagnoses 4.2%. 24 (5.7%) patients had poor preparation and their colonoscopic diagnoses could not be made.

**Conclusion:** Rectal bleeding constituted the most frequent indication for which colonoscopy was done followed by chronic diarrhea and occult gastrointestinal bleed. Inflammatory bowel disease (predominantly Ulcerative colitis) was the most common colonoscopic diagnosis followed by tumors and hemorrhoids.

**Key words:** Colonoscopy, Rectal bleeding, inflammatory bowel disease.

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## Introduction

Colonoscopy has become the first line investigation for screening, evaluation and treatment of colonic diseases after the invention of fiberoptic devices in sixties. Due to its increasing availability, relative safety, low complication rate, it is being commonly performed.<sup>1,2</sup>

Frequently diagnosed pathologies at colonoscopy and their respective clinical indications have been studied in the West. Same data has been used to identify colonic disease pattern and burden in different populations. It has been further brought into play to assess the procedure's limitations, therapeutic ability, and diagnostic yield with respect to different clinical indications, at different setups.<sup>3</sup>

Statistics, along with their comprehensive review, regarding commonly diagnosed disorders at colonoscopy and their indications have not been reported in our country. Only evaluation of few colonic lesions and clinical indications using colonoscopy has been done in our setup.<sup>4,5</sup> This highlights that this area of healthcare has not been meticulously worked upon. This study was undertaken to analyse the various indications and diagnoses made at colonoscopy and hence generate an evidence base to effect a meaningful change in the pattern of referrals for routine colonoscopy.

## Materials and Methods

This retrospective review as carried out at the

Endoscopy Unit, Military Hospital, Rawalpindi. It included all patients of either gender who underwent colonoscopies for various indications during one year (Jan 01,2007 to Dec 31,2007). Patients were referred from gastroenterologists and primary care physicians to Endoscopy Unit of Military Hospital Rawalpindi for colonoscopies. The colonoscopies were performed under the supervision of qualified gastroenterologists and were done with Olympus Q160AL of size 160cm, colonoscopes.

Data were retrieved manually from colonoscopy reports regarding indications and colonoscopic diagnoses of patients. Indications such as bloody diarrhea and hemorrhoids were categorized as rectal bleeding, iron deficiency anemia as occult gastrointestinal bleeding. Patients with malignant pleural effusion, ascites, family history of carcinoma colon, Peutz -Jegher's syndrome, diverticulosis , inflammatory bowel syndrome and Inflammatory bowel disease underwent colonoscopies due to clinical suspicion of carcinoma colon and were categorized accordingly. Patients with Ileocecal Tuberculosis were categorized under "abdominal mass".

Indications of patients who were poorly prepared at time of colonoscopy were also considered in analysis. Histopathological reports of suspicious lesions were not considered in colonoscopic diagnoses as the study was meant to look at indications and colonoscopic diagnoses only.

## Results

Out of 436 patients, 18 were excluded due to missing data and 418 were included in the further analysis. Frequencies and percentages of indications, colonoscopic diagnoses were calculated. Most frequent indications and diagnoses were labeled as major and less frequent as minor. SPSS 15 was employed for data analysis.

The patients comprised of 331(75.9%) males and 105(24.1%) females and their ages ranged from 4 years to 90 years (mean age 50). 311 (71.3%) were less than 55years. Rectal bleeding contributed the leading indication for colonoscopy (38.8%). The various indications for colonoscopy are depicted in table I.

The results were normal in 159 (38.0%) patients. Inflammatory bowel disease was the most common diagnoses (19.3%). 24 (5.7%) patients had poor preparation and their colonoscopic diagnoses could not be made. Table II shows the various diagnoses made at colonoscopies.

**Table I: Various Indications for Colonoscopy (n=418)**

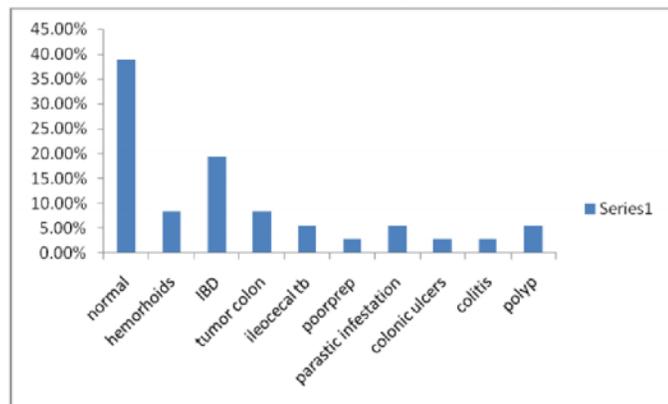
<b>Major</b>		
Rectal Bleeding	162	38.8%
Chronic diarrhea	107	25.6%
Occult GI bleed	42	10.0%
Clinical suspicion of carcinoma colon	24	5.7%
Abdominal mass	20	4.8%
Altered bowel habits	17	4.1%
Constipation	15	3.6%
Abdominal pain	13	3.1%
<b>Minor</b>		
Painful defecation	1	0.2%
Mucous discharge from rectum	1	0.2%
Weight loss	1	0.2%
Pus in stools	1	0.2%
Tenesmus	1	0.2%
Abnormal barium	2	0.5%
Clinical suspicion of Ulcerative colitis	11	2.6%

**Table II: Various Diagnoses at Colonoscopy**

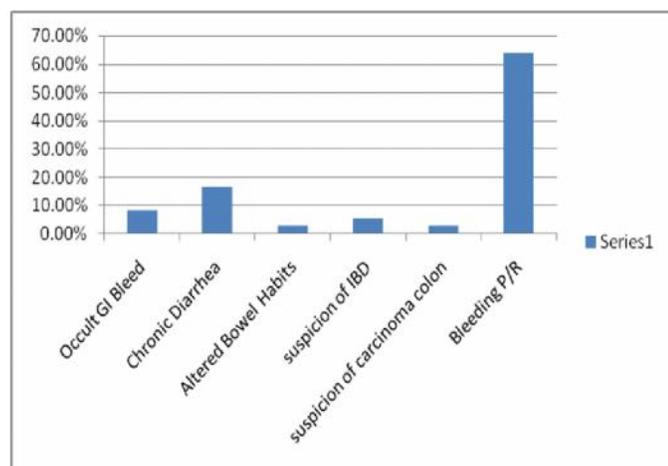
<b>Colonoscopic diagnoses</b>	<b>No. of Diagnoses</b>	<b>%</b>
<b>Major</b>		
Inflammatory bowel disease	81	19.3%
----Ulcerative colitis	72	17.2%
----- Crohn's disease	9	2.2%
Suspicious growths/lesions	51	12.2%
Hemorrhoids	45	10.7%
Polyp	26	6.2%
Diverticulosis	10	2.3%
Colitis	11	2.6%
<b>Minor</b>		
Colonic ulcers	4	1.0%
Telangiectasias	2	0.5%
Parasitic infestation	2	0.5%
Rectal stenosis	2	0.5%
Stricture	3	0.7%
Anal Fissure	4	1.0%
No diagnoses due to poor preparation	24	5.7%
Normal Findings	159	38%

36 (8.6%)of subjects belonged to paediatric and adolescent age group (aged 4yrs-21yrs). In this regard,

bleeding per rectum was the most frequent indication 23(63.88%) followed by chronic diarrhea 6(16.66%). IBD was the most common diagnosis 7 (19.40%) followed by hemorrhoids 3 (8.33%) and tumor colon 3 (8.33%). Their details are further illustrated in Figure. I and Figure. II



**Figure I: Common indications for referral for colonoscopy among population aged 4yrs-21yrs.**



**Figure II: Common diagnoses of colonoscopy among population aged 4yrs-21yrs.**

## Discussion

American Society of Gastrointestinal Endoscopy (ASGE) has proposed guidelines and published the indication categories for diagnostic colonoscopy procedures.<sup>6</sup> Current discussions worldwide are emphasizing the need of modification of its criteria according to regions.<sup>7</sup> Studies using these guidelines as benchmark and the diffusion of respective ASGE criteria in our setting have not been done and are awaited. The research, in that respective area would prevent inapt referral to colonoscopy services whose exhaustion, developing countries like ours cannot afford. It would increase its diagnostic yield, which

decreases if performed for inappropriate indications.<sup>8</sup> Similarly the quality of the procedure itself and the cumbersome referral system needs to be evaluated in our region, as its being worldwide.<sup>9, 10</sup> Furthermore it would direct health care agencies to allocate health care budgets more suitably.

Currently there is an increased burden on colonoscopy services worldwide.<sup>11</sup> A developing country, like ours, has a large population, poverty and lack of health education. A country whose major chunk of population resides in rural areas, the need of trained endoscopists working in those areas emerges.<sup>12</sup> This would help to identify a definite colonic disease burden in our population. Moreover, in the face of limited resources, open access to colonoscopy is not practical. Thus, sigmoidoscopy is preferred over colonoscopy as initial investigation for colonic diseases, where there is limited man power and facilities.<sup>13</sup> Only in high risk cases of malignancy and sigmoidoscopy negative patients, colonoscopies should be done.<sup>8</sup>

The data shows, rectal bleeding as the most common indication followed by chronic diarrhea, occult gastrointestinal bleeding and clinical suspicion of carcinoma colon, as compared to those reported in other setups.<sup>2</sup> However, chronic diarrhea, although not a frequent indication for colonoscopy in other setups, is not that infrequent in our setup.<sup>2</sup> Currently when, studies evaluating diagnostic yield of the procedure in patients with chronic diarrhea are limited, the EPAGE criteria can also guide our physicians in this regard.<sup>14</sup> Eventually, the use of these guidelines by our clinicians, would further prompt them to do research on revision of the western guidelines, with respect to various clinical indications in our setup.

In our study, colonoscopies were also done in patients with constipation 15(3.8%). More than half of those patients had normal colonoscopy 9(60.0%). According to ASGE guidelines patients with constipation should only undergo colonoscopy when the respective symptom is accompanied by other symptoms, as well as age over 50years. Colonoscopy is not useful in cases of isolated constipation. Therefore patients can avoid this uncomfortable procedure, if the constipation is evaluated according to ASGE guidelines prior to the procedure.<sup>15</sup>

Incidence and prevalence of colonic diseases has been calculated in different geographical regions of the world.<sup>16,17</sup> It is a general impression that inflammatory bowel disease is not common in our region. But in recent decades these statistics, show an increase in our region as well.<sup>4, 17, 18</sup> In our study, Inflammatory bowel disease (predominantly Ulcerative colitis) was the most common diagnosis followed by tumors, hemorrhoids and polyps. This further authenticates the need of large scale surveys to identify the actual burden of this disease in our nation.

Conditions such as polyps, diverticulosis, and colorectal carcinoma were more frequent in other setups.<sup>2, 19</sup>

It was further noted that 27 (5.7%) of patients had an unsuccessful procedure due to inadequate colon cleansing. Although bowel preparation is not a crucial factor in detecting carcinomas,<sup>20</sup> but it is a constant and frustrating problem. It is difficult for patients, especially older ones, to adhere to the strict cleansing protocol. Colon cleansing determines the success of colonoscopy to a large extent. This finding opens the frontiers for future investigations to evaluate the completion rate of colonoscopy -identify and compare reasons for its failure in our clinical scenario, with those of other setups.<sup>21</sup>

Diagnostic procedures are a known cause of anxiety among patients<sup>22</sup> and evidence supports less attendance of such procedures by women of developing nations.<sup>23</sup> This factor could also be exaggerated in our country. Keeping in view the cultural background of our country, women due to social inhibitions and less awareness may not be attending the procedure. If we exclude the hospital referral bias that our study faced - as it is a military hospital due to which more men 319(76.3%) underwent the procedure than women 99(23.6%)-this aspect can cause problems in defining and managing the actual disease burden in the females as there is a rising evidence of colonic diseases in women of developing nations.<sup>24</sup> It can be deduced with respect to this finding that, before it is scientifically investigated in future, more intensive educational efforts, community work would be necessary to raise awareness amongst womenfolk of our country, regarding the impending threat of colonic cancer on them.

A country where more than half of population is below the age of fifteen; nearly a third is below the age of nine, calls attention to our practice of colonoscopy in paediatrics. But our study shows a less number of child referrals. This bias can be attributed to the military setup of the hospital, where mostly soldiers present. Thus, this cannot be a reliable representation of paediatric population. Although local evidence discusses specific clinical scenarios<sup>25</sup> but we need more data for discussion regarding diagnostic yield of colonoscopy in our general paediatric practice.

Our study has limitations. As this was a hospital based study, it cannot give incidence and prevalence; however it highlights the most common symptoms for which patients undergo colonoscopy and their diagnosis. This can be used for planning future studies as it provides database of frequencies of indications and colonoscopic diagnoses. Health care resources can only be of benefit if there are community based statistics of colonic disease burden in our region. It is therefore emphasized to develop a population based registry of such diseases which would appropriately direct health

planning services. Besides this we suggest several areas for future research.

## Conclusion

Rectal bleeding constituted the most frequent indication for which colonoscopy was done followed by chronic diarrhea and occult gastrointestinal bleed. Inflammatory bowel disease (predominantly ulcerative colitis) was the most common colonoscopic diagnosis followed by tumors and hemorrhoids.

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