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Role of Colonoscopy in Evaluation of Patients with Lower Gastrointestinal Symptomatology in Rural Set Up

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Abstract: ***Colonoscopy is most useful in diagnosing and treating patients with neoplasms, strictures or colonic mucosal disease previously diagnosed on radiological imaging. Other uses include the evaluation of patients with gastrointestinal hemorrhage (hematochezia and occult bleeding) unexplained iron deficiency anemia screening and surveillance for colonicneoplasms, diagnosis and surveillance of inflammatory bowel disease evaluation of chronic diarrhea constipation, foreign body removal decompression of megacolon and sigmoid volvulus and the treatment of anorectal disorders. Other modalities like CT scan and Ultrasonography also plays an important role in diagnosing lower GI symptomatology and their pathologies and are included in present study. Due to change in life style, dietary habits, lack of physical activity there is nowadays increasing symptoms suggestive of Irritable Bowel Syndrome (IBS) especially in young population and as stomatology of IBS and Colorectal Cancer(CRC) or Inflammatory Bowel Disease(IBD) may mimic to each other, thorough evaluation of such individuals is mandatory though colonoscopy is little cumbersome and causes discomfort to patient. As compared to other radiological procedure/investigations colonoscopy provides a better view of colon inside and is more sensitive and accurate regarding diagnosing lower GI pathologies. All the results were finally compared with histopathologically for confirmation. Hence this research question Role of Colonoscopy in Evaluation of Patients with Lower Gastrointestinal Symptomatology in Rural Set Up is selected for study purpose. This study was conducted at Acharya Vinoba Bhave Rural, Sawangi (Meghe) Wardha, Maharashtra and study protocol was in a prospective manner.***

Keywords: Colonoscopy, Lower GI Symptomatology, Histopathology, USG, CT scan

1. Introduction

From the time of Hippocrates attempts were made to observe the inside of the human body. [(1)]Colonoscopy has been known since the time of 1806 when attempts have been made to view inside human urinary bladder using cystoscope in Vienna. Colonoscopy is a common procedure that allows examination of the inner surface of the colon by means of a colonoscopy. In general, the whole colon can be examined, up to and including the caecum and often even to the ileum. Colonoscopy is most useful in diagnosing and treating patients with neoplasms, structures or colonic mucosal disease previously diagnosed on radiological imaging. Other uses include the evaluation of patients with gastrointestinal hemorrhage(hematochezia and occult bleeding) unexplained iron deficiency anemia screening and surveillance for colonicneoplasms, diagnosis and surveillance of inflammatory bowel disease evaluation of chronic diarrhea , constipation, foreign body removal decompression of megacolon and sigmoid volvulus and the treatment of anorectal disorders .

The aim of our study; "To evaluate the role of colonoscopy in patients presenting with symptoms of lower gastrointestinal tract". And its objective was to compare radiological findings with colonoscopy findings.

As compared to advanced imaging modalities, colonoscopy provides a better view of colon from inside and is more sensitive and accurate regarding diagnosing lower Gastrointestinal (GI) pathologies and it was selected to compare CT scan abdomen and Ultrasonography to diagnose the disease cause of lower GI symptomatology.

This study was conducted from duration of September 2014 till September 2016 which comprises of 100 patients who presented at AVBRH with symptoms of lower GI such as pain in abdomen, bleeding PR, altered bowel habits, weight loss, generalized weakness, perianal symptoms, loose motions, constipation, symptoms of IBS and IBD.

2. Material and Methods

Type of study: Prospective observational study

Inclusion criteria: All patients fit for colonoscopy and giving consent for getting enrolled in the research project.

Exclusion criteria:

- Patients unfit for colonoscopy
- Repeated cases who are undergoing colonoscopy under surveillance or reassessment of previously diagnosed condition

3. Observation and Results

Table 1: Distribution of patients according to their age (years)

Age	*No. of Patients*	*Percentage*
<20	12	12
21-30	16	16
31-40	28	28
41-50	12	12
51-60	11	11
61-70	16	16
>71	5	5
Total	100	100
Mean Age	42.43±17.80(2-78 years)	

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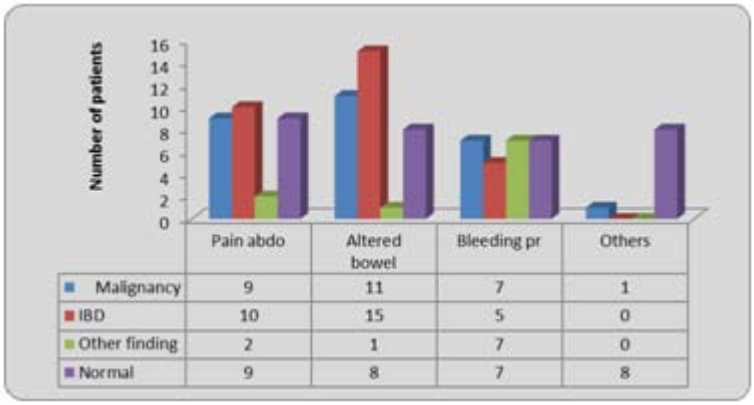
Table no. 1 is showing /demonstrating age wise distribution of patients presenting with lower GI symptomatology in which youngest was a male child of age 2 years and oldest was of 78 years male. Highest incidence was found in age group 31-40 years and mean age was 42.43 ±17.80. This study was further compared with similar studies of **LiebermannD A et al**[2] and **Brozek W et al**[3]whose values were60 – 69 years and ≥ 80 years respectively.

Graph 1 it shows the correlation of patient's presenting with lower GI symptoms with colonoscopic findings. Maximum patients presented with altered bowel habits with or without abdominal pain which was diagnosed as suspicious (which were confirmed by histopathologically later on) of ulcerative colitis followed by malignancy followed by normal study further followed by crohn's disease and other findings. Least presenting symptoms were patients with other symptoms like perianal symptoms, generalized weakness, chronic anemia, etc which were reported as either normal or in other category.



Graph 1: Presenting complaints correlating with Colonoscopy

Table 2: Presenting Symptoms

Presenting Symptoms	Present Study	**Smith D *et al*** [4]	**Macrae FA *et al*** *2011*[5]	**Macrae FA *et al*** *2016*[6]
Pain in abdomen	29	13	44	34
Altered Bowel Habit (Abdomen pain ±)	38	49	43	1.3
Bleeding PR (Pain±)	25	32	40	37
Others	8	22	17	23

In present study altered bowel habits with or without pain in abdomen 38% and 29% respectively were major presenting symptoms which were comparable to studies of D Smith *et al,* [4] Macrae FA et al 2011[5] and Macrae FA et al 2016[6] whose values were 49%, 13% and 43%, 44% and 1.3, 34% respectively.

Table 3 demonstrates the comparison between USG abdomen pelvis, CT scan and Colonoscopy according to their sensitivity, specificity, Positive predictive value, Negative predictive value and Accuracy.

Table 3: Comparison between colonoscopy, CT scan, USG

	Colonoscopy	*CT Scan*	*USG*
Sensitivity	95.31%	76.56%	60.94%
Specificity	80.56%	86.11%	69.44%
PPV	89.71%	90.74%	78%
NPV	90.63%	67.39%	50%
Accuracy	90%	80%	74%

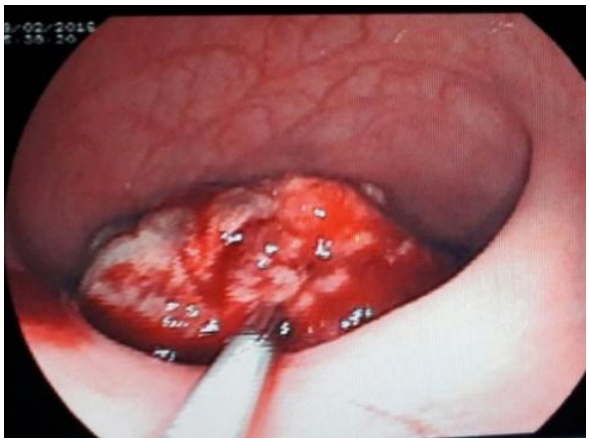


Figure 1: Image showing biopsy taken from colonic growth

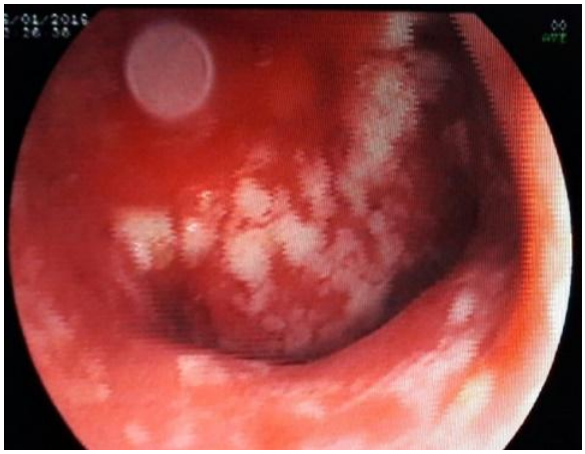


Figure 2: Image showing IBD? Crohn's disease

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4. Conclusion

Maximum patients presented with altered bowel habits, with or without pain in abdomen, followed by only pain in abdomen associated with bleeding PR or other symptoms and rest presented with other symptoms like chronic anemia, generalized weakness, easy fatigability, or other perianal symptoms.

Out of 100 patients after complete routine investigation, evaluation and colonoscopy with biopsy taken, overall 29 patients were diagnosed as case of malignancy, 32 were diagnosed as IBD (Ulcerative colitis, Crohn's disease), 3 were diagnosed as Tuberculosis and 36 were having normal study. Now here normal study was considered in all those cases of IBS and patients who presented with perianal symptoms that were reported histopathologically as normal mucosa or with amoebic colitis or rectal/ caecal ulcer or inflammatory changes.

Out of all patients there was male preponderance in case of presentation with M: F ratio as 1.65:1.

Mean age of presentation was 42.43±17.80, i.e.; maximum patients were in between age group of 31-40 yrs.

Out of all 100 patients presented maximum patients presented with chief complain of altered bowel habits followed by pain in abdomen followed by bleeding PR and then other symptoms like perianal symptoms, chronic anemia, easy fatigability, chronic constipation or diarrhea.

Figure 3: Image showing colonoscopy done from colostomy (stoma site)

All patients had undergone USG, CECT Abdomen and Colonoscopy with biopsy taken in all for histopathology. Ashistopathology here we have considered as gold standard. All the reports of radiology and colonoscopy were then compared with histopathologically. When all the modalities were compared and correlated, it was found that diagnostic accuracy of Conventional colonoscopy was maximum of 90% followed by CT scan 80% then USG of 74%.

Also it was seen that colonoscopy was most sensitive investigation for diagnosing pathology in patients presenting with lower GI symptoms. Sensitivity of colonoscopy was 95.31% followed by that of CT Scan 76.56 and lowest was of USG 60.94%.

Overall diagnostic accuracy as highest of Conventional colonoscopy.

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